PROGRAM FOR SELF-MANAGEMENT OF IRRIGATION SYSTEMS

(DR-0035)

EXECUTIVE SUMMARY

BORROWER: The Government of the Dominican Republic, which will also be responsible for providing the local counterpart

EXECUTING AGENCY: The Dominican National Water Authority [Instituto Nacional de Recursos Hidráulicos] (INDRHI)

AMOUNT AND SOURCE:

IDB:	US$52 million	(OC, with IFF subsidy)
Government:	US$13 million	
Total:	US$65 million	

FINANCIAL TERMS AND CONDITIONS:

Amortization period:	25 years
Grace period:	5 years
Disbursement period:	5 years
Interest rate:	IDB standard variable rate, with IFF subsidy
Inspection and supervision:	1% of the loan
Credit fee:	0.75% annually of the undisbursed balance

OBJECTIVES: The purpose of the program is to implement the new policy for the irrigation subsector at the national level by transferring responsibility for the management of irrigation and drainage systems to users organized in user boards. Accomplishment of this purpose will contribute to the general objectives of more efficient irrigation operations, better land use and therefore improved productive capacity, and better targeting of subsector spending as a result of public savings and better coverage of operation and maintenance costs.

DESCRIPTION: The program will support the investments and actions that the government has undertaken through INDRHI to transfer responsibility for irrigation systems. The necessary investments will be made for equipping and upgrading infrastructure, as well as for organizational activities, training, and studies aimed at ensuring that the systems are in suitable institutional and operational condition before they are formally transferred. The transfer will take place through the execution of contracts with legally established user boards, assigning these boards full responsibility for operating and maintaining irrigation and drainage works, including responsibility for covering related costs.

ENVIRONMENTAL CLASSIFICATION: The Environment Committee, at its meeting of February 21, 1995, classified this as a Category III operation. The environmental summary was approved on October 31, 1995.

BENEFITS: The program will promote more efficient use of the subsector's resources, as measured by: (i) more efficient operation of irrigation systems and increased water availability for downstream users and for many farmers who currently suffer from limited access because of system wastage and because they are located at the end of the distribution system; (ii) better land use and therefore enhanced productive capacity, thanks to less waterlogging of soil and increased availability of land for agricultural use; and (iii) better targeting of subsector spending, as a result of public savings, better coverage of irrigation operation and maintenance costs, and more efficient State action, mainly in the form of streamlined administration of user charges, responsibility for which will be transferred to users at the system level.

RISKS: The main risk for the program is whether there will continue to be a political will to move forward with transferring responsibility for irrigation systems to users and the government's commitment to effect the necessary institutional changes to make the subsector self-managing. Fulfillment of this commitment will hinge on INDRHI's ability to adapt its institutional profile to the exclusively regulatory and supervisory functions that it will have under the subsector's new structure and on the feasibility of transferring staff to the private sector once INDRHI ceases to be involved in direct system operations. This risk will be offset by the time-slice format that has been adopted for the program. Under this format, the progress of the administrative and policy changes associated with the transformation process will be monitored year by year. The inclusion of resources and activities to support INDRHI's institutional re-engineering will also help to reduce this risk.

POVERTY: This program is viewed as targeting poor population groups, in that it meets the requirement of having more than 50% of its direct beneficiaries located below the poverty line.

PROCUREMENT: The threshold amounts at which international competitive bidding will be required for procurements under the program are US$250,000 for goods and services and US$1,500,000 for civil works (see paragraph 3.34).

SPECIAL CONTRACTUAL CONDITIONS:

Conditions precedent: The borrower is to submit the following documentation either as a condition precedent to first disbursement or for annual review as part of the progress reports under the time-slice format (as indicated):

1. **Evidence that the Program Coordination Unit has been set up**, directly under INDRHI's Executive Director's Office and equipped with the necessary staff, functions, and structure (see paragraph 3.10)

2. The **operating regulations**, based on the draft version discussed with the Bank during the preparation of the program, as a condition precedent to first disbursement (see paragraph 3.5)

3. The **plan for recovering operation and maintenance costs** for large-scale works, as a condition precedent to first disbursement. The plan must provide for revising the bulk water rates charged by INDRHI to include: (i) their calculation on the basis of volume used; (ii) a fee to be used for upstream conservation of the drainage basin; (iii) an additional amount for equipment, when applicable; and (iv) as of the third year and gradually up to the fifth year of project execution, an amount to cover depreciation of new works that are to remain under INDRHI's responsibility (see paragraph 3.26)

4. **An adjustment plan for the irrigation subsector**, which should include: (a) A strategy for making subsector investments more productive by adopting evaluation methodologies, eligibility criteria, a model for setting priorities on the basis of qualitative, social, and organizational variables, and a plan for training personnel to operate and maintain the system. The terms of reference for designing the system are to be submitted for IDB approval as a condition precedent to first disbursement. The system is to be designed during the first year and implemented and tested during the second year. (b) A program to update INDRHI's institutional mission, including: (i) the actions necessary to adapt its institutional profile to exclusively regulatory and supervisory functions in regard to irrigation; (ii) the necessary studies and actions for redefining the functions of the Irrigation Districts; (iii) review and updating of the water code; (iv) a plan for rightsizing at

the central level and in the Irrigation Districts in accordance with the systems transfer strategy, including the possible transfer of staff to private service companies; and (v) operation and maintenance budgeting that reflects the transfer policy. The terms of reference for this program are to be submitted for Bank approval as a condition precedent to first disbursement; implementation of the program will be a goal for the second year of project execution. (See paragraph 3.17.)

5. **Evidence that officers have been appointed** for the program's central environmental policy committee, following the recommendations made in the environmental impact study (see paragraph 4.8).

Other conditions

1. By the seventh month of each year of program execution (beginning with the year in which the contract enters into force), the Bank and the executing agency will meet to assess program progress. By the second month of each year of execution, the executing agency is to submit, for Bank approval, a list of investments preselected for inclusion in the following year's investment program so that feasibility studies can be done. Within the 30 days preceding each annual review meeting, the executing agency is to provide the Bank with a report on the progress made during the previous year and the targets set for the coming year, including the investments selected for the following year's program. For any targets not met, the borrower is to take the necessary remedial measures to avoid possible suspension of future commitments (see paragraph 3.4).

2. A yearly report identifying the liaison committees that have been set up and consultations held with users concerning decisions involving investments in systems that are to be included in the program (see paragraph 3.18).

3. Reimbursement of expenses against the Bank's financing. Up to US$200,000 equivalent of the Bank's financing may be used to reimburse project-related consulting expenses. These expenses must have been incurred before the project approval date but after January 10, 1995, and in conditions substantially similar to those set out in the loan contract (see paragraph 3.29).

I. FRAME OF REFERENCE

A. Recent economic situation

1.1 As is discussed in detail in Annex I-A, the adjustment program implemented between 1990 and 1993 was successful in pulling the country out of one of the worst economic crises in its history. Nevertheless, the stability achieved proved to be insufficient, and the growth was not sustained enough to improve social indicators. Reform programs launched at the same time intensified the trend toward economic openness, but they were unable to consolidate the structural conditions necessary to meet the challenge of modernizing the economy and the State in the medium term.

