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CHILE

**RURAL DRINKING WATER SUPPLY PROGRAM
FOURTH STAGE**

(CH-0115)

LOAN PROPOSAL

1985

C H I L E

RURAL DRINKING WATER SUPPLY PROGRAM
FOURTH STAGE

(CH-0115)

LOAN PROPOSAL

C O N T E N T S

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1. Datos Generales

Población total estimada a mitad de año (miles) 1984	11.878
Porcentaje de población urbana	83,1
Extensión territorial (Km ²) miles	756.629,0
Densidad-habitantes por Km ² (1983)	15,7
Tasa de crecimiento demográfico (1970-84) (Porcentaje)	
Todo el país	1,6
Región metropolitana de Santiago	2,5
Tasa de natalidad por mil habitantes (1983)	22,3
Tasa de mortalidad general por mil habitantes (1983)	6,4
Tasa de mortalidad infantil por mil nacidos vivos (1983)	21,9
Años de expectativa de vida al nacer (1975-80)	67,0
Población con acceso a agua potable 1980 (Porcentaje)	84,0
Habitantes por médico (1980)	
Todo el país	1.120,0
Santiago	621,0
Alfabetismo porcentaje (1983)	95,6
Consumo de energía per cápita en Kwh. (1976)	880,0
Tasa de cambio (pesos por dólar, promedio 1983)	78,8
promedio 1984	98,7
<u>Fuerza de Trabajo</u> (miles de personas, marzo-mayo 1984)	
Todo el país	3.702,1
Gran Santiago	1.517,6
<u>Empleo</u> (todo el país, marzo-mayo, 1984) (miles de personas)	
Ocupados	3.115,9
Desocupados	586,2
Cesantes	457,7
Buscan trabajo por primera vez	128,5
<u>Composición de la Población Ocupada por Actividad Económica</u> (Todo el país) (Porcentaje de la fuerza de trabajo)	
Agricultura, caza, silvicultura y pesca	18,2
Canteras y minas	1,9
Industrias manufactureras	12,6
Construcción	2,6
Comercio	17,4
Servicio de gobierno y financieros	13,2
Servicios personales y de los hogares	13,2
Servicios comunales y sociales	11,9
Transporte, almacenaje y comunicaciones	6,6
Actividades no bien especificadas	2,4
Tasa de desocupación (promedio nacional marzo-mayo 1984) (Porcentaje)	15,8
Tasa de desocupación Gran Santiago (marzo-mayo 1984) (%)	18,6

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<u>as Nacionales</u>	<u>1976</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983*</u>			
millones de pesos corrientes)	128.676,1	487.506,4	772.200,9	1.075.269,0	1.288.902,0	1.228.700,0	1.557.709,0			
millones de pesos de 1977)	261.945,1	311.417,3	337.207,5	363.446,0	384.232,0	329.155,0	327.180,0			
	<u>Composición a/</u>				<u>Tasa Anual de Crecimiento b/</u>					
	<u>1974</u>	<u>1979</u>	<u>1980</u>	<u>1983*</u>	<u>1976-78</u>	<u>1979</u>	<u>1980*</u>	<u>1981</u>	<u>1982</u>	<u>1983*</u>
cto interno bruto	100,0	100,0	100,0	100,0	7,2	8,3	7,5	5,3	-14,3	-0,4
<u>asto</u>										
mo	82,0	81,8	84,5	87,5	6,8	8,0	4,0	12,2	-13,5	-3,0
vado	66,3	69,3	72,2	73,3	8,1	6,5	6,5	14,2	-14,4	-3,9
lico	15,7	12,5	12,3	14,2	1,6	-9,2	-5,9	0,3	-7,8	2,7
sión interna bruta	17,3	21,3	18,0	9,8	14,0	30,8	-0,2	5,7	-65,4	-4,1
versión fija	16,9	15,3	17,2	12,0	6,0	16,8	24,4	14,7	-37,1	-9,0
diación de existencias	0,4	6,0	0,8	-2,2	99,7	144,6	-80,9	-19,7	-179,6	18,7
taciones de bienes										
rvicios	20,4	23,3	21,1	24,0	15,8	14,1	12,7	-5,3	10,9	-8,7
taciones de bienes										
rvicios	19,7	26,4	23,6	21,3	17,9	22,7	18,7	14,7	-32,9	-18,7
<u>rigen</u>										
ltura y silvicultura	5,3	6,7	6,9	5,0	0,9	5,6	1,8	5,3	-2,3	-2,8
fa	12,0	9,8	8,7	10,1	10,1	5,5	5,4	5,9	5,6	-2,2
actura	29,5	21,2	21,5	20,6	7,9	7,9	6,2	2,6	-21,6	3,9
rucción	6,1	4,3	5,3	4,7	-6,1	23,9	25,7	21,1	-29,0	2,0
ricidad, gas y agua	1,1	2,0	2,1	3,3	6,1	6,8	5,9	2,1	-0,2	4,7
orte, almacenaje y										
nicaciones	5,7	5,2	4,8	4,5	8,0	9,0	11,1	1,1	-9,9	-2,9
cio	14,1	16,7	16,1	15,0	15,8	11,1	10,8	6,6	-17,8	-5,1
	26,2	34,1	34,6	36,8	11,1	7,9	6,6	3,4	-13,6	n.d.

Calculado con cifras corrientes de mercado.

Calculado con cifras a precios constantes de 1977.

Preliminar.

ce: ODEPLAN

Comercio Exterior

	Millones de Dólares						Tasas de Crecimiento Anual			
	1975	1980	1981	1982	1983*	1984*	1976-78	1980	1981	1982
<u>Exportaciones de Bienes</u>	1.552	4.705	3.960	3.706	3.827	3.636	17,1	22,7	-17,0	-5,1
Agricultura	86	340	365	375	325	428	33,4	28,8	7,4	2,7
Manufactura	391	1.751	1.280	1.207	1.193	1.260	26,1	25,2	-26,9	-5,7
Otro	1.075	2.615	2.261	2.124	2.332	1.948	12,1	20,4	-13,5	-6,1
<u>Importaciones de Bienes</u>										
(F)	1.708	5.124	7.368	4.023	3.178	3.739	22,4	30,5	43,8	-45,4
Sumo	325	1.226	1.907	949	1.021	1.045	23,8	56,1	55,5	-50,2
Medios	904	2.913	3.208	1.996	1.758	2.097	27,6	15,0	10,1	-12,0
Total	479	985	1.249	584	399	597	25,0	44,9	26,8	-53,2

Balanza de Pagos

	Millones de Dólares							
	1975	1978	1979	1980	1981	1982	1983*	1984*
<u>Saldo en Cuenta Corriente</u>	-578	-888	-1.189	-1.971	-4.814	-2.173	-1.073	-2.052
Exportaciones FOB	1.552	2.456	3.835	4.705	3.960	3.491	3.827	3.636
Importaciones FOB	1.708 a/	3.158	4.190	5.469	6.558	3.432	2.818	3.354
Balanza Comercial b/	-156	-702	-355	-764	-2.598	59	1.009	282
Servicios netos	-432	-243	-914	-1.320	-2.316	-2.334	-2.174	-2.433
Transferencias netas	10	57	80	113	100	102	92	99
<u>Cuenta de Capital</u>	50	1.582	2.247	3.165	4.830	975	488	2.030
Sector público (neto)	58	607	421	85	272	141	818	1.391
Sector privado (neto)	233	746	1.803	2.865	4.497	461	-286	678
Otros	107	230	23	215	61	373	-44	-39
<u>Errores y Omisiones</u>	21	-71	-11	50	115	-65	44	39
<u>Cambios en Reservas Internacionales Netas</u>								
(-aumentos)	275	-624	-1.047	-1.244	-139	1.263	541	-17
Reservas internacionales netas (saldo) c/	-388	851	1.898	4.073	3.775	2.577,5	2.036,5	2.053,5
Tipo de cambio (pesos por dólares)	4,90	31,67	37,25	39,0	39,0	50,91	78,8	98,5
Saldo en cuenta corriente/PIB (porcentaje)	13,8	5,8	5,8	6,3	14,6	9,1	5,4	10,6

Eliminar.

por CIF.

A partir de 1978 corresponde a la diferencia entre los valores FOB de las exportaciones e importaciones de bienes.

Corresponde a las reservas del Banco Central de Chile.

5. Finanzas Públicas

	Gobierno Central (Porcentaje PIB)							Sector Público (Porcentaje PIB) a/						
	1975	1979	1980	1981	1982	1983	1984*	1979	1980	1981	1982	1983	1984*	1985
Ingresos corrientes	24,7	24,5	25,9	26,7	27,3	22,3	22,7	51,0	51,2	47,2	47,9	48,4	48,4	48,4
(Ingresos tributarios)	(24,2)	(23,5)	(24,1)	(23,1)	(23,2)	(21,2)	(21,8)	(23,5)	(24,1)	(23,1)	(23,2)	(21,2)	(21,2)	(21,2)
Gastos corrientes	19,7	18,3	19,4	21,9	24,6	23,3	23,5	42,0	40,6	41,7	48,7	47,7	46,6	46,6
Cuenta corriente, déficit (-)														
surplus (+)	5,0	6,2	6,5	4,8	2,7	-1,0	-0,8	9,0	10,6	5,5	-0,8	0,7	1,8	1,8
Gastos de capital	4,8	1,8	1,5	1,6	2,4	1,5	1,8	6,7	7,3	7,9	10,3	7,1	8,5	8,5
Déficit (-) superávit (+) global b/	0,2	4,5	5,0	3,2	0,4	-2,5	-2,6	4,8	5,5	0,8	-3,4	-2,5	-4,0	-4,0

a/ Incluye Institutos Seguridad Social, Corfo, Corvi, municipalidades y otros.

b/ Ajustado con ingresos de capital.

* Preliminar.

Fuente: Ministerio de Hacienda, Dirección de Presupuesto.

6. Dinero y Crédito

Sistema Monetario a/	Millones de Pesos al 31 de Diciembre					Tasa de Crecimiento Anual (Porcentaje)				
	1980	1981	1982	1983	1984	1979	1981	1982	1983	1984
Dinero del Sector Privado (M ₁)	78.206	75.225	80.746	103.081	115.536	-	-4,0	7,3	27,7	12,1
Moneda en circulación	36.082	43.628	42.708	52.430	64.101	11,7	20,9	-2,2	22,8	22,3
Depósitos a la vista	42.124	31.597	38.038	50.651	51.435	6,9	-25,0	20,4	33,2	1,5
Depósitos a plazo	129.311	226.643	237.388	197.796	277.056	86,7	75,3	4,7	-16,7	40,1
Dinero sector privado más depósitos a plazo (M ₂)	207.517	301.868	318.134	300.877	392.592	-	45,5	5,4	-5,4	30,5
Sistema Financiero b/										
Colocaciones en moneda nacional	324.780	530.470	547.545	677.023	1.013.477	81,8	63,3	3,2	23,6	168,8
Colocaciones en moneda extranjera (millones de dólares)	5.614	7.948	6.354	4.761	3.762	104,6	41,6	-20,0	-25,1	-21,0

a/ Incluye Banco Central de Chile, Banco del Estado y Bancos Comerciales

b/ Incluye el sistema monetario y otras instituciones financieras.

Fuente: Banco Central de Chile, Boletín Mensual # 685, Marzo de 1985.

	Promedio Anual (Porcentaje)								Diciembre a Diciembre (Porcentaje)							
	1975	1978	1979	1980	1981	1982	1983	1984	1975	1978	1979	1980	1981	1982	1983	1984
idior	375,0	40,1	33,4	35,1	19,7	9,9	27,2	19,9	340,7	30,3	38,9	31,2	9,5	20,7		
ista	482,0	42,9	49,4	39,6	9,1	7,2	45,5	24,3	410,9	38,9	58,3	28,1	-3,9	39,6		
tor en el PIB	486,1	56,5	44,4	28,8	13,7	11,3	26,9	15,4	-	-	-	-	-	-		
a/	55,94	61,89	89,83	99,17	78,95	67,06	72,17	62,45	-	-	-	-	-	-		

de Metales de Londres. Centavos de dólar por libra.

Instituto Nacional de Estadística y Banco Central de Chile.

