

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

**BOLIVARIAN REPUBLIC OF VENEZUELA**

**WATER CONSUMPTION EFFICIENCY PROGRAM (PRAC)**

**(VE-L1027)**

**LOAN PROPOSAL**

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ELECTRONIC LINKS	
<b>Required</b>	
Annual work plan (AWP)	<a href="#">Annual Work Plan</a>
Monitoring and evaluation arrangements	<a href="#">Monitoring And Evaluation Arrangements</a>
Procurement plan	<a href="#">Procurement Plan</a>
<b>Optional</b>	
Operating Regulations	<a href="#">Operating Regulations</a>
Agreement type	<a href="#">HIDROVEN-HRE Agreement</a>
Socioeconomic analysis	<a href="#">Analysis Of Socioeconomic Viability</a>
Institutional analysis	<a href="#">Assessment Of Institutional Capacity (Institutional Capacity Assessment System (ICAS))</a>
Financial analysis	<a href="#">Financial Assessment</a>
Program execution plan (PEP)	<a href="#">Program Execution Plan</a>
Technical analysis	<a href="#">Carabobo Project Report</a>
Environmental classification and safeguards	<a href="#">Environmental classification and safeguards</a>

## APPENDIX

Proposed resolution

## ABBREVIATIONS

AWP	Annual work plan
PRAC	Consumption efficiency program
EIRR	Economic internal rate of return
OFEPAC	Executing office for the consumption efficiency pilot program
HIDROVEN	Compañía Anónima Hidrológica Venezolana [state-owned water company of Venezuela]
IDB	Inter-American Development Bank
LOPSAPS	Ley Orgánica para la Prestación de los Servicios de Agua Potable y Saneamiento [Water and Sanitation Services Act]
O&M	Operation and maintenance
RC-CEP	Regional coordinator of the consumption efficiency program
EHR	Regional water company (empresa hidrológica regional)

## PROJECT SUMMARY

### BOLIVARIAN REPUBLIC OF VENEZUELA WATER CONSUMPTION EFFICIENCY PROGRAM (VE-L1027)

Financial Terms and Conditions			
<b>Borrower:</b> Bolivarian Republic of Venezuela		<b>Amortization period:</b> 25 years	
		<b>Grace period:</b> 5 years	
<b>Executing agency:</b> Compañía Anónima Hidrológica Venezolana [state-owned water company of Venezuela] (HIDROVEN)		<b>Disbursement period:</b> 5 years	
		<b>Interest rate:</b> LIBOR	
<b>Source (US\$ millions)</b>	<b>Amount</b>	<b>%</b>	<b>Inspection and supervision fee:</b> *
IDB (Ordinary Capital)	50.00	66.7	<b>Credit fee:</b> *
Local	25.00	33.3	<b>Currency:</b> U.S. dollars from the Single Currency Facility
<b>Total</b>	<b>75.00</b>	<b>100.0</b>	
Project at a glance			
<p><b>Program objective/description:</b> The purpose of the program is to promote and encourage efficient water use (demand management) in an effort to increase coverage and enhance the quality of water service (quality, pressure, and continuity) in the same geographic area of intervention or neighboring areas with inadequate service. The program is expected to target at least five of HIDROVEN's subsidiaries, improving the system and legalizing water/sewer connections for approximately 70,000 to 80,000 residential customers. This program is consistent with the sector challenges described in the Bank's Water and Sanitation Initiative and is expected to contribute to attainment of the established targets</p>			
<p><b>Special contractual conditions:</b> precedent to the first disbursement: (i) establishment of the Executing Office for the Consumption Efficiency Program (OFEPRAC) and appointment of a general coordinator for the program (paragraph 4.7); and (ii) formal approval by HIDROVEN's Board of Directors and entry into force of the Operating Regulations for the pilot Consumption Efficiency Program (PRAC) on the terms previously approved by the Bank (paragraph 4.7).</p>			
<p><b>Execution conditions:</b> prior to commitment and disbursement of PRAC resources for activities in a given Regional Water Company (EHR), the EHR and HIDROVEN must have signed an interinstitutional cooperation agreement outlining the responsibilities of the parties in executing the PRAC, including appointment of a regional coordinator for the program (RC-CEP) and proper operation and maintenance of program goods and works (paragraph 4.8).</p>			
<p><b>Exceptions to Bank policies:</b> None.</p>			
<p><b>Other financial conditions:</b> None</p>			
<p><b>Project qualifies as:</b>                      SEQ [ X ]      PTI [ X ]      Sector [ ]      Geographic [ ]      Headcount [ ]</p>			
<p><b>Procurement:</b> Procurements of goods, works, and consulting services will be subject to the Bank policies contained in documents GN-2349-7 and GN-2350-7 (paragraph 4.9).</p>			

\* The credit fee and inspection and supervision fee will be established periodically by the Board of Executive Directors as part of its review of the Bank's lending charges, in accordance with the applicable provisions of the Bank's policy on lending rate methodology for Ordinary Capital loans. In no case will the credit fee exceed 0.75% or the inspection and supervision fee exceed, in a given six-month period, the amount that would result from applying 1% to the loan amount divided by the number of six-month periods included in the original disbursement period.