1.2 Although the relative stability of prices has curbed the erosion of real wages and social spending has increased in recent years, poverty continues to be widespread, especially among the female population and in rural areas, where at least 36% of the population is poor. The economic recovery produced by the adjustment program began to wane in 1993, and during the elections of 1994 fiscal discipline was abandoned, which has once again created conditions of instability. At the same time, growing economic openness has accentuated the challenges of productivity and efficiency and made the persistent imbalances in the external sector of the economy more critical. Competitiveness has become especially important as a requirement for participation in the global economy since the country signed the General Agreement on Tariffs and Trade (GATT) and since the North American Free Trade Agreement went into effect in January 1994.

1.3 Hence, the country is currently faced with the need to reactivate its economy by diversifying the sources of growth, and to renew stabilization policies and step up reforms in order to improve its international competitiveness. The government elected in 1994 implemented a stabilization plan aimed at relaunching sustainable growth, which remains in effect. As a result, macroeconomic aggregates have begun to improve again in the short term. But meeting the double challenge of combating poverty and promoting efficiency in the long run will require a strategy of broader participation by private enterprise, organization based on self-management of the country's productive forces and resources, and State divestiture from actual operations and entrepreneurial involvement in the productive apparatus. The agricultural sector, and the irrigation subsector in particular, offer opportunities for confronting both challenges simultaneously by means of privatization and a recasting of the State's role.

B. The agricultural sector

1. Recent trends

1.4 Although the agricultural sector's share of the gross domestic product has declined, it continues to play an important economic role. Today the sector accounts for 12.5% of GDP and employs 23% of the Dominican labor force. This position is the result of an economic transformation which over the past two decades has produced a marked change in the profile of the country's exports of goods, as can be seen in Figure 1.

1.5 Traditional exports – sugar, coffee, cocoa, and tobacco – continue to account for more than 60% of the country's agricultural exports and occupy the majority of its farmland. The rest is devoted to food crops, rice being the most important one. Despite recent increases in the production of sugarcane, cocoa, and fruit, in 1993-1994 the sector continued to contract, at rates of 2.9% and 3.2% for those two years, respectively, owing to adverse climatic factors and high financing costs.

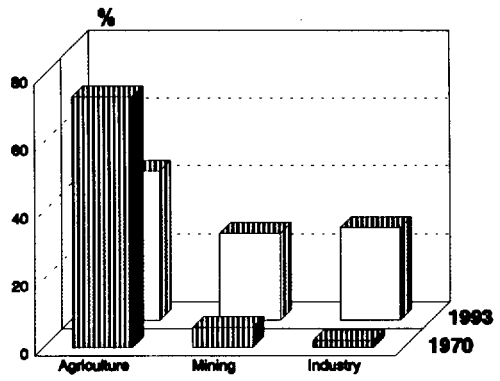

Figure 1: Composition of exports of goods

1.6 The relative decline in agriculture can be attributed largely to the macroeconomic policies in force until the mid-1980s, which were not favorable to the development of the sector. For years – through persistent explicit taxation of agricultural exports and of the associated imported inputs, coupled with the antiexport bias of an exchange rate policy that overvalued the local currency – less importance was attached to the production of export crops than to the production of crops for domestic consumption.

2. Current sector policy

1.7 Present macroeconomic policies and conditions are substantially different from those that existed a decade ago and are more favorable for the development of the sector. Since the mid-1980s, steps have been taken to correct the biases affecting the agricultural sector. Subsidies and import tariffs have gradually been eliminated, and measures have been taken toward ending price and exchange controls. Taxes on traditional exports have been abolished, as has the interest-rate subsidy on agricultural credit. Tax incentives for nontraditional exports have also been established.

1.8 Although the current macroeconomic policies are less discriminatory toward agriculture, especially export-oriented agriculture, non-tariff barriers continue to exist. Efforts to eliminate support prices have continued, even though rice is still protected and State intervention in sugar production continues. Nevertheless, it is expected that these biases will be eliminated through the process of trade liberalization within the framework of the GATT agreements signed by the country, which prohibit external trade barriers and subsidies. In 1995 the sector began to grow again, expanding by 3.4% during the first six months.

1.9 The operation described in this document will help to end such long-standing biases as the support for rice prices. Indeed, rice supplies are expected to increase as a result of the program, which should help to equalize the domestic and border prices, as is discussed in section V of this document. Rice production is efficient enough to be competitive without the current protective measures.

3. Bank strategy in the sector

1.10 The Dominican Republic is characterized by the coexistence of abundant natural resources with extensive poverty and problems of environmental deterioration which require urgent attention. Hence, while recognizing that current political conditions do not allow for an overhaul of the sector as a whole to correct its institutional weaknesses, the Bank has decided to support the irrigation subsector because it offers the best assurance that funds will be used efficiently in programs that combine natural-resource management with efforts to combat rural poverty under an approach that emphasizes productivity and State divestiture.

1.11 Current macroeconomic policies are creating new opportunities for the sector in the context of economic globalization, but they are also generating new challenges for smaller-scale farmers who face the greatest economic, financial, and technical constraints and are therefore at a disadvantage with respect to producers who are better organized and have modernized their operations. The Bank intends to support these poor, rural farmers, who make up a significant proportion of the country's agricultural producers, including beneficiaries of the agricultural reform whose farms are located in irrigated areas that have extremely high economic potential but produce poor yields due to the current condition of irrigation systems.

C. The irrigation and drainage subsector

1. Importance of the subsector

1.12 Prior to 1965, all irrigation works in the country were carried out by the private sector. When the Dominican National Water Authority [Instituto Nacional de Recursos Hidráulicos] (INDRHI) was created,

it was given responsibility for the administration of water resources and the management of drainage basins. Since then, INDRHI has overseen the construction of multipurpose dams and the development, administration, and operation of irrigation systems. As a result of State investment, the total area of irrigated farmlands grew from 54,000 hectares in 1973 to more than 230,000 hectares in 1990.

1.13 By 1993 the irrigated area represented 9% of all land under cultivation and constituted 42% of the country's irrigable potential, with 64,455 users on farms averaging 4 hectares each. System inefficiency, however, has kept the output of the irrigated lands from living up to expectations. Despite the enormous expenditures on irrigation (40% of total farm sector investments during the last five years), the increase in irrigated area has not yielded a similar increase in the contribution of irrigated crops to total sector output. This has been due primarily to deficient operation of irrigation and drainage systems and to functional and institutional limitations in subsector.

2. Functional structure of the subsector

a. Irrigation and drainage systems and districts

1.14 The land area under irrigation is divided into eight irrigation districts and one operational unit. The irrigation districts comprise 309 irrigation and drainage systems, of which the 44 that are larger than 1,000 hectares cover 173,670 hectares (or 75% of the total irrigated area) and serve 46,024 users (or 71% of the total). The map at the beginning of this document shows the geographic location of the districts and the principal irrigation systems.

b. Principal problems of the irrigation and drainage subsector

1.15 Over-irrigation water and poor drainage lead to soil degradation as a result of waterlogging and salinization. Inadequate maintenance, inappropriate operating techniques, and unrealistic fees combine to produce low levels of efficiency. By degrading the soil, inefficient water management lowers productive capacity, hinders agricultural development, and limits the availability of water resources for other productive uses and for consumption.