Pública Externa	Millones de Dólares al Final del Período						Composición 1982
	1975	1979	1980	1981	1982	1983	
Comprometido	4.389,3	5.538,2	5.160,4 a/	5.014,1	5.941,0	7.862,4	-
Usado	3.732,4	4.812,1	4.721,8	4.495,0	5.238,7	6.827,5	100,0
Reservas	769,1	564,0	495,3	400,0	469,2	276,4	4,0
Otros	503,7	2.767,8	2.692,7	2.705,5	3.609,1	5.030,9	73,7
Financiamientos internacionales	459,2	232,1	249,4	200,9	160,9	40,3	0,6
Financiamiento externo	377,3	495,9	522,0	692,8	835,6	643,1	9,4
Financiamiento externo privado a/	2.280,0	1.478,4	1.200,9	1.015,0	866,2	836,8	12,3
Financiamiento externo pública externa/PIB (%)	1.476,0	3.421,0	6.021,0	10.077,0	10.493,0	9.388,0	
Financiamiento externo privada/PIB (%) a/	52,3	23,3	18,6	20,9	26,0	40,7	
Financiamiento externos liquidados Art. 14 b/	20,4	16,5	22,0	30,5	43,8	47,5	
	-	1.221,4	2.476,8	4.505,9	1.755,5	n.d.	
Total de la Deuda Externa Total	1978	1979	1980	1981	1982	1983	1984
Total (amortización + intereses)							
Financiamiento de dólares	1.322,7	1.914,9	2.360,9	3.214,9	3.188,0	2.713,0	2.612,0
Financiamiento exportación de bienes							
Financiamiento servicios no factoriales (porcentaje)	44,6	41,2	40,4	58,4	63,6	59,0 c/	58,3 c/

El sector privado estimada por el Banco Central de Chile.

Financiamiento de Cambios Internacionales. Total bruto acumulado en el año.

Financiamiento de la Renegociación de la Deuda Externa.

Responsable.

Banco Mundial.

<u>Préstamos Aprobados por BID desde 1961 hasta 31 de Diciembre de 1984</u>	<u>Millones de Dólares</u>	<u>Composición Porcentaje</u>	<u>Desembolsado (Millones de dólares)</u>	<u>Porcentaje Sob Total Comprometido</u>
<u>Total Comprometido</u>	<u>1.798,0</u>	<u>100,0</u>	<u>1.045,9</u>	<u>58,2</u>
Capital ordinario	427,0	23,7		
Capital interregional	1.124,9	62,6		
Fondo para operaciones especiales (FOE)	203,3	11,3		
Fondo fiduciario de progreso social (FFPS)	34,3	1,9		
Otros fondos	8,5	0,5		
<u>Por Sector</u>				
Agricultura y pesca	214,6	11,9		
Industria y minería	434,7	24,2		
Transporte y comunicaciones	280,4	15,6		
Energía	471,1	26,2		
Salud pública	115,9	6,4		
Desarrollo urbano	218,0	12,1		
Educación	28,6	1,6		
Financiamiento de exportaciones	3,9	0,2		
Preinversión	3,4	0,2		
Turismo	27,4	1,6		

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PROGRAMA NACIONAL DE AGUA POTABLE RURAL
CUARTA ETAPA
(FINANCIADA PARCIALMENTE POR EL BID)

REG.	PROVINCIAS	MUESTRA REPRESENTATIVA		SELECCION BASICA	
		NUMERO DE LOCALIDADES	POBLACION (HABITANTES)	NUMERO DE LOCALIDADES	POBLACION (HABITANTES)
I.	ARICA				
	PARINACOTA				
	IQUIQUE			2	780
	Sub Total			2	780
II.	TOCOPILLA				
	EL LOA			3	1.970
	ANTOFAGASTA				
	Sub Total			3	1.970
III.	CHANARAL				
	COPIAPO				
	HUASCO			6	2.590
	Sub Total			6	2.590
IV.	ELQUI	2	654	3	950
	LIMARI	4	1.333	12	4.260
	CHOAPA	1	484	5	2.330
	Sub Total	7	2.481	20	7.540
V.	PETORCA	3	1.106	5	2.443
	LOS ANDES	1	1.345	2	1.917
	SAN FELIPE	5	2.642	7	3.110
	QUILLOTA	1	1.020	3	2.140
	VALPARAISO	1	894	5	1.920
	SAN ANTONIO			3	1.140
	ISLA DE PASCUA				
VI.	Sub Total	11	7.009	25	12.670
	CACHAPOAL	6	2.280	25	11.350
	COLCHAGUA	1	858	19	9.080
	CARDENAL CARO			2	1.090
VII.	Sub Total	7	3.138	46	21.520
	CURICO	2	1.742	23	10.190
	TALCA	2	402	12	4.960
	LINARES	2	805	14	5.600
VIII.	CAUQUENES			3	1.070
	Sub Total	6	2.949	52	21.820
IX.	ÑUBLE	2	2.350	13	5.841
	BIO BIO	4	1.814	7	4.490
	CONCEPCION	3	2.538	3	2.538
	ARAUCO	4	2.261	4	2.261
X.	Sub Total	13	8.963	27	15.130
	MALLECO	3	1.227	6	1.970
	CAUTIN	5	4.667	9	6.320
	Sub Total	8	5.894	15	8.290
XI.	VALDIVIA	1	631	4	1.940
	OSORNO				
	LLANQUIHUE	3	1.709	6	2.234
	CHIOLE	7	1.532	8	1.716
	PALENA	1	573	2	710
	Sub Total	12	4.445	20	6.600
XII.	AISEN	1	435	2	2.285
	COIHAIQUE			1	435
	GENERAL CARRERA				
	CAPITAN PRAT				
XIII.	Sub Total	1	435	3	2.720
	MAGALLANES			1	100
	ULTIMA ESPERANZA			1	190
	TIERRA DEL FUEGO			1	140
XIV.	Sub Total			3	430
	CHACABUCO	2	1.362	5	3.520
	CORDILLERA			1	1.076
	MAIPO	1	466	2	1.300
	TALAGANTE	2	1.084	2	1.084
	MELIPILLA	1	1.444	8	5.220
XV.	Area Metropolitana de Santiago				
	Sub Total	6	4.356	18	12.220
TOTAL		71*	39.670	240**	114.280



*Corresponden a 64 acueductos.

**Corresponderan a 190 acueductos.

C H I L E

RURAL DRINKING WATER SUPPLY PROGRAM
FOURTH STAGE

(CH-0115)

LOAN PROPOSAL

I. BASIC DATA ON THE OPERATION

- 1.01 Background: The proposed operation, designated as the "Rural Drinking Water Supply Program - Fourth Stage," is the continuation of the program currently being implemented with the Bank's financial cooperation provided through Loan 393/OC-CH, which was in turn preceded by the programs pertaining to the first and second stages, financed, respectively, with Loans 74/TF and 499/SF-CH.
- 1.02 At the time of the programming mission that visited Chile in late January and early February 1985, agreement was reached with the country's senior authorities on inclusion of a sanitation project in the Bank's programming for 1985. This referred to the fourth stage of the Rural Drinking Water Supply Program. On that occasion, priority was assigned to the fourth stage of the Rural Water Supply Program by the Ministries of Finance and Economy as well as the National Planning Office (ODEPLAN). This priority was confirmed in the pertinent loan application submitted to the Bank under date of March 4, 1985.
- 1.03 Objectives and Description: The principal objectives of the program are: (i) to supply drinking water for a rural population of approximately 114,300 in 240 localities throughout the country, by constructing approximately 190 supply systems; (ii) to obtain the active participation of the inhabitants of the 240 localities in all phases of the program through an adequate promotional campaign; (iii) to recondition, improve and/or expand the operating capacity of approximately 130 rural water supply systems at present in service, with the aim of extending their useful life; and (iv) to perform studies to permit SENDOS to keep a sufficient number of projects in the pipeline to enable it in due course to carry on with the National Rural Drinking Water Supply Program.
- 1.04 Total Cost of the Program: US\$30 million
- 1.05 Amount of the Loans: It is recommended that two loans be granted: one for US\$13.5 million from the inter-regional capital resources (IC) and the other for the equivalent of US\$3.5 million in the national currency of Chile from the ordinary capital resources.
- 1.06 Borrower: The Republic of Chile.

- 1.07 Executing Agency: As in the Second and Third stages, the Servicio Nacional de Obras Sanitarias (SENDOS), through its Department of National Programs (DEPRONA), would be the executing agency for the fourth stage of the proposed program.
- 1.08 Proposed Terms and Conditions: The terms and conditions of the loans would be as follows:
- Period for physical initiation of the works: 3 years
 - Disbursement period: 4 years
 - Grace period: 4 years
 - Amortization term: 25 years
 - First amortization: in 4-1/2 years
 - Interest: Variable annual rate for the portion in foreign exchange and 4% per annum for the portion in local currency.
 - Credit fee: 1.25% per annum on the undisbursed balances of the portion of the loan in foreign exchange.
 - Inspection and supervision: 1% on the total amount of each loan.

II. FRAME OF REFERENCE

A. Recent Economic Trends 1/

- 2.01 Following the recession of 1982-83, when the gross domestic product (GDP) declined by nearly 15% from the 1981 level, the Chilean economy resumed its growth in the third quarter of 1983, but its rate of expansion diminished in the second part of 1984. The increased competitiveness of Chile's exportable output, resulting from the real devaluation that took place beginning in June 1982 and a more active participation by the Government, spurred the recovery of production, leading in 1984 to a real GDP growth of 5.9%. Growth between 2% and 4% is predicted for 1985.
- 2.02 The evolution of the price of copper and of international interest rates, together with new borrowings from commercial banks and other sources, are the external factors that will influence the recovery of Chile's economy in the years immediately ahead. The present instability in the commodity and financial markets and the high level of external indebtedness already incurred will adversely influence the availability of resources to finance future economic growth. Consequently, increases in domestic savings and in the country's capacity to produce goods for export and to replace imports are the domestic problems that will require priority attention from the authorities.

1/ For further details on the performance of the economy, see Appendix II-1 of the Project Report.

- 2.03 The economic growth strategy for 1985-87 is based on an expansion of activities in the export and import-substitution sectors. The maintenance of a flexible exchange policy and a uniform reduction in the customs tariff were therefore projected. A moderate wage policy is another of the important conditions to improve the competitiveness of domestic production in foreign markets. The program also calls for elimination of the deficit in public sector operations and a significant reduction of the balance-of-payments current account gap by the end of 1987. To stimulate private-sector savings an attempt will be made to prevent significant increases in the tax burden and bank interest rates will be maintained at real positive levels.

B. The Sanitation Sector

1. Situation in the Sector

- 2.04 Chile's rate of mortality due to infectious and parasitic diseases continued to decline, from 5.9 in 1979 to 3.6 in 1983, and is among the lowest in Latin America. Within the classification of the 10 principal groups of causes of death in Chile, infectious and parasitic diseases continued in seventh place in 1983, accounting for 3.6% of the total. Diseases such as diarrheas and others commonly associated with a water shortage, accounted for 28.3% of the total within that group of diseases. Deaths caused by infectious and parasitic diseases affecting infants below age 1 accounted in turn for 17.7%.
- 2.05 The rate of mortality due to typhoid and paratyphoid fever declined from 1.0 per 100,000 inhabitants in 1978 to 0.5 in 1983. Morbidity from the same cause remained at approximately 120 per 100,000 inhabitants, except for a decline in 1981 to 95.5. The hepatitis mortality rate remained at 0.5 per 100,000 despite an increase in the corresponding morbidity rate, which climbed from 55.4 in 1978 to 91.1 in 1983 and which also registered a downward trend in 1980, when the rate was 38.8. The dysentery morbidity rate decreased from 1.8 per 100,000 inhabitants in 1978 to 1.0 in 1983, while the mortality rate increased from 0.2 in 1978 to 0.7 in 1983. It is worth noting that in 1983 morbidity due to infectious and parasitic diseases accounted for 6.09% of total morbidity in the country. Diarrheas and other diseases associated with the drinking water supply shortage in turn represented 65.5% of the morbidity for this group of diseases. Further, 39.23% of the cases of these diseases were children below age 4.
- 2.06 While it is clear that the above information warrants a general assessment that Chile has, on the one hand, achieved relatively low levels in comparison with those of other Latin American countries insofar as infectious and parasitic diseases are concerned and, on the other, has achieved favorable levels in terms of the coverage of drinking water supply service, extension of the drinking water supply network in rural communities undoubtedly continues to be important for the country, notwithstanding the difficulty of assessing the effects of drinking water supply on the health of the population. In this context, SENDOS

has performed a number of studies in an attempt to measure the impact of the drinking water supply program on the health of the concentrated rural sector by determining the number of medical consultations for acute diarrhea in the infant population below 5 and 6 years of age. The findings offer systematic evidence that the installation of a drinking water supply system in a rural locality leads to a significant reduction (to one half) in the number of consultations for enteric diseases in the infant population of the localities benefited. SENDOS continues to study possible ways of implementing continuous data registration systems to monitor such other health indicators as typhoid fever and infectious hepatitis rates. This would make it possible to strengthen the methodology for quantifying the social and public health impact of the rural drinking water supply program under its responsibility.