## I. DESCRIPTION AND RESULTS MONITORING

### A. The water and basic sanitation sector

- 1.1 The sector currently has a lead agency, regulator, planner, executing agency, and supervisor. These functions are currently exercised by HIDROVEN as mandated by law (paragraph 1.110). The operator function is exercised by: (i) HIDROVEN's nine regional subsidiaries (EHRs); (ii) six decentralized state companies, in which the provincial governments and municipios participate as stockholders; (iii) two municipal companies; and (iv) Corporación Venezolana de Guyana (CVG), which serves the states of Amazonas and Delta Amacuro. The nine subsidiaries provide service to 73% of the country's population, while the decentralized and municipal companies serve the remaining population.
- 1.2 The EHR management indicators suggest that there have been significant improvements in management of these services. Between 1998 and 2008, service coverage by subsidiaries increased from 81% to 94% for water and from 62% to 84% for sewage collection and disposal. Venezuela achieved the Millennium Development Goals more than 10 years ahead of time. The Goals of access to safe drinking water and sewage collection and disposal were achieved in 2001 and 2005, respectively. One of the great challenges, however, is to find a solution to the problem of proper treatment and final disposal of sewage, mainly in urban areas. To that end, in the last 10 years service has been extended to more than 8 million residents and the volume of wastewater treated has tripled, up to 33% nationwide.
- 1.3 **Sector financing.** The economic and financial system of the water and sanitation sector, established in the Water and Sanitation Services Act (LOPSAPS), consists of the policies adopted by the national Executive Branch on the tariff structure, subsidy system, and financing system.
- 1.4 In 2004, the Executive Branch authorized an average adjustment of 15%. Rates have not been adjusted since then, which means the cumulative effects of inflation have gradually eroded 60% of the value of the tariff. Rates for water service and wastewater collection, treatment, and disposal are currently under review. The aforementioned request covers three important areas: (i) a cross-subsidies scheme; (ii) higher surcharges for excess consumption; and (iii) an increase in the tariff for wastewater treatment.
- 1.5 It should be noted that the water company budgets are balanced with contributions from the Executive Branch to cover the deficit. According to the LOPSAPS (Article 85), when determining the tariff structure, total costs incurred by the service provider need to be considered. Nonetheless, as a consequence of the government's social policies, the current tariff structure does not include investment costs or recovery of capital.
- 1.6 At present 36% of all users, mainly in groups with low ability to pay, receive the service free of charge. This goes some way to explaining the high level of unbilled water.

- 1.7 **Problem.** Despite progress in the sector, consolidated reports indicate that there is still a high level of unbilled water (56%), due mainly to the number of people who do not pay for service (paragraph 1.6) and the low level of metered usage. Between 1998 and 2008, the volume of metered water billed, as a percentage of total volume produced, increased from 20% to 36%; at the same time the meter-reading rate increased from 14% to 17.5%. One of the main reasons for this situation is the high cost for water companies of retrofitting residential connections and installing micro-meters.
- 1.8 The latter, combined with cultural behaviors vis-à-vis water usage, has meant that some lines are experiencing problems with water supply management and high levels of per capita water consumption. In 2008, records showed per capita production of approximately 450 liters/day, which is considered to be very high by international consumption standards. Increasing the efficiency of consumption with effective control mechanisms and educational programs would increase the availability of drinking water and improve service.
- 1.9 **Institutional and legal framework.** The legal and regulatory framework governing the sector includes: the Constitution of the Bolivarian Republic of Venezuela (1999), the Environmental Enforcement Act, Decree 1400 of 1996 on water resource use, the Water Act (2007), and, more specifically, LOPSAPS (2001) and the Partial Reform of LOPSAPS (2007), which extends the transitional period for implementation of the LOPSAPS to 2013, and the regulations thereunder.
- 1.10 Under the transitional provisions of LOPSAPS, HIDROVEN currently performs the functions of lead agency, regulator, and planner. Also, it is the sole shareholder (100% ownership) in its nine regional subsidiaries (EHRs).
- 1.11 Pursuant to the LOPSAPS, the national Executive Branch is responsible for setting policies and plans to develop the water and sanitation sector, as well as for exercising regulatory functions. The national Executive Branch also subsidizes population groups with less capacity to pay in order to guarantee access to service, promote community participation in services, and strengthen and improve service provider management, all with a view to ensuring that the entire population has access to good quality service. The municipios are responsible for service delivery. Oficina Nacional para el Desarrollo de los Servicios de Agua Potable y Saneamiento [the National Office for Development of Water and Sanitation Services] (ONDESAPS) would be the lead agency responsible for sector planning, while the Superintendencia Nacional de los Servicios de Agua Potable y Saneamiento [National Water and Sanitation Services Authority] (SNSAPS) would handle regulation.

## **B. Sector policy**

- 1.12 The main lines of action in the sector are geared toward: (i) expanding the coverage of water and sanitation services; (ii) ensuring the sustainability and quality of services through the rehabilitation, maintenance, expansion, and construction of new aqueducts; (iii) in the short term, giving all citizens access to water and

sanitation services; (iv) ensuring proactive participation by communities in service delivery and social control of management; (v) protecting the environment; and (vi) adopting management models based on quality, efficiency, reliability, equity, and nondiscrimination criteria. These actions are being headed by HIDROVEN in its capacity as lead agency, regulator, and sole shareholder of the EHRs.

- 1.13 These actions fit in with the guidelines of the Plan for National Economic and Social Development for 2007-2013, particularly with the following strategies: (i) promote access to basic services; (ii) ensure the conservation and sustainable use of water resources; and (iii) guide and support the provision of public utility services with an emphasis on reducing environmental impacts.