1.16 The basic limitations of the subsector can be grouped into three main problem areas which affect irrigation systems, namely: (i) inadequate information and operational standards, which affect the organization of the subsector and lead to inefficient management of irrigation and drainage systems; (ii) deteriorated and defective infrastructure (owing to improper operation and maintenance), which in turn leads to inefficient water use, undesirable environmental impacts, and insufficient cost recovery due to user dissatisfaction; and (iii) limited participation and

organization of users and limited institutional capacity of INDRHI to carry out its functions.

1.17 Deficiencies in information. The absence of a land register delimiting property lines and indicating the position of farms with respect to the irrigation system, coupled with the fact that neither technical personnel nor users are suitably organized to manage this information, makes it difficult for water distribution personnel to accurately determine which crops, lands, and users require service and thus establish the volume of water to be distributed. There is also a lack of operational standards, including regulations for the distribution of water and hydrometric, agricultural, and other parameters that are needed to determine the area under cultivation, the number of irrigations, and layers of water applied per crop and per canal. This situation breeds corruption and operational disorder.

1.18 Deficiencies in infrastructure, operation, and maintenance. Not only is the irrigation infrastructure in an advanced state of deterioration, but minor repairs needed to ensure effective use of irrigation have not been performed. The systems were put into operation without basic infrastructure conservation programs and maintenance has been inadequate. Maintenance and conservation needs have overwhelmed the operational capacity of INDRHI, as a result of which the infrastructure has deteriorated. This is due in part to the fact that the rates being charged for the service are insufficient and are not being calculated on the basis of the volume of water provided.

1.19 The systems were designed for continuous flow and overall efficiency of 50% 1/ (with land use indexes of 1.5 to 2), but in fact efficiency has been 25% with land use indexes of only 0.8. This implies that water is being wasted and that swamping and other negative environmental impacts are occurring. It is estimated that 40% of the area under irrigation has drainage problems, as a result of which thousands of hectares of farmland have become unusable due to waterlogging, salinization, and/or high sodicity. Over-irrigation dissolves the salts contained in sediments of marine and terrestrial origin, allowing them to migrate to surface strata, from which they are carried by the water, together with pesticides and fertilizers, into drainage systems and finally into watercourses, such as aquifers, rivers, and streams. They may thus end up in water intended for human consumption or water being used to irrigate other areas.

1.20 Deficiencies in participation, organization, and training. As an underlying and concomitant factor contributing to all the deficiencies mentioned above, there is inadequate involvement of

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1/ Includes conveyance, distribution, and application of water to crops.

users in the management of the systems. This is due to the fact that since large-scale irrigated agriculture began to be practiced, the management of irrigation water in the country was centralized by law. Total responsibility for administration, operation, and maintenance of irrigation was entrusted to INDRHI, through its Irrigation Districts Department [Departamento de Distritos de Riego].

1.21 As a result, the deficiencies in the organizational sphere extend to the institutional framework of the subsector as a whole and especially to its regulatory agency, INDRHI.

3. Institutional and financial structure of the subsector

a. History and functions of INDRHI

1.22 As is described in detail in Annex I-C, INDRHI was created in 1965. The regulations governing its operations were issued in 1966, establishing it as the country's highest authority for matters regarding the use of surface and underground waters, with the power to control and regulate water use. Because INDRHI is the agency that centralizes all institutional functions (policy-setting, regulatory, and operational) in matters pertaining to irrigation, the subsector's current situation is closely linked to the agency's complex array of strengths and weaknesses and the paternalistic relationship that has traditionally existed between it and users in the various irrigation districts and systems across the country.

1.23 The central operational arm of INDRHI is the Irrigation Districts Department, which is responsible for monitoring and supervising the distribution of water. The irrigation districts are subdivided into irrigation zones, subzones, and units, which is where more than 70% of the agency's personnel work. Most INDRHI staff are involved in the actual operation of irrigation systems. However, the current rate structure does not provide sufficient revenue to cover the cost of this level of operational involvement on the part of the Institute.

b. Irrigation rates and collection

1.24 Rates are calculated on the basis of a budget of costs for administration, operation, and maintenance, but there is no explicit link between the rates charged and the volume of water used. Moreover, fee collection is chronically delinquent. Rates that are too low and behind-schedule collections largely explain INDRHI's limited capacity to sustain itself financially.

c. Financial situation

1.25 As is shown in detail in the financial analysis presented in Annex I-C, INDRHI's operating income is generally insufficient to cover its operating expenses. Analysis of the agency's financial

statements reveals a very tight liquidity position, which has led to problems in meeting short-term commitments. Government contributions to compensate for INDRHI's operating deficit and to finance the agency's investments are eight times greater than its operating income.

d. Progress in institutional development

1.26 With funds from loan 570/SF-DR, the IDB financed a study of institutional strengthening aimed at improving INDRHI's capacity to carry out the functions assigned to it under its charter. The consultants conducted a broad study in the areas of planning, organization, personnel policies, etc. and recommended that responsibility for irrigation management be transferred to organized groups of users and that a new water code be adopted.

1.27 The consultants also made recommendations regarding the consolidation of administrative decentralization, structural adjustments, and the implementation of systems and procedures to improve INDRHI's accounting and auditing practices. Loan 903/SF-DR, which is currently being executed, provides resources to support the implementation of these recommendations for administrative improvements.

D. Conclusions of the analysis

1.28 The key to all the deficiencies mentioned above and perhaps the most important conclusion of the analysis of the subsector is that, although INDRHI has been capable of executing complex water projects on its own, it has not succeeded in operating the associated irrigation and drainage systems efficiently. Consequently, INDRHI's high operating costs are not reflected in the quality of the irrigation operation and maintenance services it provides. In contrast, in pilot projects in which users have been involved in the operation and maintenance of irrigation systems, the results have been markedly different and extremely positive, as is discussed below. This demonstrates the need for a new institutional approach for the subsector.

1. Government strategy for the subsector

a. New strategic institutional approach

1.29 Seeking a self-management solution to the problems of the subsector and acting on the prerogatives accorded it by the current water law, in 1987 INDRHI transferred, on an experimental basis, responsibility for the management of the first irrigation systems to users organized in user boards granting them authority over all systems in the southern water management center of Azúa and northern water management center of Santiago. The transfer process was extended as a result of these experiences, and thus far seven of the largest systems in the country have been transferred. These

systems cover an area of 58,452 hectares or 25% of the total, serving 19,815 farmers, or 28% of the total.

b. Lessons from the self-management approach

1.30 The pilot experiences have produced remarkable results, which are discussed below and presented in detail in Annex I-B. These experiences indicate that when users become responsible for the operation and maintenance of the systems, including coverage of the related costs, there is an increase in their motivation to participate more directly, pay more punctually, and even to self-impose higher water rates for a service whose quality they can now control and supervise directly. Self-management has also led to more equitable access to water resources in systems which, before, only growers located close to the principal intakes had access to the water, while those located at the tail of the system had insufficient supplies owing to upstream water wastage.

1.31 Through the exercise of autonomous local control over irrigation, users have become more acutely aware of the connection between the condition of the systems in terms of operation and maintenance and the profitability of their own operations. In addition, the transfer of the systems has created the necessary conditions and opportunities for INDRHI to gradually reduce its role to one of supervision, regulation, and general administration of water in the irrigation districts.

1.32 Evaluations have shown positive results with regard to maintenance, more efficient water use, and cost recovery. User participation has been found to help reduce wastage, with water flows dropping in some cases from 14 m^3/second to 8 m^3/second with a simultaneous increase in the area under cultivation. In addition, rate increases of over 100% have been observed, as have substantial improvements in collection, elimination of conflicts between users and authorities, and improvements in maintenance. The user boards have tended to hire, on a private basis, the best-qualified former INDRHI maintenance experts.