2. Coverage of the Drinking Water Supply and Sewerage Services

- 2.07 At the end of 1983, 92.7% of Chile's urban population was receiving its drinking water through house connections and 70.6% had sewer connections. Drinking water supply coverage in Chile's urban areas remains high compared with that in other South American countries, but the same does not hold true with respect to the coverage of sewerage service.
- 2.08 As of December 31, 1984, the concentrated rural sector ^{1/} had an estimated population of 571,990, residing in 1,120 localities. Of this total, 66% or 379,826 inhabitants in 686 localities were supplied with drinking water. With respect to sewerage and excreta disposal services, the situation was less favorable: only 15% of the concentrated rural population had the benefit of these services and 5% had other types of sanitary systems. This situation should be viewed within the context of the country's total rural population, which according to the latest census, taken in 1982, came to approximately 2,142,158 inhabitants, only 26.7% of whom were living in concentrated rural localities, with 73.3% (1,569,538) making up the dispersed rural population.

3. Objectives and Policies for the Drinking Water Supply and Sewerage Subsector

- 2.09 The basic objectives for the drinking water supply and sewerage subsector, set forth in 1978 in the 1979-1984 indicative National Development Plan, remain in effect but have had to be adjusted to respond to current conditions in the subsector. These basic objectives are: (a) to consolidate the institutional structure of the subsector; (b) to achieve complete financial self-sufficiency at regional level of all the services; (c) to maintain a structure of rates that makes it possible to finance the operating, maintenance and administrative costs of urban services and their normal growth and expansion; (d) to promote the introduction of modern administrative practices; (e) to seek and foster

^{1/} SENDOS defines a concentrated rural locality as one with 20 or more dwellings per kilometer of street.

the organization and active involvement of the community; and (f) to achieve and maintain adequate levels of quality and coverage in the drinking water supply and sewerage services, both urban and rural.

- 2.10 To attain the above objectives, a National Drinking Water Supply and Sewerage Program was prepared. This program includes, in addition to the portions specifically devoted to rural drinking water supply, a number of programs, addressed to urban as well as rural areas, which are aimed at bringing about a continuing equilibrium between the supply of and demand for drinking water and sewerage services. As a result of the Government's recent approval of the 1985-87 Triennial Program, the sanitary works investments to be carried out during that three year period under the various programs included in the National Drinking Water Supply and Sewerage Plan have been determined. ^{1/}
- 2.11 The goals proposed in these programs, in terms of overall coverages, are: (a) by 1986, coverages for the urban sector should be 97% for in-house drinking water supply and 70% for sewerage; and in the concentrated rural sector, drinking water supply coverage should reach 70%; and (b) by 1989 an effort will be made to raise the coverage in urban drinking water supply to 100%; the coverage for sewerage service in the Metropolitan Region of Santiago to 100%; the coverage for urban regional sewerage service to 90%; and the coverages with respect to the concentrated rural population to 90% for drinking water supply and 20% for sewerage.
- 2.12 To carry out the National Drinking Water Supply and Sewerage Program, the country relies on the Servicio Nacional de Obras Sanitarias (SENDOS), which is the leading agency for the sector and operates nationwide in urban as well as rural areas. The Metropolitan Region of Santiago and the Fifth Region of Valparaíso are served respectively by the Empresa Metropolitana de Obras Sanitarias (EMOS) and the Empresa de Obras Sanitarias de Valparaíso (ESVAL). Both of these are autonomous public entities over which SENDOS exercises regulatory and supervisory authority.

4. Rate Policy for the Sector

- 2.13 The present urban rate policy is aimed at providing water supply and sewerage services at the least possible cost based on the principles of economic efficiency and self-financing of all operating and maintenance costs of the systems. At the same time, the policy provides that the resources obtained through its application must be sufficient to cover partial financing of expansion programs. The Ministry of Economy regulates the rates for the urban sector on the basis of recommendations from the Ministry of Public Works.

^{1/} These programs, some of which are currently in progress, are: Urban Drinking Water Supply and Sewerage Program (Loan 115/IC-CH); National Rural Drinking Water Supply Program - Third Stage (Loan 393/OC-CH); Macrometering and Leakage Control Program; Maintenance and Replacement Program; Drinking Water Supply Coverage Plan; Sewerage Service Coverage Plan; and Program for Continuing Improvement of Drinking Water Supply and Sewerage Systems.

- 2.14 For the rural sector the rates for drinking water supply and sewerage service are established for each individual system, in accordance with SENDOS recommendations, by the Rural Water Supply Committee in charge of its operations and maintenance. It should therefore be emphasized in this connection that the administration of the rural services whose works would be financed under the proposed operation would, as in the earlier stages, be a responsibility of entities other than SENDOS. The rates to be applied in each system are established in accordance with a financial self-sufficiency criterion similar to that which has been indicated for the urban sector, except that there is no requirement that the rates generate resources to finance expansion programs. It should also be emphasized that since the setting of rates is a function of the costs incurred by each system, each service has different rates.
- 2.15 It should be underscored here that the rate policy applicable to the Chilean rural sector and its operating mechanism are compatible with the minimum requirement established by the Bank's operating policy in this field, since the community organization operating each system is required to establish rates that will enable the system to be financially self-sufficient, i.e., to generate sufficient resources for meeting its operating and maintenance costs. Within this context, it is important to note that the administration of the waterworks is carried out through a system of community self-effort based on an organization (Drinking Water Supply Committees) that operates efficiently from both the administrative and financial points of view and serves as a good example of a simple and functional institutional structure responsive to the characteristics of rural systems.

5. Rehabilitation and Improvement of Rural Water Supply Systems

- 2.16 Based on the Bank's policy guidelines on maintenance and upkeep of physical plant and equipment, the principal purpose of which is to ensure that these facilities continue operating over their estimated useful life and to obtain maximum performance of their design functions, SENDOS made an exhaustive examination of the 618 water supply systems that were under its supervision as of June 30, 1985. The survey showed that more than 250 of the 618 systems had been in operation about 20 years, this being equal to the average useful life of a rural water system.
- 2.17 With a view to preventing further damage as a result of wear and tear over time and restoring the systems to satisfactory operating condition with a quantitatively and qualitatively acceptable level of service, SENDOS, with the support of its 13 regional directorates, has identified 130 systems in which the following types of work are required: (i) repair (reinforcement of structures) and painting of tanks, necessitated by wear and tear over time and the effects of the weather. This activity is categorized as periodic maintenance, the cost of which does not need to be covered by a system's rate structure, as in the case of routine maintenance; and (ii) rehabilitation and/or expansion of various systems that have reached the end of their useful life, the necessary

work ranging from the construction of outflow chambers and valves to the conditioning and/or construction of intake facilities, sheds and tanks, electrical installations, pumping equipment, repair and extension of networks and installation of house service connections and meters. The costs required for these activities range from US\$700 to a maximum of US\$128,000. The total direct cost for rehabilitation of the 130 systems has been estimated at the equivalent of US\$2.8 million.

- 2.18 It should be noted that of the 130 systems identified, 108 were financed with Loan 74/TF (execution period: 1964-1970) and 22 with local resources. Based on this, and considering SENDOS' objectives in maintaining and extending the useful life of the physical plant of the rural water systems mentioned above, it was decided to include within the proposal for the Fourth stage the partial financing of this subprogram, which, as previously indicated, is consistent with the Bank's relevant policy. It is worth noting that, as a result of the analysis, economic and financial criteria have been established for determining the eligibility of systems for rehabilitation.

C. Implementation of Earlier Operations

1. Lending for the Sector

- 2.19 Since 1961 the Bank has provided eight loans for the country's sanitation sector: 31/OC, 12/TF, 74/TF, 63/OC, 72/SF, 251/SF, 499/SF, and 393/OC-CH. All but the last of these are fully disbursed. It is emphasized that the proceeds of loans 74/TF, 499/SF and 393/OC-CH are the principal source of external credit to Chile for the financing of rural drinking water supply programs ^{1/} and that these operations are consequently the antecedents of the new proposed program.
- 2.20 It is also important to mention that apart from the operations mentioned above the Bank has financed sanitation components through loans 115/IC-CH and 141/IC-CH approved during the last three years. ^{2/} In the case of loan 115/IC-CH, the equivalent of US\$49.5 million is intended to finance part of the cost of a subprogram for drinking water supply facilities in 47 middle-sized cities and sewerage facilities in 15, as well as rehabilitation of 40 other urban systems that were damaged by the earthquake of March 3, 1985. Of this amount, US\$22 million has been disbursed. SENDOS is responsible for execution of the subprogram, physical progress under which had advanced to 42% as of June 30, 1985.
- 2.21 With respect to loan 141/IC-CH, the sanitation component, for the equivalent of US\$20.7 million consists of a US\$2.2 million water supply subprogram and a US\$18.5 million sewerage subprogram. The contract

^{1/} First, Second and Third stages, respectively, of the National Rural Drinking Water Supply Plan.

^{2/} Loan 115/IC-CH (Urban Infrastructure Program) for US\$120.5 million, approved December 20, 1982. Loan 141/IC-CH (Multiple Investment Local Development Program) for US\$125 million, approved December 6, 1984.

for this loan was signed on March 8, 1985, and on August 14, 1985, the loan was declared eligible for disbursements. Accordingly, the component is at the initial phase of implementation.

- 2.22 The Bank's participation in the financing of the National Rural Drinking Water Supply Program through the three operations mentioned in paragraph 2.19 has virtually assured achievement of all three stages of the program, since approximately 79.3% of the targets with respect to coverage in terms of population served and the connections (301,008 inhabitants and 53,838 connections, respectively) has been financed with resources of the programs for which the Bank has provided financial support.

2. National Regional Development Fund and Social Funds

- 2.23 In implementing various stages of the National Drinking Water Supply Program financed in part by the Bank, SENDOS has constructed services in various regions of the country using other sources of financing, including the Social Funds (SF) and the National Regional Development Fund (FNDR). These funds are available to the Government to finance projects for which SENDOS acts as executing agency. It should be mentioned that prior to the establishment of SENDOS a number of national institutions, including the Irrigation Directorate, the Sanitary Works Directorate, and the National Health Service's Rural Sanitation Office, each acting independently, provided coverage to 104 localities. This service is benefiting a present population of 51,000 rural inhabitants.

3. Loan 393/OC-CH (in execution)

a) Background

- 2.24 This loan was approved on November 20, 1980, and its contract was signed on January 15, 1981. The amount of the loan is the equivalent of US\$19.9 million (US\$14.9 million in foreign exchange and the equivalent of US\$5 million in local currency), and as of July 31, 1985, US\$17.5 million or 88% had been disbursed. The program consists in the execution of the Third Stage of the National Rural Drinking Water Supply Program and its principal objectives are to supply drinking water to a rural population of approximately 101,000 in 220 localities throughout the country. The goal of this stage is to achieve a 64% coverage in the concentrated rural sector by the end of its implementation period.
- 2.25 The operation also includes investments for the determination of water sources (drillings) and for the studies that made it possible to present the operation discussed in this document, i.e., the Fourth stage. In addition, in order to put the finishing touches on the systems built under the earlier Bank-financed programs, (74/TF and 499/SF-CH), the necessary provisions were included for the procurement and installation of house service meters and production meters, as well as hypochlorinators.

b) Present status

- 2.26 During 1982 and 1983, as a result of constraints on the appropriation of counterpart funds for the Third stage, its progress lagged behind the implementation of the technical-physical plan and the remaining activities were therefore rescheduled. Consequently, the Bank extended the period for physical initiation of works by 12 months, to January 15, 1985, and the period for final disbursement also by 12 months, to January 15, 1986.
- 2.27 With 81% of the execution period elapsed, the program registered a total weighted advance of 92% on June 30, 1985, by which date 174 water systems had been completed and were in service and 38 were under construction. Based on the progress indicated above, the targets originally set in the loan contract will be exceeded by about 10%, i.e. 242 rural localities will be provided with water supply service instead of the 220 originally envisaged.
- 2.28 The satisfactory performance observed in the implementation of the Third stage (as in the earlier stages) can be credited largely to the excellent organization and capacity shown by SENDOS both at the central and regional level. In addition to the efficient operation of SENDOS' technical mechanisms both in the planning aspects and in the contracting and supervision of works, the agency's performance in the promotion, mobilization and organization of rural communities for the purpose of setting up the drinking water committees to administer systems is also worth noting.
- 2.29 It will be noted here that loan 393/OC-CH was the subject of amendments within the emergency measures approved by the Bank in May 1985 for the rehabilitation and reconstruction of physical infrastructure that was seriously damaged by the earthquake of March 3, 1985. The following changes were authorized: (i) the equivalent of US\$313,000 available in local currency was allocated for rehabilitation works; (ii) a new deadline, January 15, 1986, was established exclusively for the physical initiation of those works; (iii) the deadline for disbursements for completion of the rehabilitation works was extended six months, to July 15, 1986; (iv) the utilization of a system of price competition was authorized for the contracting of those works; and (v) the criteria for selection of beneficiary communities and the eligibility criteria for projects were made more flexible. It was only in June that SENDOS began the process of contracting for the rehabilitation works. Several contracts pertaining to rural localities in the Sixth Region were approved in July 1985.