### **C. Conceptualization of the program**

- 1.14 In order to conceptualize the program, a chain of results (previously the results tree) was developed with the borrower. Consumption efficiency or rationalization is achieved through two outputs: (i) demand control through metering (macro- and micro-metering by retrofitting connections), charge of a tariff per unit of consumption, and educational programs to heighten public awareness of the importance of water consumption savings for the benefit of both the environment and equity objectives for society, insofar as there is sufficient safe drinking water for all users; and (ii) institutional strengthening of the companies operating the systems by developing guidelines, manuals, and workshops for personnel on sectorization and management of networks and program experiences. Additionally, national and local campaigns will be developed for the second output to encourage a reduction in wasted water.
- 1.15 The program is designed as a pilot program. Projects will be carried out in at least 5 EHRs, targeting 16,000 users in each (there are 500,000 users per EHR, or 3% of users). The proposed operation is geared toward improving efficiency and, indirectly, toward expanding coverage and enhancing service quality, important aspects of the government's strategy and the Bank's Public Utilities Policy (OP-708).
- 1.16 In developing the program, the best alternative was found to be demand control because of its greater benefit-cost. Another alternative analyzed was to expand production and satisfy all demand; however, the costs for the country would be onerous. The results of the evaluation are presented in the economic analysis section.
- 1.17 Consistency of the program with the Bank's strategy and the Water and Sanitation Initiative. The program is consistent with the Bank's most recent country strategy (key sector of infrastructure). The problem that the proposed operation will help solve is one of the most important according to the latest sector note prepared by the Bank (February 2007). A proposal of priorities is currently being formulated, which could form part of the Bank's new strategy with the country for 2009-2013. This process continues to treat the water and sanitation sector as a priority area. The

program is included in the efficient and transparent companies component of the Water Initiative because it helps to improve company efficiency.

## **II. OBJECTIVE, EXPECTED OUTCOMES, COMPONENTS, AND COST**

### **A. Objectives**

- 2.1 The purpose of the program is to promote and encourage efficient water use (demand management) in an effort to increase coverage and enhance the quality of water service (quality, pressure, and continuity) in the same geographic area of intervention or neighboring areas with inadequate service. The program is expected to target at least five of HIDROVEN's subsidiaries, improving the system and legalizing water/sewer connections for approximately 70,000 to 80,000 customers.

### **B. Components**

- 2.2 **Upgrading of connections** (US\$61.6 million). Investments in the upgrading of residential water connections, including the supply of materials and equipment, and technical assistance and educational programs to achieve the objective of water consumption efficiency in the target areas. The upgrading of water connections would include the installation of meters and the replacement of pipes and connection fittings, together with the replacement of sections of small-scale distribution networks, network and user registries, installation of instruments for control and measurement of flow (valves, macrometers, leak detection and pressure metering equipment, etc.) on the network, and hydraulic sectorization and modeling.
- 2.3 **Technical assistance** (US\$4.8 million). The technical assistance and awareness-building campaigns component includes general activities at the national level, and specific pilot activities in target areas, including development and dissemination of audiovisual material, campaigns to raise public awareness in order to promote efficient water use, establish guidelines and manuals of procedures for water companies in demand management (management of assets, unbilled water, consumption efficiency), and workshops and internships for training and technical exchanges between personnel from the companies at the national level.

### **C. Cost and financing**

- 2.4 The total cost of the program is US\$75 million, of which up to US\$50 million would be financed with resources from the Bank's Ordinary Capital. A breakdown by investment category is presented in Table II-1.

### **D. Key indicators in the results matrix**

- 2.5 **Results framework.** The status of program execution will be measured against the principal milestones, outputs, and outcomes set out in the results matrix (see Annex II). The main indicators are: at the level of long-term outcomes, water saved; in the medium term, consumption by users covered by the program; and, at the

output level, the number of upgraded connections and the number of people with heightened awareness.

**Table II-1 Cost and financing**  
(In US\$000s)

Investment category	TOTAL	IDB	Local contribution	%
<b>I. Engineering and management</b>	<b>2,532.5</b>	<b>341.5</b>	<b>2,191.0</b>	<b>3.4</b>
1.1. Executing unit	753.5	0.0	753.5	1.0
1.2. Supervision and inspection of works	1,395.3	0.0	1,395.3	1.9
1.3. Studies and designs	383.7	341.5	42.2	0.5
<b>II. Direct costs</b>	<b>66,491.9</b>	<b>49,658.5</b>	<b>16,833.4</b>	<b>88.7</b>
<b>2.1 Upgrading of connections</b>	<b>61,659.4</b>	<b>47,242.3</b>	<b>14,417.1</b>	<b>82.2</b>
2.1.1. Works and services	60,094.3	47,242.3	12,852.0	80.1
2.1.2. Network and user registries	1,565.1	0.0	1,565.1	2.1
<b>2.2 Technical assistance</b>	<b>4,832.5</b>	<b>2,416.3</b>	<b>2,416.3</b>	<b>6.4</b>
2.2.1. Education, information, and communication (EIC)	4,093.0	2,046.5	2,046.5	5.5
2.2.2. Technical assistance	739.5	369.8	369.8	1.0
<b>III. Concurrent costs</b>	<b>225.6</b>	<b>0.0</b>	<b>225.6</b>	<b>0.3</b>
3.1. Audit, evaluation, and monitoring	225.6	0.0	225.6	0.3
<b>IV. Financial costs</b>	<b>5,750.0</b>	<b>0.0</b>	<b>5,750.0</b>	<b>7.7</b>
4.1. Fees	1,250.0	0.0	1,250.0	1.7
4.2. Interest	4,500.0	0.0	4,500.0	6.0
<b>TOTAL</b>	<b>75,000.0</b>	<b>50,000.0</b>	<b>25,000.0</b>	<b>100.0</b>