1.33 The evaluations have also pointed up deficiencies and the need for improvements in the transfer process, mainly in the area of user training in administration and planning, in strengthening the various organizational levels, and in enhancing INDRHI's capacity to take on the functions that it will have under the new approach to irrigation.

1.34 Finally, there is a need to resolve serious problems relating to the repair of infrastructure and the availability of heavy maintenance equipment in cases in which the local market does not supply it, so as to ensure that the users' willingness to assume responsibility will not diminish.

c. Change in irrigation policy

1.35 As a result of these experiences, INDRHI has espoused the transfer of the operation of irrigation systems to users as a national policy. The policy also calls for structural reform of the subsector with a view to limiting the State's presence therein, promoting competitiveness, and concentrating available resources on the preservation of public goods in drainage basins. The new policy emphasizes rehabilitation and maintenance of existing infrastructure before continuing to expand the irrigated agricultural frontier through the construction of new irrigation systems. It is worth noting in this regard that public investment in irrigation infrastructure decreased from US$122.76 million in 1990 to US$44.25 million in 1994.

d. Legal framework for the new subsectoral approach

1.36 Legal and organizational basis for user boards. The legal grounds for the organization of users of irrigation systems around the country are provided by current legislation and by Decree 2,588 of December 20, 1984, which approved the general regulations for the organization and functioning of representative user boards in the INDRHI districts.

1.37 Water code. The Executive Branch is currently considering a new water code, which was prepared with technical cooperation from the German Technical Cooperation Agency. The new code would consolidate INDRHI's role within the new framework for the sector and the status of user boards and associations in the operation and maintenance of the systems. The proposed water code is consistent with prevailing world trends in the management of this resource and, although its adoption is not an essential requirement for the success of the transfer policy, implementation of the code would resolve the present lack of a cohesive legal framework, which hinders the application of corrective measures for the protection of water. Its adoption would also represent a major advance in updating obsolete regulations in the subsector.

2. Participation of international agencies

1.38 Efforts to change the subsectoral strategy date back to 1983, when INDRHI and the United States Agency for International Development (USAID) launched the On-farm Water Management Project [Programa de Manejo de Agua a Nivel de Finca] (PROMAF). Under PROMAF, the first two water management centers were created in Azúa and Santiago in 1986, which gave rise to subsequent experiences in the San Juan de la Maguana, Bajo Yaque, Santa Cruz, Nizao-Valdesia, Nordeste, Pedernales, and Constanza centers. The programs in San Juan de la Maguana (IDB, 930/SF-DR) and in the Nizao-Valdesia system (World Bank), currently under way, were designed to be consonant with the new irrigation policy.

3. Conceptual basis for the proposed operation

1.39 The program described herein is intended to build on the experience gained thus far and is designed to accelerate implementation of this fundamental change in subsector policy and organization. Its central purpose is to extend the irrigation self-management model to the national level, while helping to correct the deficiencies observed during the pilot phase.

II. THE PROGRAM AND ITS COSTS AND FINANCING

A. Objectives

1. Purpose and goals

2.1 The purpose of the program is to implement at the national level the new policy for the irrigation subsector, which is based on transferring responsibility for the administration, operation, and maintenance of irrigation and drainage systems to users organized in user boards.

2.2 Attainment of this purpose will contribute to achieving the more general goal of making better and more efficient use of the subsector's resources as measured by: (i) more efficient operation of irrigation systems and increased availability of water for downstream users and many farmers who currently have limited access owing to the fact that they are located at the tail of irrigation systems; (ii) better land use and therefore higher productive capacity, thanks to less waterlogging of soil and increased availability of land for agricultural use; and (iii) better targeting of subsectoral spending as a result of public savings on the operation and maintenance costs of irrigation systems and more efficient State action in regulation and supervision of the subsector (see the logical framework matrix for the program in Annex II-A).

2. Specific objectives

2.3 In order to address the particular problems of the subsector discussed in the preceding section, the program will seek specifically:

a. To establish the information systems and carry out the basic studies necessary to (i) determine the number of users and their property sizes and production levels, using updatable land tenure maps; (ii) plan irrigation activities in a rational, sustainable, and decentralized manner; (iii) establish an order of priority for subsector investments; and (iv) modernize subsector institutions

b. To upgrade the basic infrastructure and equip irrigation systems to meet the minimum conditions of operational efficiency necessary for the systems to be administered by their users

c. To organize and train irrigation system users to enable them to take direct responsibility for the administration, management, and maintenance of infrastructure

B. Description

2.4 The program will support the actions and investments which the government, through INDRHI, has undertaken to transfer irrigation systems to their users. Formally, the transfer will take place through the execution of contracts with legally established user boards, assigning these boards responsibility for operating and maintaining the systems, including coverage of the related costs. Before the transfer takes place, investments in infrastructure improvement and equipment are needed, as are training and organizational activities, in order to ensure the minimum necessary institutional and operational conditions.

2.5 The deteriorated state of the infrastructure, due to years of poor maintenance, makes it essential to carry out improvements so that users will be willing to accept responsibility for operating the systems. INDRHI is prepared to finance these repairs a single, last time before transferring the systems. The expected sequence of the process, as well as the transfer conditions and cost recovery mechanisms, are outlined in Annex II-B. Given the complexity of the process and INDRHI's limited operating capacity, systems will have to be transferred in successive stages, with this program being the first such stage. The transfer of the systems does not mean that INDRHI will cease to have any operational functions in relation to dams and large-scale irrigation works or other functions for which it is responsible outside the subsector.

2.6 Ownership of the infrastructure will not be transferred, and INDRHI will therefore not require users to repay the cost of present or prior investment; however, it will transfer the responsibility to keep the systems operating properly. Hence, operation and maintenance costs, as well as replacement costs for transferred infrastructure and equipment, will be the responsibility of the users. The transfer contracts will be tantamount to long-term concessions, which will remain in effect for 99 years and will be renewable. This period is generally considered to be sufficient to recover any additional investments in expanding or upgrading infrastructure made by the user boards. The water will continue to be the property of the nation, and users will maintain the right to use it through annual payment of the respective charges, as the current legislation establishes.

2.7 Finally, there will be no transfer of ownership or responsibility for major works such as dikes and diversion channels, whose operating costs will be recovered by INDRHI by charging the user boards bulk water fees for delivery to the system's point of entry. It should be noted that motivation, education, and training of the user boards will be crucial aspects of the program since they will create the conditions necessary for its success, namely, active participation and optimal organization of users. As established by the operating regulations, one facet of this participation will be prior consultations with users to determine which repairs and works

are to be carried out under the program. Those works will not commence until the respective board has at least begun the process of becoming formally established.

1. Components

2.8 The operation comprises the following components, whose performance indicators and means of verification are outlined in the logical framework for the program: (i) information systems and basic studies; (ii) infrastructure upgrading and outfitting; and (iii) organization and training of system users.