D. Participation of other International Agencies in the Development of the Sanitation Sector in Chile

- 2.30 On August 15, 1980, the Republic of Chile and the World Bank entered into Loan Agreement 1832-CH under which funds amounting to US\$38 million were made available for the execution of a drinking water supply program

consisting of two major projects: (i) the EMOS project, in the equivalent of US\$27 million; and (ii) the SENDOS project, in the equivalent of US\$11 million.

- 2.31 The former project, currently being implemented by the Empresa Metropolitana de Obras Sanitarias, calls for extension and expansion of the drinking water supply service for the Metropolitan Region of Santiago at a total estimated cost of about US\$104.6 million. The project also includes the financing of studies and final designs for a master sewerage plan to cover the needs of the region up to the year 2000. The execution period having been extended by one year, through June 30, 1986, this project is now in its final stage, for which the World Bank's program envisages an additional loan for the equivalent of approximately US\$75 million. Of this amount, US\$68 million would be earmarked for the execution of works related to the aforementioned master sewerage plan and US\$7 million for the financing of sewerage works in the Fifth Region of Valparaíso, which would be executed by the Empresa Sanitaria de Valparaíso (ESVAL).
- 2.32 The SENDOS project consists of various programs aimed at bringing about improvements in water quality, in water output and consumption, meter reading and in the detection of leakage at the national level and in the urban context. According to information available, as of June 30, 1985, the programs making up the SENDOS project were all nearing completion. The deadline for the final disbursement of the financing was extended one year, to June 30, 1986, to allow time for completion of a few pending activities.
- 2.33 The participation of the Pan American Health Organization (PAHO) in the provision of technical assistance for Chile's sanitation sector has been directed in the past five years to curative health programs, rather than preventive programs as in the 1960-1970 decade. Indeed, in 1984 the assistance extended by PAHO consisted in providing advisors, consultants, fellowships, seminars and grants for research and studies in a number of areas related to health in general.

III. THE PROGRAM

A. Objectives

3.01 The principal purposes of the program are:

- (i) To supply drinking water for a rural population of approximately 114,300 inhabitants, of 240 localities throughout the country. Each locality would have a population of approximately 100 to 3,000 inhabitants, and it is anticipated that by the end of the design period (year 2000) the population of those communities would be approximately 153,000 inhabitants. The goal of the program is to increase coverage in the concentrated rural sector from the present 66% to a level of 85% by the end of 1989;

- (ii) By means of an adequate promotional effort, to obtain from the inhabitants of the 240 localities their active participation in all phases of the program through community organizations created for this purpose and in order that members of the community will later be able to correctly operate and adequately maintain the drinking water supply systems, in respect to administrative as well as technical and financial matters;
 - (iii) To recondition, improve and/or expand the operating capacity of approximately 130 rural water systems in service, with the aim of extending their useful life from 8 to 10 years and achieving a maximum performance of the tasks for which they were designed; and
 - (iv) To perform studies to permit SENDOS to keep a sufficient number of projects in the pipeline to enable it in due course to carry on with the National Rural Drinking Water Supply Program.
- 3.02 The general aims pursued by the program are: (i) to reduce the rates of morbidity and mortality due to water-borne diseases; (ii) to bring about an improvement in the habits and attitudes of the rural population with respect to the use of drinking water; (iii) to promote economic and social development in the communities served, by means of an improvement in public health conditions and reduction of worker absenteeism due to communicable water-borne diseases; and (iv) to develop in the inhabitants an awareness of their ability to solve common problems, in order that they will undertake new tasks in the interest of progress.

B. Description

1. Principal Elements

- 3.03 The program consists in the implementation of the fourth stage of the National Rural Drinking Water Supply Program and includes the planning, study and development of engineering designs; community promotion and organization; construction of other facilities as needed for the installation of 190 drinking water supply services with house service connections and their respective meters in 240 rural localities. ^{1/}
- 3.04 The operation also includes investments to provide for the making of approximately 82 hydrogeologic reports, 51 studies of water sources, drilling of 130 boreholes, and 42 service-installation projects that will provide for keeping about 90 projects on hand to carry on in due course with the National Rural Drinking Water Supply Program at a future fifth stage. In addition, for the purpose of putting the finishing touches on the system that was built under earlier bank-financed programs, this operation provides for the procurement and installation of 14,500 home service meters and 300 production meters for systems built through loans 74/TF-CH and 499/SF-CH.

^{1/} In some cases a single system can be built to supply water to two or more adjacent rural communities.

- 3.05 Apart from the above, the program contemplates the procurement of approximately six self-propelled cranes for about six regions to provide for greater efficiency in operation and maintenance of more than 400 pumps and associated equipment. Provision is also made for the procurement of some 40 vehicles for the inspection of rural systems.
- 3.06 Also included is a subprogram calling for the rehabilitation and improvement of 130 water supply systems. This envisages various types of work designed to lengthen the useful life of the systems, the large majority of which were constructed between 1965 and 1970. Of the 130 systems, 108 were financed partially with loan 74/TF and 22 were financed with local resources.

2. Technical Elements

- 3.07 The work to be carried out with the program resources in the fourth stage would consist in the construction of integrated systems for catchment, conveyance, treatment (when surface waters are used), storage, disinfection and distribution of water and installation of associated home service connections and water meters. The alternative supply sources will be either subterranean water or surface water, which in either case must satisfy requirements of quality consistent with the national standards and of quantity consistent with the estimated demand, which is an average supply of 60-100 liters per inhabitant per day. ^{1/} When surface water is used it will be treated with pressure filters and infiltration galleries.
- 3.08 Concerning the Rehabilitation and Improvement Subprogram, the work to be done at existing water supply systems will include reconditioning and/or construction of water intake facilities, repair and/or construction of sheds, tanks, electric installations, control panels, pumping and chemical dosing equipment, repair of gates at yards or structures of catchments, tanks or sheds, repair and extension of networks, installation of new production and home service meters, and installation of home service drops (connections), chambers and outflow valves.

C. Total Cost of the Program

- 3.09 The total program cost is estimated at the equivalent of US\$30,000,000, as itemized below by investment category and possible sources of financing.

^{1/} The projects of the program in progress (393/OC-CH) and those of the representative sample for the fourth stage were designed for the same supply volume.

Cost Estimate and Financing Plan
(in US\$ thousands equivalent)

Category	Financing				Total	%
	Foreign Exchange (IC)	Local Currency (OC)	Sub- Total BID	Local Contri- bution		
1. <u>Engineering and Administration</u>	-	-	-	3,325	3,325	11.08
1.1 Studies and Designs						
a) Fourth Stage	-	-	-	697	697	2.32
b) Services in Operation	-	-	-	283	283	0.94
1.2 Supervision	-	-	-	895	895	2.98
1.3 Administration	-	-	-	1,450	1,450	4.83
2. <u>Direct Costs</u>	9,827	2,447	12,274	7,536	19,810	66.03
2.1 Procurement and Construction	8,417	1,747	10,164	6,776	16,940	56.46
2.2 Reconditioning and Improvement	1,410	700	2,110	760	2,870	9.57
3. <u>Concurrent Costs</u>	718	680	1,398	1,647	3,045	10.15
3.1 Community Promotion		-	-	413	413	1.38
3.2 Drillings and Studies, Fifth Stage	-	680	680	781	1,461	4.87
3.3 Expropriations/Easements	-	-	-	310	310	1.03
3.4 Vehicles	718	-	718	143	861	2.87
4. <u>Finance Charges</u>	2,955	373	3,328	492	3,820	12.74
4.1 Interest	2,820	338	3,158	-	3,158	10.53
4.2 Credit Fee	-	-	-	492	492	1.64
4.3 Inspection and Supervision Charge	135	35	170	-	170	0.57
 TOTAL	 13,500	 3,500	 17,000	 13,000	 30,000	 100.00
 Percentages	 45.0%	 11.7%	 56.7%	 43.3%	 100%	

- 3.10 To determine the total cost of the program it was necessary to adjust the original budget presented by SENDOS on the basis of the greater amount of information that became available for determining the updated costs of each of the 64 studies making up the representative sample and on the basis of experience gained through the implementation of the Second Stage Program (Loan 499/SF-CH), already completed, and the Third Stage Program (393/OC-CH), now nearing completion. The engineering cost was calculated to reflect the fees to be paid to local firms for projects in addition to those in the representative sample. The administration and supervision costs reflect the current salary scale for public employees, including charges for social benefits and per diem.
- 3.11 Direct construction cost was estimated on the basis of the budget of the 64 projects accepted from the sample, developed to the final-design level, with international prices utilized for imported materials and equipment. The estimates for local materials and labor were compared with similar budgets prepared by SENDOS. The calculation was based on June 1985 prices for the projects in the representative sample and on the rate of investments envisaged in the program execution timetable. The escalation rates applied were those used by the Bank for this purpose and others considered appropriate for this case.
- 3.12 To estimate the costs of the projects composing the Rehabilitation and Improvement Subprogram, the unit costs of contracts currently being implemented for construction under the third stage were used as a basis both for the installation of new services and for the rehabilitation component involving the 29 water supply systems that were seriously damaged by the earthquake of March 3, 1985. Accordingly, and given the fact that physical work volumes were determined for each of the 130 water systems requiring rehabilitation, improvement, expansion and periodic maintenance, the cost estimated for the program in its entirety is believed to be an adequately reliable estimate of the cost of restoring the operating capacity of these water systems and prolonging their useful life.

D. Financing Plan

1. IDB Financing

- 3.13 The Bank's participation in financing the proposed program would come to the equivalent of US\$17 million, representing 56.7% of total program cost. Of this amount, US\$13,500,000 would be in foreign exchange and would account for 45% of the total cost, while the equivalent of US\$3,500,000 would be in local currency (Chilean pesos) accounting for 11.7% of the total cost.
- 3.14 The amount in foreign exchange was determined in accordance with the current policy laid down in document FP-33-1 for the "Urban Development and Social Infrastructure Sector" in a group B country; that is to say, it was determined by taking 45% of the total cost of the program.

IV. EXECUTION OF THE PROGRAM

A. Executing Agency

- 4.01 The fourth stage of the Rural Drinking Water Supply Program would be carried out by the Servicio Nacional de Obras Sanitarias (SENDOS), through its Department of National Programs (DEPRONA), ^{1/} which is responsible for the third stage, currently being executed with financing under Loan 393/OC-CH, and which would also be responsible for implementing the rural water works rehabilitation and improvement component.

B. Implementation Method

- 4.02 The implementation procedures for the fourth stage of the proposed program would be similar to those applied in the two previous stages. Within this context, hydrogeological studies, well-drillings (boreholes) and definitive studies and designs for service installations and construction of facilities would be executed by pools of private engineering firms from several localities, generally in a single region or adjacent ones, and would be completed within the first two years after signature of the loan contract.
- 4.03 With respect to construction works, the winning contractor in each case would supply all of the goods and services required for the job, with the sole exception of goods to be acquired directly by SENDOS through international public bidding, including: grills for wells, hypochlorinators and production meters. Accordingly, house service meters, pipe and accessories and other goods would be procured and installed by the contractors.
- 4.04 In the case of water supply projects in the Rehabilitation and Improvement Subprogram that require studies and designs in greater detail, SENDOS would contract the work with specialized consulting firms, while systems requiring simple designs would be handled directly by SENDOS through technical staff in its Regional Directorates. All studies in this subprogram would be completed within 24 months of the effective date of the loan. All construction would be subject to international bidding.

C. Supervision of the Program

- 4.05 The Department of National Programs includes a Rural Programs Subdepartment, which, with support services provided by the Promotion and Technical Assistance Subdepartments and the Accounting Section, is responsible for the direction, financial management and accounting control

^{1/} The Department of National Programs was established in late 1983 for the purpose of centralizing the responsibility for management and coordination of water supply programs throughout the country within a single line unit. The Department is an outgrowth of the former Department of Rural Water Supply (DAPRU), which was responsible for the second stage and part of the third.

and supervision of the National Rural Drinking Water Supply Program. The Department of National Programs also receives support services from other SENDOS departments.