### III. FINANCING STRUCTURE AND RISKS

#### A. Financing structure

- 3.1 The program is being financed as a global multiple-works operation under an investment loan from the Bank in the amount of US\$50 million, with local counterpart funding of US\$25 million. A sample in the amount of US\$10.3 million corresponding to 17% of the project costs was prepared at the preliminary project level.
- 3.2 **Borrower and executing agency.** The borrower would be the Bolivarian Republic of Venezuela and the executing agency HIDROVEN.
- 3.3 **Financing conditions.** Bank financing (US\$50 million) will cover 66.7% of the total cost of the program. The term of the loan will be 25 years, with an execution period, grace period, and disbursement period, each of 5 years. The local

contribution, repayment of principal, and payment of interest will be guaranteed by the national government.

**Table III-1 Disbursement timetable (in millions)**

<b>Year</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>TOTAL</b>	<b>%</b>
IDB	5.3	9.9	14.9	12.4	7.5	50.0	66.7
Local	2.7	5.0	7.4	6.2	3.7	25.0	33.3
<b>TOTAL</b>	<b>8.0</b>	<b>14.9</b>	<b>22.3</b>	<b>8.6</b>	<b>1.2</b>	<b>75.0</b>	<b>100.0</b>

3.4 **Commitment of resources.** The program will be governed by the Operating Regulations (see paragraph 4.3) which, among other things, set the conditions for commitment of program resources, eligibility and selection criteria for projects, and the program cycle. The program cycle is divided into four stages: initiation, project preparation, execution, and monitoring and evaluation (see paragraph 4.6).

**B. Environmental and social safeguards**

3.5 The actions to be financed by this program will have no direct or indirect adverse environmental or social impacts since the activities and works are small-scale. The operation will help increase water consumption efficiency, improve water resource management, and help to reduce pressure on watersheds and to cope with recurrent drought, the effects of El Niño, and adaptation to climate change. The Environmental and Social Review (ESR) analyzed (meeting 30-09) the operation’s profile and classified the program as category “C”. The ESR did not recommend any monitoring action. The analysis performed during program preparation found that it will not have any adverse environmental or social effects.

**C. Other special considerations and risks**

3.6 **Analysis of engineering issues.** Investments in works to be executed under the program are for retrofitting water connections, with minor network upgrades that do not require an increase in water production or large-scale physical interventions. Although the works planned will not entail any risks to the environment and/or the public, the Operating Regulations will include works governed by the current national environmental regulatory framework. The [program execution plan electronic link](#) presents a description of the projects that were prepared as a sample for startup of the operation in year one.

3.7 **Socioeconomic evaluation.** Two types of benefits are derived from demand management or consumption efficiency projects: (i) cost savings due to lower operating costs (pump energy, chemicals for water potabilization, etc.) and investment savings as investments in the production of water that is wasted are postponed; and/or (ii) reduction in or elimination of rationing for system users by utilizing the water that was being wasted. The project costs correspond to the costs of investments to upgrade service connections, the costs of raising awareness about the program, including the costs of the institutional strengthening component,

- which would be US\$100 per connection, and the loss of well-being due to the reduction of waste that has a small economic value.
- 3.8 Two projects were prepared and evaluated. The first project is located in a periurban area where Hidrológica de la Región Capital (HIDROCAPITAL) provides services to 7,000 residents who consume over 900 l/person/day with 24-hour access to service. In that area, some of the homes visited use drinking water for irrigation. The project is expected to reduce consumption to under 350 l/person /day. The anticipated benefit is the cost savings due to reduced water production. The costs are the loss of agricultural production and/or the loss of well-being due to the decreased consumption and the costs of upgrading the connections. The economic internal rate of return (EIRR) is 29%.
- 3.9 The second project is located in an urban area where Hidrológica del Centro C.A. (HIDROCENTRO) provide service to 40,000 customers who consume over 450 l/person/day on average. Services are rationed for 30% of the target area with available water of less than 150 l/person/day. The remaining 70% have water 24 hours a day and consume more than 500 l/person/day. With the project, the entire population is expected to have access to 350 liters/person/day. The anticipated benefit is reduced rationing for the population with intermittent service. The costs include the loss of well-being for those who are going to reduce consumption from 500 to 350 l/person/day and the costs of upgrading the connections (EIRR: 16%).
- 3.10 A sensitivity and economic risk analysis was also prepared using Monte Carlo simulation techniques, which finds that projects in high-consumption areas (i.e. in excess of 450 l/person/day) are highly likely to be economically profitable. The overall return on the program is expected to be 22%, based on an extrapolation of the sample results and considering that only projects with assured viability will be executed.
- 3.11 **Bank policies.** This program contributes to the objectives of the Bank's Public Utilities Policy (OP-708) because it is geared to promoting efficient water use, thus contributing to service sustainability and economic efficiency, as well as service quality and greater access as water saved is transferred to areas with deficient service, thereby benefiting urban areas where service is deficient. Consumption efficiency would also have a positive effect on the conservation/good use/efficient use of water resources.
- 3.12 OP-708 identifies a series of basic conditions that would be necessary to achieve its objectives. Among those conditions, the policy singles out separation of the functions of policy formulator, regulator, and operator. As indicated in the section describing the institutional and legal framework, the LOPSAPS<sup>1</sup> establishes a sector