2. Activities by component

a. Information systems and basic studies (US$4.4 million)

(i) compilation of a registry of users covering all the irrigation districts, by means of a geographic information system based on aerial photographs (US$308,000)

(ii) development and installation of an irrigation information system to be managed by the user boards (US$157,000)

(iii) monitoring by INDRHI of current land use and of salinity and drainage problems in the irrigation districts (US$645,000)

(iv) preinvestment studies for irrigation systems that will be part of the program (US$500,000)

(v) environmental studies (US$590,000)

(vi) studies for programming the program's and INDRHI's annual investments in irrigation (US$200,000)

(vii) a study to review INDRHI's mission, aimed at reengineering the agency's procedures and organization to enable it to assume a role that is limited exclusively to regulation, control, and resolution of conflicts over water use (US$800,000)

(viii) a study on the organization of services and recovery of the costs of maintenance machinery, and other preinvestment studies for projects of interest to INDRHI and the IDB (US$1,200,000)

2.9 The total estimated cost of this component is US$4.4 million. The terms of reference for the aforementioned studies are in the project's technical files.

b. Upgrading and outfitting of infrastructure (US$36.8 million)

2.10 Upgrading of irrigation and drainage infrastructure. Under this component, the necessary investments will be made to upgrade the irrigation and drainage infrastructure of the systems selected for inclusion in the program in order to put them into suitable condition so that users can operate them efficiently. The program will target 40 irrigation systems, for a total of 80,000 hectares and 20,000 users. These systems will be selected out of a possible total of 60 systems, which cover 119,803 hectares and 41,443 users. This is the universe of systems left after subtracting from the total: (i) systems that have already been transferred – although these systems will also benefit from the organization and training component; (ii) systems affected by serious water supply problems or conflicts over land use; and (iii) systems covering fewer than 300 hectares, which cannot be grouped in *equivalent systems*. 2/

2.11 Based on case studies of the systems to be targeted during the first year of the program, as well as an analysis of the proposed goals, the cost of this component is estimated at US$30.4 million (80,000 hectares at US$380/hectare). The works to be carried out will consist of small-scale repairs to upgrade conveyance and control structures. When necessary, improvements will also be made to roads and shoulders to ensure suitable access for producers in the area. The principal works planned are replacement of control gates, installation of metering equipment, resurfacing and cleaning of canals, cleaning of drains, and repair of bridges, roads and shoulders, among others. Generally speaking, these are uncomplicated projects, whose execution will be simple and relatively quick (fewer than eight months per system).

2.12 Provision of equipment for operation and maintenance. Financing will also be provided to procure the basic machinery and equipment that user boards will need to properly operate and maintain the irrigation systems. The equipment and machinery necessary will depend on the nature and size of each system. In some cases, several user boards may be able to work together to form a single heavy equipment unit in order to permit depreciation of the equipment among several systems. In other cases, heavy equipment may not be necessary or such services may be available in the local market. In view of the needs of the systems selected for the first year of program execution, the proposed budget for this component is US$3.6 million (US$450,000/system), plus US$1.2 million to outfit 40 systems with small-scale equipment.

2.13 Unlike the infrastructure investments, it is expected that investments in machinery and equipment will be recovered in their

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2/ This means grouping small systems together in such a way as to form systems comprising between 500 and 2,000 hectares, so as to achieve economies of scale in the delivery of INDRHI's services.

entirety through the bulk water fees paid to INDRHI or through private or semipublic companies that may be established to provide services in systems that require them. The preinvestment studies provided for under the program will include an analysis and recommendations on the best options for organizing these services and recovering machinery and equipment costs for each system.

c. Organization and training of system users (US$5.4 million)

2.14 Establishment of user organizations. Systems will be transferred only to user boards that have been formally established. Where necessary, the program will provide support to complete the establishment and strengthen these boards. Based on detailed studies for the first year of execution, the cost of this activity is estimated at US$60,000/system on average (for systems or groups of systems that encompass from 500 to 2,000 users). The total cost of ensuring the establishment of user organizations in 40 systems (20,000 users) will be US$2.4 million.

2.15 This subcomponent will focus on two main areas: (i) organization of user boards for the irrigation systems covered in the representative sample, and institutional strengthening of newly formed and of existing user boards; and (ii) formulation and implementation of study recommendations for the consolidation of user organizations.

2.16 Training of users. Training activities will be oriented mainly toward strengthening the capacity of organized users for sustainable management of renewable natural resources and organization of irrigation activities. This subcomponent will include activities aimed at (i) motivating and training users in the administration, operation, and maintenance of irrigation systems and in the management and maintenance of agrohydrological information; (ii) developing and implementing operation and maintenance standards for canals and drains, and guides for on-farm water management; and (iii) promoting efficient and environmentally sustainable farming and irrigation programs that will make it possible to keep systems running properly during critical periods. These training activities will cost an estimated US$150/user. The overall budget for this subcomponent is therefore estimated at US$3 million.

C. Scale of the program

2.17 In scaling the program, account was taken of the technical, financial, and institutional constraints that might hinder the achievement of its objectives. From a technical standpoint, more ambitious goals could have been set for the program, given the existence of a broader universe of systems. However, INDRHI's limited operating capacity would constitute a major impediment to the achievement of more ambitious goals. The experience gained since 1986 has shown that INDRHI needs to focus on lending support

to user boards during their initial organization phase in order to strengthen them and facilitate their progress toward true self-management. It is this more concentrated support at the beginning of the process that makes it possible to reduce government support to the lowest possible level within a relatively short period (two or three years). Otherwise, counterproductive results may ensue.

2.18 In view of the foregoing, the program will focus on a limited number of systems. Although systems of less than 500 hectares will not be excluded, during the first year the program will target larger systems which offer a greater likelihood of success, because transfer methodologies and procedures need to be consolidated in order to facilitate replication and extend coverage in the medium term. There is no clear correlation between the physical size of systems and the income level of users. As is discussed below, 68% of the users in the systems that will be targeted during the first year are poor, and there is no reason to expect that the proportion of poor users will be very different in smaller systems.

2.19 The unit costs for the various components were estimated on the basis of detailed studies of the six systems comprising the program sample, which will make up the plan of work for the first year of execution. These systems are the following: Yuna, Mao-Gurabo, Dajabón, FIDA III, and San Rafael del Yuma.

2.20 The State's ability to provide counterpart resources was also taken into account in determining the scale of the program. Although the country has available borrowing capacity, it faces short-term liquidity constraints owing to the fiscal adjustment it is currently undergoing. Given these factors, the proposed local counterpart is considered to be a sum that INDRHI can responsibly afford.

D. Cost and financing

2.21 The total cost of the program is estimated at US$65 million, of which the government of the Dominican Republic would provide US$13 million (20%) and the IDB would finance US$52 million (80%). The following table presents a summary of the costs; a more detailed breakdown may be found in the technical files.

TOTAL COST OF THE PROGRAM
(in millions of United States dollars)

INVESTMENT CATEGORY	Local	OC/IFF	TOTAL
1. Engineering and administration	3.4	6.1	9.5
2. Direct costs	6.8	34.4	41.2
3. Associated costs	0.5	2.3	2.8
Subtotal	10.7	42.8	53.5
Unallocated funds	1.4	3.8	5.2
Financing costs	0.9	5.4	6.3
Total	**13.0**	**52.0**	**65.0**

2.22 The loan will have an amortization period of 25 years, with five years grace and five years for disbursement. The interest rate will be variable, at the standard level applied by the Bank for IFF funds. The local counterpart is to be provided by the central government in the form of capital investments in INDRHI.