- 4.06 In view of the heavy volume of supervision and control activities currently entailed in the implementation of earlier stages and the work required for the proposed fourth stage and for the rehabilitation subprogram, a need has been found to acquire 40 vehicles through international public bidding. The purpose of this procurement, in addition to that previously stated, is to renew the fleet of 57 vehicles currently available to SENDOS for the entire rural sector, which were acquired in 1983 with funds from Loan 393/OC-CH. Since the average useful life of a vehicle is four years, by June 30, 1985 the 57 vehicles were already beyond the midpoint of their useful life. This will make it necessary to purchase 40 pick-ups within the first two years of the proposed fourth stage. It should be emphasized that this procurement represents the minimum vehicular equipment SENDOS requires during the next four years. It should also be kept in mind that SENDOS, through its Rural Programs Subdepartment, is currently responsible for the supervision of 618 systems in service, a number that would rise to 808 by the end of 1989 or early 1990 with the implementation of this fourth stage.

D. Program Studies and Designs

1. Representative Sample for the Fourth Stage

- 4.07 As of June 30, 1985, SENDOS had 64 completed projects on hand which had been found to be technically and economically feasible in accordance with the established economic criteria. These constituted the representative sample for the program. All 64 of these projects, which correspond to 71 rural localities, are supported by definitive designs to the construction level, updated budgets, and lists of materials and specifications, in addition to which the source of water has been confirmed and the type of system proposed in each case, so that the bidding process for construction of facilities and procurement of equipment and materials could begin immediately.
- 4.08 The projects in the sample account for 34% of all the projects included in the program and a 33% coverage of the total population to be served. In addition, they account for 27% of the direct cost of the 190 anticipated systems, which percentage would rise to 50% by year-end 1985 since 36 additional projects have been contracted and are being executed. These projects would ensure the first year and a half of the execution of the program. ^{1/} Furthermore, it should be borne in mind that the proposed program constitutes the fourth stage, which demonstrates the level of maturity SENDOS has achieved in developing sufficient projects to make up that stage. In terms of type and size of projects, the

^{1/} For further information on the execution schedule of these projects vis a vis the program as a whole, see Appendix IV-9 of the Project Report.

sample is appropriately structured and is considered to be representative of the characteristics to be expected in the other 126 projects that make up the program. In order to be certain that the projects to be financed are properly represented by the sample which has been analyzed, these should be selected on the basis of the criteria of size, population density, accessibility and economic rate of return set forth in paragraph 6.07 of this document.

- 4.09 Moreover, since the inclusion of each system in the program will be subject to the Bank's approval, it is recommended that the loan contract contain a requirement that, prior to the call for public bids on each system, the borrower present proof to the Bank that the community in question was chosen by applying the selection methodology agreed upon with the Bank and submit the general plans, specifications, budgets, and specific bidding requirements to the Bank (see Recommendations).

2. Rehabilitation and Improvement Subprogram

- 4.10 With a view to the rehabilitation and improvement of a substantial number of rural water supply systems that were built during the period 1965-1970, for the most part with funds from financing 74/TF, SENDOS, with the assistance of its 13 Regional Directorates, has identified 130 among the 618 systems it was operating as of June 30, 1985, 130 that require various types of reconditioning, improvement and expansion. For this subprogram, SENDOS proposes to perform, either by contracts or using its own staff, water source investigations studies and final designs for the improvement of service installations. All the studies and designs required for implementation of the subprogram would be completed within 24 months of the effective date of the contract for the proposed loan.
- 4.11 Given that the inclusion of each rehabilitation work in the program would be subject to the Bank's approval, it is recommended that the loan contract contain provisions to ensure that prior to the start of the construction in question, the borrower be required to present evidence through SENDOS that the Bank's requirement with respect to rates for rural potable water services has been met and that this has been true in at least two of the three previous years. The system or facility to be rehabilitated must also satisfy the least-cost economic criterion (see Appendix 4 to the Loan Proposal - The Program).

E. Design Parameters

- 4.12 Based on experience and practice in Chile and other countries, the design period for components of a drinking water supply system were estimated as follows: (i) motor-driven pumps, regulating tank, and other electrical installations: 10 years; and (ii) lines and supply sources: 20 years. The designs adopted will be implemented in stages allowing each system to be constructed fully integrated to meet the demand for 20 years.

F. Water Sources

- 4.13 Based on an analysis of the sample from the standpoint of water sources, it is estimated that only 45% of the systems to be built would utilize surface water, 2% would be supplied by existing water supply systems, and 53% by subterranean water, which will be pumped to the surface in most cases.
- 4.14 As in the third-stage program, it is recommended for the operation discussed herein that the contract for the proposed loan include a clause requiring that, prior to the call for bids on construction of each system, the borrower, through the executing agency, submit studies to the Bank demonstrating that the water available is acceptable from the standpoints of volume and potability (see Recommendations).

G. Program Execution Process

- 4.15 The program would be executed over a four-year period beginning on the date of the contract. Once the conditions precedent have been satisfied and the loan declared eligible for disbursement, the critical activities will be those related to bidding, contracting and construction of the final group of works (a total of 18 works), to be bid upon in the sixth half-year after signature of the contract. The construction bidding cycle has been estimated at 20 weeks, which is considered reasonable and satisfies the Bank's relevant requirements.
- 4.16 SENDOS has requested that the period for physical initiation of all works be set at three years, based on the experience with the second and third stage programs. Actually, the activities prior to construction of the water systems ^{1/} require as much as 20 months, whereas the construction period itself is short, involving as it does small and simple engineering jobs with an average cost equivalent to US\$74,740. ^{2/} Within this context it may be pertinent to note the experience with the third stage, in which several of the 25 winning construction firms performed construction under contracts involving as many as eight systems within a total construction period that was less than twelve months in every case. Consequently, lengthening the term for physical initiation of all the works by one year over the customary amount of time will not be an obstacle to constructing all of the systems within the four-year execution period (see Proposed Resolution).

3. Community Promotion

- 4.17 Once a system has been selected in accordance with the established selection criteria, SENDOS, through the Department of National Programs,

^{1/} Hydrogeological studies, water-source studies, drilling of boreholes, designs (preliminary and final drawings), processing of approvals and international bidding, study of proposals, awards, audits, resolution of the General Accounting Office of the Republic, and signing of contracts.

^{2/} Including contingencies and escalation.

would carry out a community promotion effort including the following activities among others: (i) motivation with respect to the importance of water and acceptance of a piped water supply in the home; (ii) organizing the community for cooperation in the construction stage; (iii) negotiation of water and land rights and easements; (iv) organization of water supply committees; (v) training of operation and maintenance personnel; (vi) health education of the population served, prevention of waste, protection of sources; (vii) advantages of house services connections and meters and of the use of hypochlorinators to disinfect the water; and (viii) acceptance of the rate system. Given the fact that SENDOS is suitably organized to carry out community promotion efforts in programs of this kind, as has been shown in the implementation of the third stage, and considering that additional staff would be made available to SENDOS in the near future, no special recommendation is required in this respect. SENDOS' action in this field would be carried out within the guidelines set forth in its scheme of ongoing activities.

- 4.18 Prior to physical initiation of each system, and as a result of the community promotion that would be done, water supply committees would be set up to assume responsibility for the administration, operation and maintenance of the services upon their completion. In view of the important impact of the aspects previously mentioned on the program, it is recommended that the contract include a provision to the effect that prior to the call for bids on construction of each system in the program, evidence be submitted to the Bank that the Water Supply Committee for the pertinent locality has been set up and the appropriate agreement has been entered into by SENDOS and that Committee (see Recommendations).

H. Procurement and Contracting of Goods and Services

1. Execution of Construction by Contract and Procurement of Equipment

- 4.19 Construction jobs, including those under the rehabilitation subprogram, would be carried out through procedures similar to those used in the second and third stages, that is, awarding of contracts on the basis of public bidding. The program calls for two types of bidding, one for the construction jobs previously mentioned, and the other for the procurement of equipment and materials. In both types, equipment procurement as well as award of construction contracts, the public bidding system will be followed in each case in which the value of such procurements or contracts exceeds the equivalent of US\$200,000 and all or part of the financing is to be done with funds from the loan. Bidding on the procurement of goods to be financed entirely with local currency from the loan or with funds from the local contribution may be restricted to national scope. It should be mentioned that SENDOS is not planning to carry out any construction by force account.

2. Contracting of Services

- 4.20 Preparation of the 118 remaining designs to complete the fourth stage of the program would be done under contracts awarded through private price competition. This procedure would be based on an invitation for proposals from at least three firms, and local funds would be used for the financing. The cost of the 118 designs has been calculated at the equivalent of US\$697,000. The cost of the final designs for the Rehabilitation Subprogram is estimated at the equivalent of US\$283,000.

3. Contractor and Supplier Capacity

- 4.21 Since Chile has a sufficient number of contracting firms that qualify for the type of work to be done, no problems are expected to arise in this regard during the fourth stage. The 190 works throughout the country have been grouped into no more than eight international public bidding packages in order to make the competition more attractive to private engineering firms from other countries while also achieving cost economies. The work on rehabilitation of the 130 systems has been grouped into no more than 12 packages.

I. Lands and Easements

- 4.22 The sites required for the installation of the wells and tanks of each system are small and their value is generally low. It has therefore been estimated in the case of this program that the necessary sites would be obtained as a contribution from their owners to the community or as a contribution from the community after acquiring them from their present owners. This has been the experience with the systems constructed under the second and third stages. In those cases in which the site is not voluntarily contributed or sold, appropriate legal arrangements exist ^{1/} that allow SENDOS to expropriate and take immediate possession of the necessary land for the execution of works. As part of the prior promotional activity, SENDOS will be required in every case, before beginning construction, to obtain a document from the proprietor or proprietors, signed before a notary, undertaking to give SENDOS physical use and control of the land, and, when applicable, to establish easements thereon. In this context it is recommended that the gratuitous bailment arrangement be accepted for the purpose of complying with the standard contractual clause to be included in the loan contract, under which SENDOS, prior to calling for bids for the construction of each system would be required to present to the Bank with satisfactory documentary evidence that it has legal possession of and the necessary rights to the land on which the works would be constructed (see Recommendations).

^{1/} Article 16 of the Decree-Law 2050 of November 23, 1977, which established SENDOS.

J. Schedule for Investment and Use of Resources

- 4.23 The Bank's resources would be disbursed over a four-year period beginning on the date of signature of the loan contract. The investment schedule for the program will be as summarized below:

(in US\$ thousands equivalent)

<u>IDB Loans</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Total</u>	<u>%</u>
- Foreign exchange (IC)	2,658	3,302	4,187	3,353	13,500	45
- Local currency (OC)	800	900	890	910	3,500	11
- Local contribution	<u>3,471</u>	<u>3,610</u>	<u>3,025</u>	<u>2,894</u>	<u>13,000</u>	<u>44</u>
Total	<u>6,929</u>	<u>7,812</u>	<u>8,102</u>	<u>7,157</u>	<u>30,000</u>	100
Percentage	23.1	26.0	27.0	23.9		

K. House Service Connections

- 4.24 The water systems for each locality would have the necessary capacity to supply 100% of the existing and design houses through house service connections. By the end of construction period, connections would be in place for 80% of the population centers (some 13,000 connections), which is similar in this respect to the third stage program.

L. Installation of Meters

- 4.25 Using resources from the proposed loan, SENDOS plans to acquire 14,500 house service meters to complete the installation of meters on existing connections to the rural water systems constructed under the programs financed by loans 74/TF, 499/SF and 393/OC-CH. For use in the proposed fourth stage, the contractors would acquire some 13,000 house service meters which, as previously indicated, are required. In addition, SENDOS would acquire 300 production meters for installation in first, second, third and fourth stage localities.

M. Installation of Hypochlorinators

- 4.26 In view of the experience with program 393/OC-CH, hypochlorinators for the disinfection of water would be installed as work went forward on the construction of each system's facilities. With this in view, prior to the start of any construction SENDOS would acquire all 450 of the hypochlorinators for the program. International bidding on this item would be carried out at the same time as the bidding on motor-driven pumps, grills and meters, i.e. during the first two years of program execution.

N. Program Technology

- 4.27 In executing the program works the winning construction firms would make extensive use of unskilled labor and would utilize little construction equipment, essentially for well-drilling and the construction of tanks. The technology to be used in the various water supply systems is considered appropriate.

O. Ecological and Environmental Aspects

- 4.28 The pipe used in the fourth stage water lines, including both mains and distribution lines, would be primarily PVC pipe. In localities where water lines were constructed several years ago with asbestos-cement pipe, the chemical properties of the water will be strictly monitored in order that corrective action may be taken to keep the cement and the pipe from being destroyed and the asbestos fibers thus released from being carried in the water with possible, even if minimal, risks to users. This control would be exercised through the monitoring of the annual maintenance plan to which reference will be made later on.