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<sup>1</sup> LOPSAPS lays the groundwork and sets the conditions for regulation and control of service provider activities, and defines the economic system to ensure sustainable, efficient, and equitable service delivery, but also establishes customer rights, creates a favorable atmosphere for the coexistence of different management modalities, and defines special criteria for service delivery in rural areas.

structure with clear separation of functions. However, that structure has not yet been fully implemented, and the term established for its implementation and transition has been extended to 2013. This is consistent with OP-708, which advises the teams to adopt a gradual approach in setting this basic condition.

- 3.13 The tariff system defined in the regulations to the LOPSAPS complies with the recommendations of OP-708. The tariff structure is based on efficiency costs and covers the costs of operation, maintenance, and investment, and recovery of capital. As indicated in the section on the water and sanitation sector (paragraph 1.4), these regulations are not now being applied. The Executive Branch is currently reviewing utility rates with a view to making the companies financially sustainable. To conclude then, considering the legal framework of the Venezuelan water and sanitation sector, the operational guidelines for applying OP-708 to the water and sanitation sector (March 2003), and the fact that this program would help make the utility companies financially sustainable and service delivery economically efficient, the project team feels the sector is moving in the direction envisioned in OP-708.
- 3.14 **Financial considerations.** The proposed tariff adjustment now under review would substantially improve the financial sustainability of the EHRs, particularly in covering their operating losses, which are now covered through transfers from the government, like most investments in the sector. For 2008, the EHRs posted combined sales of MB\$869 and sales revenue of MB\$786, thus covering 77% of their O&M costs of MB\$1,024 for the same period. According to the project team's analysis, if approved, the proposed rate adjustment would enable the companies to cover O&M costs, while achieving a positive cash flow and ensuring their financial sustainability and their share of investment costs. Although the Consumption Efficiency Program (PRAC) (VE-L1027) is not a complete response to the problems faced by the EHRs, its outcomes (in the target area, the program is expected to reduce consumption by 22%, for operating cost savings of nearly 10%) would also contribute to the sustainability strategy mapped out for the sector.

#### IV. IMPLEMENTATION AND MANAGEMENT PLAN

##### A. Implementation arrangements

- 4.1 **Executing agency.** HIDROVEN would be the executing agency for the program. HIDROVEN is the executing agency for the Rural Aqueducts program (loan operation 1445/OC-VE), for which the Project Performance Monitoring Report (PPMR) indicates satisfactory implementation, an average level of risk, and development goals that are likely to be achieved. HIDROVEN also satisfactorily executed the program financed under loan operation 994/OC-VE.
- 4.2 In order to execute the PRAC, an executing unit (OFEPRAC) will be set up under the direct authority of the President of HIDROVEN. OFEPRAC will be responsible for executing the PRAC and, consequently, for the programming, procurement, monitoring, supervision, and evaluation of program execution. CR-PRAC will be

- appointed to the EHR program beneficiaries, who will be responsible for carrying out the PRAC at the regional level and, consequently, will report to the OFEPRAC for the programming, monitoring, and evaluation of the program at the regional level. The procurement of works, services, and goods will be programmed by OFEPRAC and carried out by HIDROVEN'S Procurement and Contracts Office.
- 4.3 **Operating Regulations.** Execution of the PRAC will be guided by the Operating Regulations ([see electronic link](#)) which includes the conditions for commitment of program resources (see paragraph 3.4), eligibility and selection criteria for the projects, and the program cycle. The latter is divided into four stages: startup, project preparation, execution, and monitoring and evaluation. The Operating Regulations also describe matters relating to execution, including environmental considerations, supervision, and control.
- 4.4 **Eligibility criteria.** Eligible areas are those that share most of the following features: (i) areas with an average unit consumption in excess of the supply under the country's current regulations; (ii) areas that blend sectors with good service and sectors with inadequate service; (iii) networks in acceptable conditions; (iv) basic operating and commercial information; (v) identifiable supply and intake volume are easily measurable; (vi) the volume of water to be recovered that can be used to improve service in another location in and/or outside the area; (vii) high operation, maintenance, and investment costs per m<sup>3</sup> of water; and (viii) the community is willing to participate in improving service in the area.
- 4.5 The prioritization criteria are: (i) larger volumes of water saved per capita; (ii) greater impact on continuity of service; (iii) more complete basic operating and commercial information; (iv) greater information on volumes supplied or ease of determining that information; (v) smaller investment to upgrade networks; and (vi) dispersion of projects throughout the area.
- 4.6 **Program cycle.** The program starts with a general promotion workshop, with the participation of all EHRs to present the guidelines for its execution. The EHRs then proceed to select the eligible areas based on the criteria mentioned in the preceding section and present preliminary projects to HIDROVEN for its approval. HIDROVEN evaluates the preliminary projects submitted and, based on the established prioritization criteria, approves them. The EHR prepares the project and executes it according to the cooperation agreement with HIDROVEN.
- 4.7 Conditions precedent to the first disbursement and execution conditions. **Conditions precedent to the first disbursement of the loan: (i) establishment of the OFEPRAC and appointment of a general coordinator for the program; and (ii) formal approval by HIDROVEN's Board of Directors and entry into force of the Operating Regulations for the PRAC on the terms previously approved by the Bank.**
- 4.8 Special conditions for program execution: prior to commitment and disbursement of PRAC resources for execution of activities in a given EHR, the EHR and HIDROVEN must have signed an interinstitutional cooperation agreement

outlining the responsibilities of the parties in executing the PRAC, including appointment of an RC-CEP and proper operation and maintenance of the program's goods and works.