III. PROGRAM EXECUTION

A. Plan of execution

1. Format for execution

3.1 The operation is designed to be a program of support for structural changes in the irrigation subsector. Under this approach, the investments and development activities included in the operation are considered auxiliary tools to be used in achieving the primary purpose of bringing about a change in the policy and structure of the subsector by transferring irrigation systems to users and by redefining INDRHI's mission vis-à-vis the irrigation districts.

3.2 In the same way that the systems are to be transferred in stages, the program too provides for successive stages of transfers and structural and policy changes associated with the transformation of INDRHI, on the basis of annual targets and operating criteria agreed upon in advance. The operation will thus be guided by a subsector plan for investments and activities to upgrade, operate, and maintain irrigation systems, as well as reorganization of the subsector. The time-slice format will be adopted for monitoring purposes.

a. Subsector adjustment plan and annual time-slice programs

3.3 The main institutional measures and actions needed for the adjustment of the subsector, which the executing agency is to undertake during program execution, have been identified as described in the specific guidelines for execution. 3/ The investments in infrastructure and equipment will be identified annually and included in the annual investment programs. As the investments for each year are executed, the group of systems to be incorporated in the following period will be selected and subsequently reviewed in accordance with the criteria and procedures outlined below.

b. Annual monitoring reviews

3.4 By the seventh month of each year of program execution (beginning with the year in which the contract enters into force), the Bank and the executing agency will meet to examine the program of investments and actions planned for the following year and evaluate the progress of subsector adjustment activities and other measures described in part B below. They will also review compliance with agreed criteria and procedures and assess the targets met in the transformation of INDRHI in order to determine how the IDB will

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3/ See part B of this section.

support the process during the following year. A detailed analysis has been undertaken of the group of systems selected for inclusion in the program during the first year of execution, and the criteria and methodology for selecting the systems to be included subsequently have been defined and are an integral part of the program's operating regulations.

c. Operating regulations

3.5 Execution of the program will be governed by a set of operating regulations, which will establish the basic standards and rules for selecting the irrigation and drainage systems to be included in the program, as well as the time-slice monitoring and control procedures, procedures for the procurement of goods and services, and restrictions on the use of program resources. These regulations also include the criteria for recovery of operation and maintenance costs and the transfer agreements. A draft version of the regulations (similar to those presented in Annex III-A) must be submitted by the executing agency and accepted by the Bank as a condition precedent to first disbursement.

d. Selection of irrigation systems

3.6 In selecting the systems to be included in the program, INDRHI will conduct a review of all the systems in the country. The review will follow the procedure described in the operating regulations and will take into account such social, technical, economic, and environmental factors as the willingness of the farmers to form associations in order to manage the systems, the proportion of poor farmers and female heads of household among the users, productive potential, and the degree of complementarity with contiguous systems.

3.7 By the sixth month of each year, the executing agency will be required to submit for Bank approval a list of the systems preselected for the following year. Feasibility studies will then be conducted to determine those systems' specific needs under each component of the program, including the proper sequencing of activities to be carried out in each case. Finally, taking into account projected returns, the systems will be compared and ranked according to a scoring system. The systems that receive the highest scores will be selected for inclusion in the following year's work plan.

3.8 The detailed studies will follow the same methodology used for the systems included the first year. Once the inclusion of the systems has been negotiated with the Bank during the corresponding annual review, these studies will serve as the basis for the executing agency to initiate the activities in each system.

2. Organization of program execution

3.9 The execution framework outlined below is designed to ensure both program continuity and the administrative decentralization of INDRHI. In order to establish close linkage with the current INDRHI structure and contribute to its transformation, the unit responsible for the program will include the heads of the irrigation districts.

3.10 Program Coordination Unit: A Program Coordination Unit (PCU) will be set up directly under INDRHI's Executive Director's Office. The unit will be staffed with personnel chosen on the basis of their qualifications to participate in the program. The structure and functions of the PCU are described in detail in Annex III-B and illustrated below in Figure 2. Establishment of this unit will be a condition precedent to first disbursement.

3.11 The purpose of the PCU is not just to serve as a stable and decentralized execution mechanism for the program, but also to be a catalyst for INDRHI's transition to its new role within the subsector. To illustrate the transition from the former to the future structure, the figure contains shaded and unshaded areas. The district supervisory units (shaded area) will be separated functionally from the districts, which they currently come under, and placed under the PCU in order to facilitate the process of transition and training for the new modus operandi. After the program is completed, the PCU (unshaded area) will disappear, leaving the redefined district supervisory units to fulfill the new function of the districts.

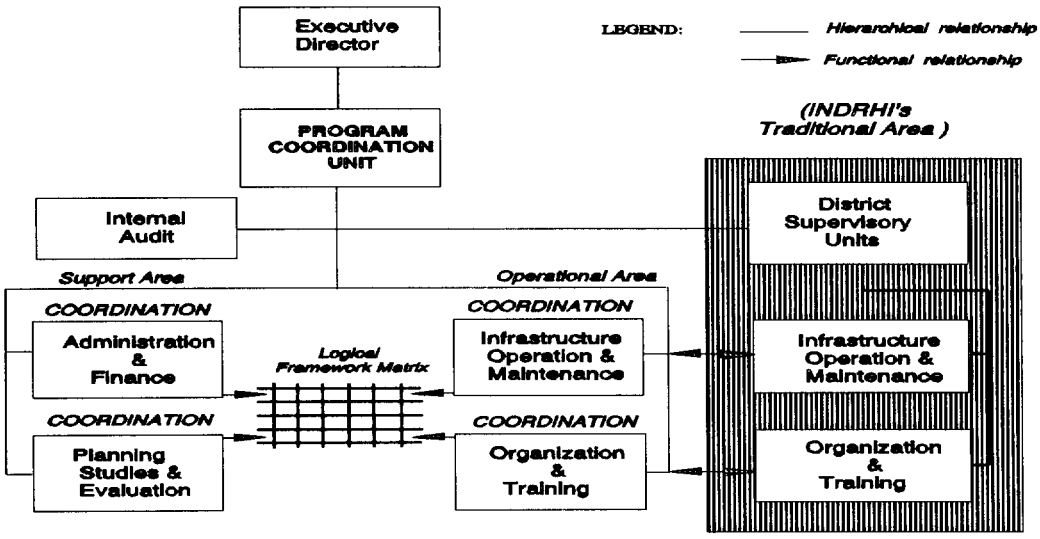

Figure 2: Structure of the Coordination Unit

3.12 As the arrows illustrate, the operational and support units will not be linked structurally to each other or to the districts but rather will interact across the matrix under the leadership of the head of the unit and based on the operational design of the logical framework for the program.

3.13 Transition to the new functional structure of the subsector. The proposed execution framework will help the INDRHI irrigation districts to adapt to the subsector's new functional structure by means of a transition strategy comprising three consecutive stages, namely:

(i) Stage 1: When the program is initiated in a given area, the staff of the respective INDRHI unit (known as an Irrigation District) will continue to carry out their traditional functions, except for the head of the district, who, together with selected personnel, will be assigned to a District Supervisory Unit, under the authority of the PCU (shaded area of Figure 2). An interim head will be appointed to the Irrigation District to oversee the systems that are not being included in the program at this point.