P. Operation and Maintenance

- 4.29 The systems to be constructed will be operated and maintained by the Water Supply Committees, which will receive technical and administrative advice from SENDOS through its regional directorates and/or enterprises, as is currently being done in a satisfactory way for the systems financed with funds from loans 74/TF, 499/SF and 393/OC-CH.
- 4.30 SENDOS has put into effect the regulations on administration, operation and maintenance of rural potable water services approved by D.O.S. Resolution 679 of February 1977. These regulations have been reviewed and are considered satisfactory. With a view to their application it is recommended that a clause be included requiring that the systems in the program be administered, operated and maintained in accordance with generally accepted technical standards (see Recommendations).
- 4.31 In order to ensure that a plan for maintenance of the services is instituted and enable the Bank to acquaint itself with the plan and verify that it is being implemented, it is recommended that a clause be included in the contract requiring SENDOS to present to the Bank, within the first quarter of each year, during the 10 years following acceptance of all the works: (i) an annual plan for maintenance of the system; and, (ii) a report on maintenance operations in the previous year setting forth in detail the degree of operating efficiency and state of maintenance of the systems, including the chemical quality of the water so as to determine the degree of ionic equilibrium of the water delivered to the consumer by applying the appropriate index to those systems using asbestos-cement pipe (see Recommendations).

Q. Ex post Evaluation

- 4.32 SENDOS has a system in place, already approved by the Bank, for collecting and processing data for the ex post evaluation of the third stage of its rural water supply program, as well as a computerized program for calculating the benefit-cost analysis pertaining to the systems. In view of this, it is recommended that the loan contract only require that in the third year after the date of the last disbursement an ex post evaluation report on the results of the project, based on a methodology and guidelines agreed upon with the Bank, be submitted to the Bank (see Recommendations).

V. THE BORROWER AND THE EXECUTING AGENCY

- 5.01 The borrower of the proposed loan for partial financing of the Fourth Stage of the Rural Drinking Water Supply Program would be the Republic of Chile. The executing agency would be the Servicio Nacional de Agua Potable (SENDOS) which, as in the earlier operations 1/ would be responsible for implementation and, subsequently, for maintaining supervision over the administration and operation of the rural water supply services, for which purpose, prior to the start of the respective works, agreements would be entered into by SENDOS with the Water Supply Committees of the localities benefited.
- 5.02 Decree-Law 2050 of November 23, 1977, on reorganization of the water supply and sewerage sector, 2/ established SENDOS as an autonomous government institution of public law, endowed with juridical personality and assets separate from those of the Treasury. The law further specifies that SENDOS has an indefinite duration, is territorially decentralized, and is related to the government through the Ministry of Public Works. SENDOS is the legal successor to all the entities related to the water supply and sewerage sector in existence at the time of its creation. It is pertinent to note that SENDOS has yet to acquire the character of an autonomous enterprise specified by the law that established it and is presently operating as a decentralized entity within the organizational structure of the Ministry of Public Works.
- 5.03 The Management of SENDOS' human resources is a responsibility exercised by the Administrative Department through its Personnel Subdepartment, which coordinates its activities with similar activities at the regional level. The staff, which was numerous in past years, was gradually adjusted to the needs of the system and by 1984 was only a fourth of that existing in 1973. By virtue of an agreement between the Ministries of Public Works and Finance it was decided to add 398 new employees to the staff of SENDOS during 1985. Examination of the study prepared and of the needs of the service has shown this to be reasonable.
- 5.04 All functions related to the administration of SENDOS' budgetary, accounting and financial systems are assigned to the Department of Finance, which centralizes and consolidates the information generated at regional level by the various directorates and uses it to prepare a general balance sheet and statements of results. The private external auditors have refused to provide their opinion on the statements after finding that there were deficiencies in the evaluation of goods and in

1/ The Rural Sanitation Office of the Ministry of Health was the executing agency for the First Stage of the Rural Drinking Water Supply Program.

2/ In Chile the water sector has been categorized as an area of national activity. This sector is in turn composed of subsectors (irrigation, energy, etc.), one of which is the sanitary works subsector.

the monetary adjustment process. In addition, no physical inventories had been taken and there were cases of omission of liabilities, all of this with a consequent distortion in the final representation of assets, liabilities, net worth and results. To eliminate these deficiencies three work areas have been established and a number of alternatives are at present under consideration. In view of this situation it is recommended that the contract for the proposed loan include a clause whereby SENDOS is required to present, within 12 months of the effective date of the contract, a plan and implementation schedule for normalizing its accrual-basis accounting systems, such plan to include, at least, measures aimed at: (i) valuing the fixed assets of the regional directorates and the central level properly and on the basis of a physical inventory; (ii) reconciling the lists of accounts receivable from users of the various systems with the control accounts of the general system; (iii) instituting a reasonable cost-accounting system; and (iv) upgrading the support subsystems in the areas of billing and collections, supplies, treasury, and remuneration. It must be shown within 36 months that these measures have been adequately implemented (see Recommendations).

- 5.05 SENDOS' control system at central level provides within its organizational structure for an internal audit unit, although the necessary staff for putting the unit into actual operation has not been provided up to now. For the operation considered herein it is recommended that within a year of the effective date of the proposed contract, the borrower, through the executing agents, be required to submit to the bank a detailed proposal and timetable for the organization and initial operation of the SENDOS Internal Audit Unit and for providing it with experienced professionals. It is further recommended that within 36 months from the effective date of the loan contract SENDOS be required to demonstrate that the plan agreed upon has been implemented and the internal audit unit is operating appropriately (see Recommendations).
- 5.06 External control over the operations of SENDOS is exercised through the General Accounting Office of the Republic, which, along with reviewing the execution of the budget of the Ministry of Public Works examines that of SENDOS and the financial statements of the programs financed in part with Bank resources. External audit is also carried out by a firm of independent public accountants, which in accordance with the requirements of the World Bank issues an opinion on SENDOS' assets and liabilities and results statements. This firm has refused to give an opinion on the statements for the years 1983 and 1984. Finally, the Ministries of Public Works, Finance and Economy exercise financial oversight on the basis of periodic reports prepared by SENDOS. In relation to the operation under study it is recommended that the financial statements of the program be submitted with an opinion of the General Accounting Office of the Republic during the execution of the program and those of SENDOS be similarly submitted during the life of the loan. The first financial statements will be those for the 1986 fiscal year (see Recommendations).

1. Rate Aspects

a) Urban sector

- 5.07 The rate requirement in loan contracts 115/IC-CH and 141/IC-CH stipulated that the revenues provided by SENDOS' rates should cover all operating expenses but not depreciation. It was further required that, after covering the service of all obligations of SENDOS, the rates should provide a surplus sufficient to finance at least 35% of the works program; however, SENDOS was given the option of obtaining additional funds from other sources to achieve this purpose. Based on the new frame of reference offered by the current rates clause, it may be stated that although SENDOS did not cover 35% of the investment program with the proceeds from its rates net of debt service, it did comply in 1983 and 1984 with the rate requirement since it obtained sources from other funds for that purpose.
- 5.08 Historically, SENDOS' internal generation of funds has covered only 17% of real investment plus its financial charges; consequently, the National Government has had to provide correspondingly larger contributions from the Treasury to make up the additional funds needed to finance its operating and investment costs. Accordingly, the formal legal aspect has been complied with in this case but not the final intention. In these circumstances the Bank has recently approached the national authorities in an effort to bring about an exchange of views on possible courses of action for achievement of the goals established through the rate clause for the loans mentioned above.

b) Rural sector

- 5.09 The contracts for loans for partial financing of the various stages of the Rural Drinking Water Supply Program 1/ include a clause stipulating that each system must generate sufficient resources to cover its costs; of operation and maintenance, administration and, to the extent possible, depreciation, a clause which, for reasons given below, it is recommended be maintained for the operation under consideration (see Proposed Resolution) together with the requirements for periodic reports to the bank on compliance with the rate requirement on the part of the rural services (see Recommendations). The rates for the rural drinking water services are calculated by the Water Supply Committees in such a way as to cover the operating cost of the service, and this is verified by SENDOS at the time it approves the rates.
- 5.10 With respect to compliance with the rate requirement, for 1983 and 1984 approximately 71% of all the services in operation complied with the banks' rate clause and 29% of them did not cover their yearly operating costs with the proceeds of their normal rate collections. Despite this,

1/ Loans 499/SF-CH and 393/OC-CH.

however, owing to a number of circumstances, most of which could not have been reasonably foreseen at the time the rates were established, including needs for special maintenance or repairs, technical problems of various kinds, and even, in some cases, arrearages, some services were unable to balance their rate revenues with their operating costs and a temporary financial imbalance was registered for the period in question. Since the services are self supporting and accordingly receive no official subsidies of any kind, these imbalances are financed out of the surpluses built up by the services themselves in earlier years or, in their absence, through the payment of special quotas by the community. If the level of rates is determined to be inadequate, SENDOS proposes that the rate schedule be appropriately updated. As may be seen, the possible deficits of the rural systems are, as explained, temporary and are normally offset during the following fiscal year; in view of the close supervision exercised by SENDOS there are very few cases of services that repeatedly fail to fulfill the rate requirement.

- 5.11 With respect to the proposed fourth stage it should be borne in mind that work at this stage will not be done in areas already provided with water supply services but that the purpose will be, rather, to extend service to new localities which, because of their socio-economic characteristics, appeared less attractive from the point of view of the utilization of the stock of capital available for the earlier stages. Indeed, the localities included in the fourth stage of the program are communities in which the prevailing activities are farming and cattle raising, with only a small proportion of commerce and service activities and with a relatively low level of income. It should also be kept in mind that in determining the level of rates to be applied in a given community an effort is normally made to include funds for contingencies that can lead to possible surpluses, which are used primarily for the renewal of equipment. The characteristics described above, considered together with the experience of an acceptable development of the rural systems already in operation, lead to the recommendation that the rate requirement already applied in earlier stages be maintained, namely that once administration, operation, and maintenance costs are covered, depreciation charges should be covered to the extent the possibilities of each system permits.
- 5.12 Insofar as the 130 rural water systems to be included in the Rehabilitation and Improvement Subprogram are concerned, their eligibility will be contingent upon their meeting the following minimum requirements: (i) they must be complying, at the time of initiation of the respective works, with the Bank's rate requirement for rural water supply services and it must further be shown that the requirement has been fulfilled in at least two of the three preceding years; and (ii) they must satisfy the least-cost economic criterion (see Loan Proposal Appendix 4, The Program).

2. Accounts Receivable

a) Urban sector

- 5.13 SENDOS' rate of collection is high as reflected in the ratio of amounts collected to amounts billed during the period 1981-1984. Indeed, during that period the collection-billing ratio was 92% for water supply. For sewerage service, while available data only allow such comparisons to be made for the years 1983 and 1984, a similar percentage of collections is obtained.
- 5.14 It is pertinent to note that Loan Contract 115/IC-CH includes a clause to ensure that satisfactory levels of collection are achieved. The clause requires for this purpose that it be demonstrated each year that the amounts collected represent at least 85% of the balances due from SENDOS' users. It should be indicated with respect to this contractual requirement that it was not complied with in 1983, when the percentage of collections was 76.2%, but it was complied with in 1984, when it was 85.5%. SENDOS' external auditors have pointed out that the balances of the accounts receivables according to the financial records of SENDOS differ from the balances maintained in the records of the debtors themselves, a situation that would be corrected at the implementation stage of the recommended plan for normalization of SENDOS' accounting system (see Recommendations).

b) Rural sector

- 5.15 The aggregate statistical information for all of the rural water supply systems, indicates that arrearage, based on the limited magnitudes of this problem during the past two years (6.4% in 1983 and 4.3% in 1984) does not constitute a problem that would significantly affect the operation of the rural services.

3. Conclusions of the Historical Financial Analysis

- 5.16 The underlying technical bases of the present rate policy provide adequately for self-financing of the operating and maintenance of services and for a contribution to the execution of the works program. However, given the nature of the needs to be satisfied by the services provided, economic and social considerations have prevented full application of those rate criteria, resulting in a lag in the updating of rates which has in turn given rise to a decline in the amounts billed and collected, as measured in real monetary terms. This circumstance plus the increasing magnitude of the works executed, the most important of which have received partial support from the Bank, has created a need for increasingly higher financial assistance from the government in recent years in the form of fiscal contributions. According to estimates by the Ministry of Finance, government contributions to the financing of SENDOS would continue at a growing rate in the next few years (as reflected in the 1986-1988 Triennial Public Investment Plan) and would level off afterwards.