**B. Procurement of goods and services**

4.9 Goods, works, and consulting services financed in whole or in part out of the loan will be procured in accordance with Bank policies (documents GN-2349-7 and GN-2350-7). Based on analyses of HIDROVEN's institutional capacity, the recommended thresholds for requiring international competitive bidding are presented in Table IV-1. Program procurement will be reviewed ex ante, unless otherwise indicated in the procurement plan. The frequency of the ex post review will be at least once every six months and the capacity of the executing agency will be rated annually by the procurement specialist from the Country Office. All procurement in any given period must be included in the procurement plan approved by the Bank and must adhere to the methods and scope specified therein. The procurement plan for the first 18 months of the program will be agreed upon with HIDROVEN during negotiation of the loan contract.

**C. Revolving fund**

4.10 The Bank will establish a revolving fund of up to 5%, which is consistent with the number and amount of contracts expected for each year of the program. The resources must be administered in a special bank account opened in the name of the program for its exclusive use. Within 60 days after the end of each six-month calendar period, HIDROVEN must present consolidated reports to the Bank on the status of each fund.

**Table IV-1**  
**Thresholds for international competitive bidding**

Works	US\$5,000,000 or more
Goods	US\$250,000 or more
Consulting services	US\$350,000 or more

**D. Monitoring and evaluation**

4.11 The program will be monitored and evaluated using the Bank's supervision tools based on a program execution plan, procurement plan, and results matrix. Each year, the executing agency and the Bank will agree on the annual work plan (AWP). The executing agency will submit semiannual progress reports based on the targets set in the AWP, the outcomes of the activities, and an action plan for the next six months. The executing agency will be responsible for monitoring and evaluating the projects financed. To that end, it may engage independent consulting services previously agreed with the Bank. The attached results matrix was prepared jointly with the executing agency during program preparation and contains the indicators for monitoring progress.

- 4.12 Measurements will be taken for each project, initially one year after the end of each project and again a year later. A consolidated evaluation will be made of the PRAC at the same time as the second evaluation of the last project completed. The semiannual reports agreed upon in the loan contract will include the information corresponding to the program indicators contained in the results matrix (both consolidated and by project).
- 4.13 Measurements and other monitoring and evaluation activities for each project and the program are considered in each one's budget. The cooperation agreement between HIDROVEN and the EHRs specifically identifies the monitoring and evaluation activities. An agreement was also reached on an evaluation 18 months into the program, reckoned from the effective date of the contract, and another evaluation upon program completion.
- 4.14 **Operation and maintenance.** The works constructed will be operated and maintained by the EHRs to benefit from the infrastructure being financed with program resources. During preparation of the eligible projects, the executing agency will verify that the companies have the technical personnel and the means to operate and maintain the works and equipment, so as to ensure that all equipment and structures are properly operated and operations personnel properly trained.
- 4.15 **Audit and supervision.** During execution, the executing agency will present the program's audited financial statements on an annual basis. The program's external audit will be performed by a firm of independent auditors acceptable to the Bank, in accordance with the policies and requirements stipulated in AF-100 and AF-300. The firm will be hired according to the procedures set out in the External Audit Procurement document (AF-200) and the terms of reference previously approved by the Bank (AF-400 and AF-500). The electronic link "Monitoring and evaluation arrangements" describes the scope and frequency of external audit reports. The total costs of these audits will be financed with the program resources.
- 4.16 **Evaluation.** The borrower will compile the necessary data to evaluate the extent to which program targets have been met to permit a future evaluation of program efficiency and effectiveness in terms of achieving the proposed objectives and applying the lessons learned. During preparation of the operation, indicators were defined as was the frequency of data collection for monitoring execution.
- 4.17 **Preparation activities and support for execution.** The Bank commissioned two consulting assignments to prepare the program: (i) one to draw up the Operating Regulations; and (ii) another to assist with developing the projects in the sample.