(ii) Stage 2: During program execution, the District Supervisory Unit's technical staff will interact within the matrix with the PCU's operational and support units and will receive training in the supervisory, regulatory, and control functions of the user boards which they will oversee in the future. During this stage, the Irrigation Districts will be phased out as INDRHI's operational units, and their personnel will either be absorbed by the user boards or retrained.

(iii) Stage 3: Once responsibility for operation and maintenance of all the irrigation systems has been transferred from INDRHI to the users, the PCU will be dismantled and in its stead will be the Irrigation Districts Department, which will have been recast to take on INDRHI's new policy and supervisory functions.

B. Specific execution guidelines by component

3.14 In addition to examining the operational targets and investments selected for inclusion in the annual investment programs, at the annual program review meetings the Bank and the executing agency will monitor the following specific commitments under each component.

1. Information systems and basic studies

3.15 As one of the activities to be carried out under this component, INDRHI is to submit an adjustment plan for the subsector based on the following guidelines:

a. Programming of investments in the irrigation subsector

3.16 A system for programming investments in the irrigation subsector, to be agreed upon with the Bank, will be implemented. The system will include: (i) a methodology for identifying and evaluating irrigation projects; (ii) definition of investment eligibility criteria; (iii) a model for prioritizing investments that can take account of qualitative, social, and organization variables in assessing projects; and (iv) a plan for training personnel to cover the minimum operating and maintenance needs of the system. As a condition precedent to first disbursement, the consultants are to be hired for designing and implementing this system. The system (i.e., methodology, eligibility criteria, and model) will be designed during the first year of the program and implemented and tested during the second year.

b. Updating of INDRHI's institutional mission

3.17 A work program for updating INDRHI's institutional mission against the backdrop of the subsector adjustment activities will be submitted for Bank approval. The program is to include: (i) the actions needed to adapt INDRHI's institutional profile to the exclusively regulatory and supervisory functions it will have under the new functional structure of the subsector; (ii) the studies and activities needed to redefine the functions of the Irrigation Districts in operational, technical, and financial terms and recast them in the subsector's new structure, taking into account the organizational transition strategy described in paragraph 3.13; (iii) revision and updating of the water code in order to consolidate the legal framework for the subsector; (iv) a plan for rightsizing INDRHI staff at the central level and in the Irrigation Districts in accordance with the systems transfer strategy, including the possible transfer of personnel to private service companies; and (v) operation and maintenance budgeting that reflects the transfer policy. The terms of reference for this program are to be presented for Bank approval as a condition precedent to first disbursement, and implementation of the work program will be an objective for the second year of project execution. A review will be conducted of the progress made during the first year.

2. Infrastructure upgrading and outfitting

3.18 The executing agency agrees to ensure that the necessary conditions will exist so that the program beneficiaries will participate actively in the administration, operation, and maintenance of

irrigation systems, and also in identifying what repairs are needed in order to put the systems in minimum operating condition. Users will be involved in decision-making on investments by means of consultations, utilizing the same participatory methodology as will be applied for the preparation of the studies for the first year. This process involves setting up provisional liaison committees linking users and the executing agency. These committees will constitute the embryo out of which future associations and/or user boards will develop in systems where such groups do not yet exist. The executing agency will submit a report each year on the liaison committees that have been set up and the consultations held with regard to the system repairs and works to be carried out during the following year.

3. Organization and training of users

3.19 As part of the subsector adjustment plan, the executing agency agrees to submit a work program for the activities under this component that are of national scope, such as the compilation of the land registry, organization, and training, for the entire duration of the program. These activities will affect all the systems included in the program and they will not be subject to the time-slice format, although progress toward achievement of the goals will be monitored at the annual review meetings.

C. Cost recovery

3.20 From the perspective of the program, the investment costs incurred in the past when the irrigation systems were originally constructed are sunk costs. The only costs considered relevant are operation and maintenance costs and the costs of the improvements that will be made in order to put the systems in minimum operating condition prior to transferring them to the users. Under the agreement between the government and the users, the systems are to be delivered free of any requirement to provide compensation for the investments.

3.21 The users agree to assume full responsibility for all operation and maintenance costs, which includes paying to INDRHI the appropriate bulk water fees and the cost of any heavy equipment received for system operation and maintenance, in cases in which the provision of such equipment was considered necessary.

3.22 INDRHI will retain responsibility for the operation and maintenance of the principal reservoirs and canals, while the user boards will assume responsibility for these functions at the point of bulk water delivery to each irrigation system.

a. Cost recovery for large-scale works

3.23 INDRHI will draw up a cost recovery plan aimed at covering 100% of the operation and maintenance costs for large-scale works (dams,

conveyance works, pumping plants, etc.) by means of bulk water fees. These charges may be increased subsequently as a tool for ensuring efficient allocation of water in the various drainage basins and in order to raise funds for social programs.

b. Cost recovery for the transferred systems

3.24 Estimates have been made of the operation and maintenance costs for the sample of six irrigation systems to be transferred during the first year of the program. Based on the unit costs per thousand cubic meters of water delivered at the farm level, irrigation fees have been set that will enable the various user boards to cover all their operation and maintenance costs and pay INDRHI the appropriate bulk water fees. A reasonable allowance for nonpayment due to blights, health problems among users, and other contingencies has been factored into these calculations.

3.25 In larger-scale irrigation systems, for which the project may finance the acquisition of equipment for canal maintenance, the user boards would pay back this investment by charging a service fee to the firms that are set up to provide it, or through bulk water fees in cases where the equipment is transferred to a particular board. The procedure to be implemented for managing this equipment, charging for its use, and recovering costs, as well as the organizational makeup of any company that may be formed (private or semipublic), will be defined on the basis of the recommendations of the study to be conducted under the program's information systems and basic studies component.

3.26 Adoption of a plan for recovery of operation and maintenance costs will be a condition precedent to first disbursement, and execution of the plan will be reviewed annually. As part of the plan, the executing agency will agree to revise the bulk water rates charged by INDRHI to include: (i) a methodology for calculating rates on a volume basis; (ii) a fee for conservation of drainage basins upstream from reservoirs; (iii) any additional charges to recover equipment costs, when applicable; (iv) as of the third year and gradually up to the fifth year of project execution, an amount to cover depreciation of new works that are to remain under INDRHI's responsibility; and (v) new revision and/or updating — on the basis of the subsector's new rate and functional structure — of agreements with other institutions that may have an impact on cost recovery, such as those signed with the Banco Agrícola and the Dominican Electricity Corporation (CDE).

D. Execution and disbursement periods

3.27 The execution period for the project will be five years, starting from the date on which the loan contracts enter into force, including the time necessary to meet the conditions precedent to first disbursement and the periods for issuing calls for bids on works, awarding of contracts, execution of those works,

supervision, and other consulting services. The tentative disbursement timetable is shown below.

DISBURSEMENT TIMETABLE
(in thousands of United States dollars)

Component	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Engineering and administration	2,153	2,046	2,086	2,195	1,021	9,501
Direct costs	12,165	8,380	9,609	10,263	808	41,225
Associated costs	808	449	552	550	443	2,802
Unallocated funds	1,647	994	1,263	1,140	222	5,226
Financing costs	607	967	1,246	1,578	1,808	6,206
Total	17,380	12,836	14,756	15,726	4,302	65,000

E. Transfers of funds and advances

3.28 For the purposes of the project, the executing agency will open an account with the Central Bank, where the proceeds from the IDB financing and the local counterpart funds will be deposited. To ensure that the borrower will have timely access to funds to cover program-related obligations, it is recommended that a revolving fund be set up for INDRHI's use by advancing up to 10% of the loan.