VI. JUSTIFICATION

A. Technical Feasibility

- 6.01 The studies, designs, plans and specifications for the 64 projects forming the representative sample that was accepted were developed by the executing agency in accordance with the national standards currently in effect in this field, which coincide with generally accepted sanitary engineering principles. The technical solution found for each system was obtained through a feasibility study in which consideration was also given to the available alternatives with respect to sources of supply. The adoption of subterranean sources was preceded in each case by the relevant hydrogeologic studies. In no case was any physical construction initiated unless drilling had first been done and the volume of water at the relevant source had been verified. The engineering plans that remain to be developed both for new water supply systems and for the rehabilitation subprogram will be contracted out to local engineers and/or engineering firms, many of which exist in the country. Experience with the preparation of the 64 projects making up the sample supports the expectation that these projects can be completed within the first two years after the effective date of the loan contract and that all the other works in the program can be started within the first three years.
- 6.02 In short, all the technical aspects have been carefully evaluated and the conclusion has been reached that the project would be technically feasible, taking into consideration that SENDOS has the requisite technical and administrative capacity to supervise the execution of the works through its Department of National Programs and to motivate the target populations through its Community Promotion Subdepartment.

B. Financial Feasibility

- 6.03 According to the cost estimate and financial plan (see paragraph 3.09 above), the local contribution for the Fourth Stage of the National Rural Drinking Water Supply Program would amount to the equivalent of US\$13,000,000, to be provided through contributions from the Chilean government in the form of appropriations to the Servicio Nacional de Obras Sanitarias in the national budget of income and expenditures. In addition, the government, acting in its capacity as borrower of the Bank's loan, would assume responsibility for servicing the corresponding debt. It should be mentioned that the financial mechanism agreed upon with the national authorities also envisages a financial participation by the future users of the fourth stage, a participation which it is assumed would cumulatively come to the equivalent of 10% of the direct estimated construction cost. These contributions, to be advanced by the National Treasury, would later be recovered on the basis of contributions of \$8,100 (US\$48) per user following the inauguration of the system in each community.

- 6.04 For the purpose of determining the amount of the fiscal contributions to be made by the state to SENDOS, a forecast of the organization's budget was prepared. ^{1/} In the course of meetings with staff of the budget and Public Credit Directorate, SENDOS' budget projections, prepared in accordance with criteria suggested by the Bank, ^{2/} were examined and it was found that the magnitude of SENDOS' investment program estimated for the next ten years, equivalent to US\$307 million, including the program being studied, and the requirements for funds to be made available by the national government in the form of fiscal contributions, which would amount to the equivalent of US\$125 million for the same period, were reasonably in line with the forecasts of the Ministries of Finance and Economy and of Public Works contained in the 1985-1987 Triennial Program. ^{3/} Although the definitive figures of the budgetary framework for MOP and SENDOS for 1988 have not as yet been determined, a preliminary review of the investments and contributions set forth in the budgetary projection for that year made it possible to determine that those forecasts were reasonable. Taking into consideration that the working hypotheses used in the budgetary forecast have proven acceptable to the national financial authorities and that the anticipated levels of investment and fiscal support beginning in 1989 are consistent with historic trends and recent projections, it may be concluded that no economic or fiscal problems are likely to arise that would adversely influence the financial viability of the program under consideration.

C. Economic Feasibility

1. Benefit-Cost Analysis

- 6.05 Based on the analysis made, 64 projects were found to have a rate of return of more than 12% in economic terms, which is sufficient to warrant their recommendation as projects eligible for financing by the Bank. ^{4/} The economically feasible projects have a direct investment cost equivalent to US\$3.7 million, an amount which accounts for 27% of the cost of the 190 projects to be constructed under the overall program. The net present value of the eligible projects in the sample is US\$2.3 million, and the internal rates of return range from 12% to 52%. The total population to be benefitted by the sample of projects as of the year 2000 is 52,000 inhabitants.

^{1/} The purpose cited and its corresponding analysis are described in paragraph 6.04 et seq. of the Project Report.

^{2/} The working hypothesis is detailed in Appendix VI-1 of the Project Report.

^{3/} "The Triennial Program is an Indicative Instrument of the Principles of a Social Market Economy. The 1985-1987 Triennial program is an instrument for the programming and coordination of private and government initiatives aimed at reactivating the economy so as to increase employment as quickly and efficiently as possible." (Triennial Plan, 1985-1987, page 1).

^{4/} The results of the analysis for the 64 projects are presented in Table A20-6 in Appendix VI-3 of the Project Report.

2. Sensitivity Analysis

- 6.06 Considering that a certain degree of uncertainty exists with respect of some of the parameters used in the benefit-cost analysis, the impact of changes in those parameters on economic profitability indicators was studied. It is estimated that the basic case analyzed has sufficient weight to serve as a measure of the profitability of the sample projects and of the overall program. Furthermore, neither a decline in the rates of consumption growth nor increases of up to 20% in costs would have a significant impact on the results of the project.

3. Selection Criteria and Rehabilitation and Expansion Program

- 6.07 The criteria that would be used by SENDOS to select the beneficiary communities under the program being considered would be as follows: (i) purely rural localities with populations of 100 to 3,000 inhabitants; (ii) a minimum concentration of 15 housing units per kilometer of street, and the availability of favorable technical and promotional reports from the Regional Directorates of SENDOS; (iii) ease of access in appropriate vehicles; (iv) capacity and quality of the sources of water, with priority to be given to those allowing supply by gravity flow; (v) community interest in having and paying for water service, as determined by the community promoters; and (vi) projects with an internal rate of economic return of more than 12%.
- 6.08 In addition to the program for construction of new water systems, provision is made for US\$2.8 million in direct costs to rehabilitate and expand 130 drinking water systems that were constructed with the Bank's support in earlier stages. The projects have an average investment cost of US\$20,000, compared with an average investment cost of US\$90,000 for the program as a whole. The proposed investments would be for small works aimed at bringing about the maximum utilization of existing facilities, and accordingly, they are characterized by having a high rate of return from the socio-economic point of view. Nevertheless, in order to assure the maximization of subprogram benefits, it is recommended as an eligibility criterion that the projects selected be those with the least economic cost. (See Appendix 4, Section VI of Loan Proposal, The Program).

4. Analysis of the Beneficiaries

- 6.09 The data used were obtained primarily from the socio-economic survey carried out in 880 houses which are statistically representative of the potential beneficiaries of the program.
- a) Beneficiaries' ability to pay
- 6.10 The rates to be charged in each locality will depend basically on the operating and maintenance cost of the system. A preliminary estimate would place them in the range of monthly outlays per household of

US\$0.90 to US\$2.00. ^{1/} In order to arrive at an estimate of the payment capacity of the prospective beneficiaries of the program, these outlays are compared with their monthly monetary incomes, the distribution of which is shown in the following table:

Distribution of Beneficiaries' Income

Income levels (Pesos per month)	Number	P e r c e n t a g e	
		Absolute	Cumulative
Less than 4,333	69	7.8	7.8
4,334 to 9,400	258	29.3	37.1
9,401 to 30,596	462	52.5	89.6
More than 30,596	91	10.3	100.0
Total	880	100.0	
	===	=====	

- 6.11 It follows from this comparison that the households in the lowest income range (7.8% of the population), those with incomes of 4,333 pesos or less per month, will have to pay 3.0% or more of their income for water. Another 29.3%, depending on the locality and their level of consumption, will have to pay 3% and 6.3% of their income for drinking water. ^{2/} The rest of the beneficiaries will have to pay less than 3.0% of their monthly income.

b) Analysis of the distributional impact on low-income groups

- 6.12 This analysis, based on the projects in the representative sample, was carried out in three stages which included: (i) identification and description of the principal affected groups; (ii) estimate of the magnitude of the distributional impact on the groups identified; and (iii) calculation of the distributional impact coefficients. The analysis showed that 76.6% of the net economic benefits generated by the sample of projects would accrue to the groups classified as low-income. Considering these results as representative and applying the distributional coefficient to the funds that would be made available from the Bank's proposed loan (US\$17,000,000), it is concluded that the equivalent of about US\$13,022,000 would accrue to the benefit of these low-income groups.

^{1/} This estimate assumes a five-member household and average per capita consumptions consistent with the demand curve and is equivalent to 136 to 283 Chilean pesos per month.

^{2/} SENDOS' minimum charge of 136 pesos per month is equal to about 3% of a monthly income of 4,333 pesos. Similarly, the maximum charge of 283 pesos is equal to about 3% of 9,400 pesos.

VII. RECOMMENDATION

7.01 For the reasons given above, the proposed program is considered feasible from the technical, economic, financial, institutional and legal points of view. Approval of the loans is therefore recommended, and for this purpose the following normative documents are submitted for consideration by the Board of Executive Directors:

- Proposed Resolutions
- Recommendations
- Description of the Program (Annex A to the Loan Contract)

PROPOSED RESOLUTION 1/

CHILE. LOAN /IC-CH TO THE REPUBLICA DE CHILE
(National Rural Potable Water Supply
Program - Fourth Stage)

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the República de Chile, for the purpose of granting it a loan to cooperate in the execution of the fourth stage of the National Rural Potable Water Supply Program. This financing shall be subject substantially to the following conditions:

1. Amount and currencies: Up to US\$13,500,000, or the equivalent in other currencies which are part of the interregional capital resources of the Bank, to pay for goods and services acquired through international competition in the member countries of the Bank and for such other purposes as may be specified in the loan contract. Payments of amortization and interest shall be made in the currency or currencies specified by the Bank, in a quantity equivalent to the corresponding amount owed, calculated in units of account in terms of dollars of the United States of America, in accordance with provisions to be included in the loan contract.
2. Source of funds: The interregional capital resources of the Bank.
3. Guarantee: The general responsibility of the borrower.
4. Credit fee: 1-1/4% per annum on the undisbursed portion of the financing, commencing to accrue 60 days after the date of the contract and payable in dollars of the United States of America on the same dates as the interest.

1/ The provisions of this Appendix and of Appendices 2, 3 and 4 will be final only when the Board of Executive Directors has approved the loan proposal.

5. Amortization: The borrower shall amortize the loan in a period of 25 years from the date of the contract, by means of semiannual, consecutive and, insofar as possible, equal installments. The first installment shall be paid six months after the date scheduled for the last disbursement of the financing. The Bank may credit the amortization installments proportionally to the outstanding balance of each of the portions of the loan which accrue different rates of interest.
6. Interest: The borrower shall pay interest semiannually on the outstanding balances of the loan. The first payment shall be made six months after the date of the loan contract. During the disbursement period, the Bank: (a) shall determine the rate of interest to be applied as of the first day of each January and for the life of the loan to any amount disbursed during the ensuing year; and (b) may modify the interest rate, in accordance with the policy of the Bank, to be applied to disbursements of the loan made during the second half of the year. At the request of the borrower, resources of the financing may be used to pay interest during the period of disbursement thereof.
7. Physical initiation and disbursement: The term for physical initiation of all the projects of the program shall expire three years after the effective date of the contract, and the term for disbursement of the financing shall expire four years after the same date.
8. Special conditions:
 - (a) The resources of the loan shall be utilized in their entirety by the Servicio Nacional de Obras Sanitarias (SENDOS). If modifications in the legal provisions or the basic regulations concerning the borrower and/or SENDOS are approved which, in the opinion of the Bank, may substantially affect the Program, the Bank shall have the right to require the Borrower and/or the Executing Agency to provide explanatory and detailed information in order to determine whether such modification or modifications may have an adverse impact on the execution of the Program. Only after hearing the Borrower and/or the Executing Agency and assessing its information and clarifications, may the Bank take such measures as it deems appropriate in accordance with provisions to be set forth in the loan contract.
 - (b) The resources of the loan, together with the resources of loan /OC-CH, shall be used to participate in the financing of a program estimated at the equivalent of US\$30,000,000. Consequently, the loan contracts shall contain such provisions as the Bank deems appropriate to ensure that such national resources as may be necessary, in addition to the two loans, for the complete execution of the Program shall be duly provided, in accordance with a schedule of investments satisfactory to the Bank, in an amount estimated at the equivalent of US\$13,000,000.

- (c) The Borrower, through the Executing Agency, shall take appropriate measures acceptable to the Bank in order that the rates for the supply of potable water in the particular systems to which the loan relates produce revenues at least sufficient to cover all operating expenses of the respective system, including those related to administration, operation, maintenance and, to the extent possible, depreciation.
 - (d) In the acquisition of machinery, equipment, and other materials related to the Program and in the awarding of construction contracts, the system of public bids shall be followed in each case in which the value of such acquisition or contract exceeds the equivalent of US\$200,000. The bidding shall be subject to the procedures to be appended as an annex to the loan contract.
 - (e) The Bank shall establish such inspection procedures as it deems necessary to assure the satisfactory execution of the Program, and the borrower shall extend all cooperation which is required for the most effective accomplishment of this purpose. From the amount of the financing, the sum of US\$135,000 shall be allocated for credit to the general income accounts of the Bank to meet expenses of inspection and supervision.
9. Conditional provision: This resolution shall enter into force only when the Board of Executive Directors has determined by means of a resolution that the Bank has sufficient resources available in the interregional capital to cover the loan authorized by this resolution.