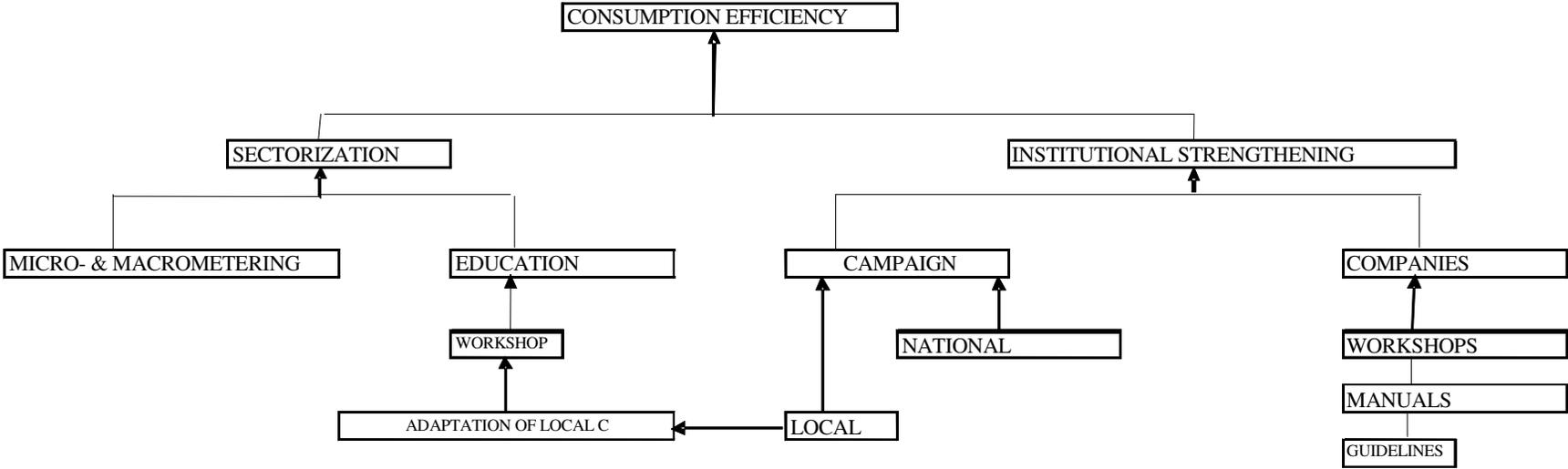
**RESULTS MATRIX**

Program objective			The purpose of the program is to promote efficient water use (demand management) in an effort to increase coverage and/or enhance the quality of water service (pressure and continuity) in the same area or neighboring areas with inadequate service.				
Outcome indicators		Preliminary base level	YEAR				Party responsible
			1 year after the end of the project	2 years after the end of the project	4 years after the end of the project	2 years after the end of the program	
Indicator 1: Per capita consumption in the areas covered by the program (lpcd)	Ocumarito	902	Measurement to verify the baseline	626	488	350 l/lpcd/d or less	EHR business management will deliver monthly consumption reports for the area to the Regional Coordinator of the Consumption Efficiency Program (RC-CEP). Operations management will present to the RC-CEP reports on volumes delivered to the areas measured using micro-meters. The RC-CEP will prepare the appropriate reports and send them to the Executing Office for the Consumption Efficiency Program (EOFCEP).
	Ciudad Alianza	432	Measurement to verify the baseline	391	371	350 l/lpcd/d or less	
Indicator 2: Continuity of the service (daily hours of service)	Ocumarito	24	Measurement to verify the baseline			18 h/d or more	EHR operations management will keep continuous records of pressure using manographs installed on the network. That information should be processed and sent to the RC-CEP so that the appropriate reports can be prepared for the EOFCEP.
	Ciudad Alianza	18	Measurement to verify the baseline			18 h/d or more	
Indicator 3: Volume saved MMm <sup>3</sup> /year	Ocumarito	0	0				EHR operations management will estimate the volume saved with respect to the base year according to the user registry and volumes delivered to the area, and present the amounts processed to the RC-CEP so that the appropriate reports can be prepared and delivered to the EOFCEP.
	Ciudad Alianza	0	0	2,512	3,940	5,494	
Indicator 4: Dollars saved in water production MMUS\$/year	Ocumarito	0	0				Operations management for the RWC will estimate the volume saved with respect to the base year according to the user registry and volumes delivered to the area, and will present the values processed to the RC-CEP so that the appropriate reports can be prepared and delivered to the EOFCEP.
	Ciudad Alianza	0	0	1.00	1.58	2.20	

Compliance with output indicators (cumulative values)

Output	An	Resp.	Base Level	2010	2011	2012	2013	2014
Component No. 1	Cumulative actions							
Preliminary projects approved	Preliminary project	EOFCEP	-	4	7	10	10	10
Upgraded connections (1)	Connections	RC-CEP	-	8,000	24,000	48,000	64,000	80,000
Education, information, and communications (EIC) to support community management (2)	People	RC-CEP	-	36,000	108,000	216,000	288,000	360,000
Registry (3)	Lots	RC-CEP	-	8,000	24,000	48,000	64,000	80,000
Optimized areas	Areas	EOFCEP		1	3	6	8	10
Component No. 2	Tool development							
National public information campaign	Campaigns	EOFCEP	-	1	2	3	4	5
Internships to train personnel	People	EOFCEP	-			15	30	45
Workshops to train personnel	People	EOFCEP	-		15	30	45	60
Documentation of experiences	Project	RC-PCEP and EOFCEP	-			3	6	8

**Chain of results**



### Initiative Indicators

<b>HIDROCENTRO Indicators</b>	<b>Base Level</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Means of Verification</b>
1. Production/population (m <sup>3</sup> /day/person):	0.409						
2. Water coverage (%):	95.4						
3. Per capita consumption (m <sup>3</sup> /day/person)	0.200						
4. Average tariff (US\$/m <sup>3</sup> ): (1)	0.26						
5. Unbilled water (%):	51.1						
6. Working ratio: (2)	0.69						
7. Employees/1,000 homes with safe drinking water (including outsourced):	3.4						
8. Unit cost of production (US\$/m <sup>3</sup> ): (3)	0.38						
9. Beneficiary population (persons):	0						
10. Fixed charge: US\$/user/month Consumption: US\$/m <sup>3</sup>							