PROPOSED RESOLUTION 1/

CHILE. LOAN /OC-CH TO THE REPUBLICA DE CHILE
(National Rural Potable Water Supply
Program - Fourth Stage)

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the República de Chile, for the purpose of granting it a loan to cooperate in the execution of the fourth stage of the National Rural Potable Water Supply Program. This financing shall be subject substantially to the following conditions:

1. Amount and currencies: Up to US\$3,500,000 in Chilean pesos which are part of the ordinary capital resources of the Bank, to cover local expenses and for such other purposes as may be specified in the loan contract. Payments of amortization and interest shall be made in Chilean pesos, in a quantity equivalent to the corresponding amount owed, calculated in terms of dollars of the United States of America, in accordance with provisions to be included in the loan contract.
2. Source of funds: The ordinary capital resources of the Bank.
3. Guarantee: The general responsibility of the borrower.
4. Amortization: The borrower shall amortize the loan in a period of 25 years from the date of the contract, by means of semiannual, consecutive and, insofar as possible, equal installments. The first installment shall be paid six months after the date scheduled for the last disbursement of the financing.
5. Interest: 4% per annum (including the 1% special commission of the Bank), payable semiannually on principal amounts outstanding. The first payment shall be made six months after the date of the loan

1/ The provisions of this Appendix and of Appendices 1, 3 and 4 will be final only when the Board of Executive Directors has approved the loan proposal.

contract. At the request of the borrower, resources of the financing may be used to pay interest during the period of disbursement thereof.

6. Physical initiation and disbursement: The term for physical initiation of all the projects of the program shall expire three years after the effective date of the contract, and the term for disbursement of the financing shall expire four years after the same date.
7. Special conditions:
 - (a) The resources of the loan shall be utilized in their entirety by the Servicio Nacional de Obras Sanitarias (SENDOS). If modifications in the legal provisions or the basic regulations concerning the Borrower and/or SENDOS are approved which, in the opinion of the Bank, may substantially affect the Program, the Bank shall have the right to require the Borrower and/or the Executing Agency to provide explanatory and detailed information in order to determine whether such modification or modifications may have an adverse impact on the execution of the Program. Only after hearing the Borrower and/or the Executing Agency and assessing its information and clarifications, may the Bank take such measures as it deems appropriate in accordance with provisions to be set forth in the loan contract.
 - (b) The resources of the loan, together with the resources of loan /IC-CH, shall be used to participate in the financing of a program estimated at the equivalent of US\$30,000,000. Consequently, the loan contracts shall contain such provisions as the Bank deems appropriate to ensure that such national resources as may be necessary, in addition to the two loans, for the complete execution of the program shall be duly provided, in accordance with a schedule of investments satisfactory to the Bank, in an amount estimated at the equivalent of US\$13,000,000,
 - (c) The Borrower, through the Executing Agency, shall take appropriate measures acceptable to the Bank in order that the rates for the supply of potable water in the particular systems to which the loan relates produce revenues at least sufficient to cover all operating expenses of the respective system, including those related to administration, operation, maintenance and, to the extent possible, depreciation.
 - (d) In the acquisition of machinery, equipment, and other materials related to the Program and in the awarding of construction contracts, the system of public bids shall be followed in each case in which the value of such acquisition or contract exceeds the equivalent of US\$200,000. The bidding shall be subject to the procedures to be appended as an annex to the loan contract.
 - (e) The Bank shall establish such inspection procedures as it deems necessary to assure the satisfactory execution of the Program,

and the borrower shall extend all cooperation which is required for the most effective accomplishment of this purpose. From the amount of the financing, the equivalent of US\$35,000 in Chilean pesos shall be allocated for credit to the general income accounts of the Bank to meet expenses of general inspection and supervision.

8. Conditional provision: This resolution shall enter into force only when the Board of Executive Directors has determined by means of a resolution that the Bank has sufficient resources available in the interregional capital to cover the loan authorized by the Resolution contained in Appendix 1 of the loan proposal.

RECOMMENDATIONS

- A. It is recommended that the following provisions, to be fulfilled to the satisfaction of the Bank, be included in the loan contracts, in addition to the conditions set forth in the proposed resolution:
1. Unless otherwise authorized by the Bank, prior to inviting bids for the construction of the systems called for in the program, the Borrower, through SENDOS, shall submit to the Bank for each system:
 - (a) The general plans, specifications, budgets, specific bidding requirements and other documents necessary for the invitation to bid;
 - (b) As regards construction works, evidence that it is in lawful possession of the lands for construction of the respective facilities, and/or the easements or other pertinent rights;
 - (c) Evidence that the Committees for Potable Water of the communities have been established;
 - (d) Copy of the agreement for the construction and administration of the system, entered into between SENDOS and the relevant Committee for Potable Water; and
 - (e) Evidence that the community was selected according to the criteria set forth in Section V, Appendix 4 (The Program).
 2. The Borrower shall undertake to supply, through SENDOS, to the Bank each year after December 31, 1986, the following information on the systems financed with the loans:
 - (a) A statement of income and expenditures which shall specify at least the tariff collections, operating expenses, maintenance expenses and administration expenses; and
 - (b) Accounts receivable at the end of the respective year, broken down by length of time into accounts up to 60 days old, from 60 to 90 days old, and more than 90 days old.
 3. The Borrower shall undertake:
 - (a) That facilities constructed under the Program shall be administered, operated and maintained according to generally accepted technical standards; and

- (b) To submit to the Bank, for ten years after the receipt of each one of the facilities and in the first quarter of each calendar year: (i) an annual plan for maintenance of the potable water supply systems of the Program; and (ii) a detailed report on maintenance activities during the previous year, the degree of operating efficiency and the state of upkeep of the system at the end of that previous year, including information on the chemical quality of water, so as to determine the ionic equilibrium of water delivered for consumption, by means of the appropriate index for those systems that use asbestos-cement pipe.
4. Within three years of the date of the last disbursement of the financing, the Borrower, through SENDOS, shall submit to the Bank an ex-post evaluation report on the results of the Program according to the methodology and guidelines previously agreed to with the Bank.
 5. Within 12 months from the effective date of the loan contracts, the Borrower, through the Executing Agency, shall submit to the Bank a plan and time table for standardizing the enterprise accounting system of SENDOS that shall include appropriate measures to: (i) provide for effective valuation, on the basis of a physical inventory of the fixed assets of regional bureaus and the central office; (ii) reconcile the listings of the composition of accounts receivable from users of the various services with the controlling accounts of the general accounting system; (iii) institute a cost accounting system; and (iv) provide adequate supporting subsystems in billing and collection, supplies, treasury and compensation operations;
 6. Within 12 months from the effective date of the loan contracts, the Borrower, through the Executing Agency, shall present a plan along with a time table for organizing, financing and staffing the Internal Auditing Unit of SENDOS with experienced professionals;
 7. The Borrower, through SENDOS, shall submit evidence, within three years of the effective date of the loan contracts, that: (i) the measures for standardizing the enterprise accounting system of SENDOS, as established in the plan referred to in paragraph 5 above, have been instituted; and (ii) the internal auditing activity of SENDOS is being carried out satisfactorily by the Internal Auditing Unit in accordance with the plan referred to in paragraph 6 above.
 8. The financial statements for the IV stage of the Rural Potable Water Supply Program, during its construction, and those of SENDOS, during the life of the loan, shall be submitted each year to the Bank audited by the Contraloría General de la República. The first financial data shall correspond to fiscal year 1986.
- B. The loan contract shall include an annex substantially similar to Appendix 4 (The Program).

THE PROGRAM

(Annex A of the Loan Contract)

I. Purposes

1.01 The main purposes of this Program are as follows:

- (a) To supply drinking water for a rural population of about 114,300 people in 240 localities throughout Chile. Each one of the localities would have a population of about 100 to 3,000 persons;
- (b) By means of an adequate promotional effort, to obtain from the inhabitants of the 240 localities their active participation in all phases of the Program through community organizations created for that purpose and in order that members of the community will later be able to correctly operate and adequately maintain the drinking water supply services, in respect of administration as well as technical and financial matters;
- (c) To recondition, improve and/or increase the working capacity of about 130 operating rural water supply systems so as to extend their useful life from 8 to 10 years and achieve a maximum performance of the tasks for which they were designed; and
- (d) Prepare such studies which will enable SENDOS to keep a sufficient number of projects in the pipeline to enable it in due course to carry on with the National Potable Water Supply Program.

II. Description

2.01 The Program consists of the Fourth Stage of the National Rural Potable Water Supply Program and shall include construction of approximately 190 integrated facilities for catchment, conveyance, storage, disinfection and distribution of drinking water with the installation of associated home service connections and water meters. The installation of hypochlorinators shall be done together with the rest of the works needed for the construction of each system. With the resources of the Program, the following works and activities shall be financed: (a) the promotion and organization of the communities; (b) investments for preparing approximately 82 hydrogeological reports and 51 studies of water resources, as well as the drilling of 130 boreholes and 42 installation projects; (c) the acquisition and installation of approximately 14,500 household meters and approximately 300 production meters to complete the systems carried out under loans 74/TF-CH and 499/SF-CH; (d) the purchase of approximately 6 self-propelled cranes to carry out more efficiently the operation and maintenance activities for

more than 400 pumps; (e) the purchase of approximately 40 vehicles for supervisory activities; and (f) works necessary for the vehicles for the reconditioning and improvement of the operational capacity of 130 water supply systems.

- 2.02 Operation of the program related water supply services will be governed by the "Regulations for the Administration, Operation and Maintenance of Rural Drinking Water Services" used in the programs financed with the loans Nos. 74/TF-CH, 499/SF-CH and 393/OC-CH

III. Total Cost and Financing of the Program

- 3.01 The total cost of the Program is estimated at the equivalent of US\$30,000,000, itemized approximately as shown below, by investment category and possible source of financing:

Cost Estimate and Financing Plan
(Equivalent in US\$ thousand)

	FINANCING					
	Foreing exchange		Subtotal BID	LOCAL	TOTAL	%
	(IC)	(OC)				
1. <u>Engineering and Administration</u>	--	--	--	3325	3325	11.08%
1.1 Studies and designs						
(a) Fourth Stage	--	--	--	697	697	2,32%
(b) Services in operation	--	--	--	283	283	0,94%
1.2 Supervision	--	--	--	895	895	2,98%
1.3 Management	--	--	--	1450	1450	4,84%
2. <u>Direct Costs</u>	9827	2447	12274	7536	19810	66,03%
2.1 Supply of goods and performace of work	8417	1747	10164	6776	16940	56,46%
2.2 Reconditioning and expansion	1410	700	2110	760	2870	9,57%
3. <u>Associated Costs</u>	718	680	1398	1647	3045	10,15%
3.1 Community promotion	--	--	--	413	413	1,38%
3.2 Drilling boreholes and studies of Stage V	--	680	680	781	1461	4,87%
3.3 Expropriation/Easements	--	--	--	310	310	1,03%
3.4 Vehicles	718	--	718	143	861	2,87%
4. <u>Finance Costs</u>	2955	373	3328	492	3820	12,74%
4.1 Interest	2820	338	3158	--	3158	10,53%
4.2 Credit fee	--	--	--	492	492	1,64%
4.3 Inspection and supervision fund	135	35	170	--	170	0,57%
TOTAL	13500	3500	17000	13000	30000	100,00%
Percentages	45,0%	11,7%	56,7%	43,3%	100,0%	

IV. Procurements

- 4.01 When goods to be procured or services to be contracted are to be financed in whole or in part with foreign exchange from the financing, the procedures and specific requirements of the invitations to bid or other form of purchasing or contracting shall permit the unrestricted participation of goods and services, including those related to any means of transportation, originating in member countries of the Bank. Consequently, in those procedures and specific requirements no conditions which might preclude or restrict the supply of goods or the participation of contractors originating in those countries shall be imposed.

V. Methodology for Selecting the Beneficiary Communities of the Program

- 5.01 In selecting the beneficiary communities of the Program, the following criteria shall apply:
- (i) Clearly rural localities, with populations between 100 and 3,000 persons;
 - (ii) At least 15 dwellings per kilometer of street and favorable technical and promotional reports from the regional bureaus of SENDOS must be available;
 - (iii) Easily accessible by suitable vehicles;
 - (iv) Capacity and quality of the water sources, priority to be accorded to those which allow for the supply of water by gravity;
 - (v) Community interest in having the service and in paying for it, according to an evaluation done by the community; and
 - (vi) Projects with an internal rate of economic return greater than 12%.
- 5.02 Rural water supply systems to be included in the reconditioning and improvement components must meet the following minimum requirements:
- (i) At the time the respective facilities are put into operation, the system must meet the tariff requirements of the Bank applicable to rural potable water supply services and must also show that there has been compliance with the tariff requirements for at least two out of the last three years; and
 - (ii) The system must meet the minimum cost criterion.