- Notes:
- (1) Fixed charge and consumption income/ m<sup>3</sup> billed for water
  - (2) Net operating income/water business costs and expenses
  - (3) Total costs and expenses incurred from water service/m<sup>3</sup> billed
  - (4) Cost of water service; corresponds to amount applied to stratum 4

<b>HIDROCAPITAL Indicators</b>	<b>Base Level</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Means of Verification</b>
1. Production/population (m <sup>3</sup> /day/person):	0.486						
2. Water coverage (%):	95.4						
3. Per capita consumption (m <sup>3</sup> /day/person)	0.208						
4. Average tariff (US\$/m <sup>3</sup> ): (1)	0.41						
5. Unbilled water (%):	57.2						
6. Working ratio: (2)	0.94						
7. Employees/1,000 homes with safe drinking water (including outsourced):	5.3						
8. Unit cost of production (US\$/m <sup>3</sup> ): (3)	0.44						
9. Beneficiary population (persons):	0						
10. Cost of water for domestic consumption (m <sup>3</sup> /month) (4) Fixed charge: US\$/user/month Consumption: US\$/m <sup>3</sup>							

**PROCUREMENT PLAN SUMMARY**  
**PERIOD COVERED BY THIS PROCUREMENT PLAN: FROM JAN/2010 TO JUN/2011**

Ref. No.	Category and description of the procurement contract	Estimated cost of procurement (US\$000s)	Procurement method	Review (ex ante or ex post)	Source of financing and percentage		Prequalification (yes/no)	Estimated dates		Status (pending, in process, awarded, cancelled)
					IDB	Local		Publication of Specific Procurement Notice	Contract completion	
<b>I.</b>	<b>GOODS</b>									
1.1	Procurement of equipment for macro- and micro-metering, leak detection, and regulation and control valves	1,553	IOT	Ex ante	89%	11%	No	02-Jan-10	02-Mar-10	Pending
1.2	Procurement of pipes	1,507	IOT	Ex ante	89%	11%	No	02-Jan-10	02-Mar-10	Pending
1.3	Publication of handbook	111	NOT	Ex ante	89%	11%	No	02-Feb-10	15-Mar-10	Pending
<b>2</b>	<b>WORKS</b>									
2.1	Upgrading of connections (including construction of new connections and retrofitting of connections by installing or replacing meters and/or replacing house connections and/or replacing other fittings)	4,205	NCB-R	Ex ante	89%	11%	No	01-Mar-10	01-Jun-10	Pending
2.2	Upgrading of connections	8,410	NCB-R	Ex ante	89%	11%	No	02-Jan-11	30-Mar-11	Pending
2.3	Upgrading of networks (including replacement of pipes and/or repair of leaks, installation of regulation and control valves, and installation of macro-meters)	1,005	NCB-R	Ex ante	89%	11%	No	01-Mar-10	01-Jun-10	Pending
2.4	Upgrading of networks	2,009	NCB-R	Ex ante	89%	11%	No	02-Jan-11	30-Mar-11	Pending

<b>III.</b>	<b>CONSULTING SERVICES</b>									
<b>3.1</b>	FC User registry	104	CO-QC	Ex post	0%	100%	No	15-Feb-10	30-Mar-10	Pending
<b>3.2</b>	FC User registry	104	CO-QC	Ex post	0%	100%	No	15-Jul-10	30-Aug-10	Pending
<b>3.3</b>	FC User registry	104	CO-QC	Ex post	0%	100%	No	02-Jan-11	03-Feb-11	Pending
<b>3.4</b>	FC Network registry	52	CO-QC	Ex post	0%	100%	No	15-Feb-10	30-Mar-10	Pending
<b>3.5</b>	FC Network registry	52	CO-QC	Ex post	0%	100%	No	15-Jul-10	30-Aug-10	Pending
<b>3.6</b>	FC Network registry	52	CO-QC	Ex post	0%	100%	No	02-Jan-11	03-Feb-11	Pending
<b>3.7</b>	FC National communication campaign	47	CO-QC	Ex post	89%	11%	No	15-Feb-10	30-Mar-10	Pending
<b>3.8</b>	FC Design of education, information, and communication (EIC) program for community management	23	CO-QC	Ex post	89%	11%	No	01-Feb-10	30-Mar-10	Pending
<b>3.9</b>	CI Development of technical guidelines for implementation of the Consumption Efficiency Program (CEP)	23	CO-QC	Ex post	89%	11%	No	01-Feb-10	30-Mar-10	Pending
<b>3.10</b>	Hiring of support personnel for the Executing Office for the Consumption Efficiency Program (EOFCEP) and the Regional Coordinators of the program (RCs-CEP)	100	CO-QC	Ex post	0%	100%	No	Continued on an as-needed basis		Pending
<b>3.11</b>	Hiring of personnel to supervise project preparation and execution	140	CO-QC	Ex post	0%	100%	No			Pending

OT: Open tender  
CT: Closed tender  
PC: Price comparison  
DC: Direct contracting

CON: Consulting services  
CO-QC: Consulting services-Quality and cost  
IOT: International open tender  
NOT: National open tender

NOTE: All procurements of consulting services for less than US\$25,000 and of goods for less than US\$20,000 will be reviewed ex post. They are not included in the procurement plan.