3.29 The executing agency is expected to incur expenses for consulting services prior to the start of the program. It is recommended that up to US$200,000 of these expenses be recognized as program-related and covered out of the financing, in accordance with Bank rules. It is also expected that engineering and design expenses will be incurred prior to program startup, and it is recommended that up to US$200,000 of these expenses be recognized as program-related and covered out of the local counterpart funds.

F. Control of environmental impact

3.30 In order for a system to be included in the program, the corresponding feasibility study must include an analysis of how the system's past operation has affected its current environmental situation, in addition to an assessment of the project's environmental impact and recommended measures to prevent or mitigate harmful environmental effects during the upgrading of infrastructure. In addition, it should be determined how environmental impact monitoring will be carried out during operation and maintenance, and suitable mitigation measures should be developed. Within the institutional framework described below, INDRHI and the respective user board will be responsible for environmental monitoring in each system.

3.31 Environmental monitoring and control committees will be set up at the system, district, and central levels. These committees will consist of members of the user boards at the system level and INDRHI staff at the district and central levels. The committees will oversee environmental monitoring and control in their respective areas of action, observing the methodologies and procedures developed on the basis of the environmental studies conducted in each case. The functions of the committees and the funds budgeted for this purpose are outlined in the environmental summary.

3.32 As a condition precedent to first disbursement, the loan contract is to indicate the positions of the officers who will be on the committee at the central level. As a further, special condition, the district-level committees are to be set up within a six months from the date on which the contract becomes effective. The board-level committees will begin to be formed at the first training meetings, so that they can be formalized by the time the system is legally transferred.

G. Operation and maintenance

3.33 The objective of this subcomponent is to create sufficient managerial capacity within the user boards to enable them to keep their irrigation systems operating efficiently. The program's reorganization, equipment procurement, documentation, and training activities are all focused toward this main objective. At the same time, this will help ensure proper maintenance of program works, once responsibility for this area has been transferred to the user boards, without relieving the executing agency of any of its responsibilities in this area.

H. Procedure for the procurement of goods and services

3.34 Goods will be procured and construction works contracted for in accordance with the procedures set out in Annex B to the loan contract. International competitive bidding will be mandatory for procurements valued at US$250,000 or more and construction works valued at US$1,500,000 or more. These thresholds are justified considering that they are the minimum amounts for which bids are generally submitted by foreign firms in similar projects. For all other procurements, the specific procedures described in the program's operating regulations will be followed. The table below shows a tentative timetable for bidding during the first year.

TIMETABLE FOR BIDDING DURING THE FIRST YEAR
(in thousands of United States dollars)

Description of contract	Type of contract	Amount	Startup date (1996)
Supervision of works			
Mao	Consultancy	138.3	3rd quarter
Dajabón	"	43.2	"
Mijo	"	60.9	"
Yuna	"	206.8	"
San Rafael del Yuma	"	83.1	"
Works			
Mao	Construction	2,532.3	3rd quarter
Dajabón	"	792.2	"
Mijo	"	695.0	"
Yuna	"	3,839.2	"
San Rafael del Yuma	"	856.5	"
Equipment	Procurement	900.0	4th quarter
Vehicles and small equipment	Procurement	180.0	2nd quarter
Preinvestment studies	Consultancy	623.0	2nd quarter
Special advisory services	Consultancy	807.0	2nd quarter
Support for organization and training	Consultancy	405.0	2nd quarter

I. Monitoring and supervision

3.35 The Bank will supervise the progress and execution of the program through its Country Office in the Dominican Republic. In order to ensure continuous and adequate monitoring of program activities, the Bank and INDRHI will hold annual review meetings before September 30 each year.

3.36 These meetings will examine the progress made in carrying out the subsector adjustment plan, as formulated under the provisions contained in paragraphs 3.15 through 3.19, as well as the progress of the annual programs referred to in paragraph 3.4. In preparation for the annual review meeting, the executing agency will provide the Bank with a report outlining the progress made under the program during the previous year and the targets proposed for the following year. The report is to be submitted at least 30 days prior to the date of the annual review meeting.

J. Ex post evaluation

3.37 While all facets of the program will be monitored, the ex post evaluation will focus on a stratified sample of projects under way, placing special emphasis on the indicators of productivity,

efficiency, and fiscal savings listed in the matrix of indicators contained in the logical framework for the program.

3.38 In keeping with the goal of divestiture of INDRHI, the district offices will bear primary responsibility for monitoring and evaluation of the indicators in the logical framework, while the PCU will be responsible for consolidating and systematizing the information. Special attention will be paid to the productivity indicators for the transferred systems, collection of fees, and rightsizing of INDRHI.

K. Status of program preparation

3.39 The conceptual basis for the program exists, and technical, economic, institutional, and environmental feasibility studies have been carried out for the six irrigation systems to be included during the first year. Through formal consultations and dialogue with the users and establishment of the liaison committees, account has been taken of local needs and priorities, both in terms of water resources infrastructure and the institutional strengthening required in order to carry out the activities.

IV. RATIONALE FOR THE PROGRAM

4.1 The proposed investment is justified by the increases in agricultural output that will result from more efficient use of water resources and from the savings in public spending associated with the progressive withdrawal of INDRHI from the operational aspects of irrigation activities. The development of self-management capacity fostered by this project could have additional long-term benefits besides the ones discussed here, including expansion of irrigation systems and the provision of complementary services to users by the financially strengthened user boards.

4.2 The political will to continue the transfer of systems to users exists, and INDRHI has gained experience in this area through the successful transfers that have already taken place. Considerable interest has been noted among the users because of the benefits they expect to receive as a result of the transfer.

4.3 This operation will help to correct the serious administrative bottlenecks within INDRHI, in particular by simplifying the administration and collection of irrigation fees, which will become the responsibility of users at the farm level. Bulk water delivery will also be considerably simplified by working with user boards, rather than directly with individuals.

A. Technical viability

4.4 The program will build on the lessons learned from the pilot transfer of seven irrigation systems. The PCU will replicate the organizational structure of the On-farm Water Management Project (PROMAF), which was successful in strengthening the user boards involved in the pilot phase. During this phase, sufficient technical resources were developed to make it feasible to undertake the activities proposed under this project.

4.5 The users already have years of experience with growing crops under irrigation. They will receive additional support from a complementary program designed to enhance agricultural competitiveness, scheduled to be carried out with financing from the Multilateral Investment Fund (MIF). This program will be executed through the Dominican Agribusiness Board [Junta Agroempresarial Dominicana] (JAD) and will promote private technical- and commercial-assistance services in various areas, including irrigation systems transferred to users. The current deficiencies in public agricultural extension services available to beneficiary farmers will thus be resolved.

4.6 The program will maintain the same simple operations and maintenance technology currently used in the irrigation systems and will introduce easy-to-use equipment for measuring water flow. The

program will also provide training to users in order to enhance their ability to manage the systems. The pilot transfer experiences have demonstrated that this enhancement is possible.

B. Environmental viability

4.7 The transfer of responsibility for operation and maintenance of systems to users will help to halt the processes of soil degradation associated with the current situation of the systems. In addition, analysis of the possible environmental impact of the project has made it possible to determine what control measures will be needed to minimize negative effects and identify the parties responsible for applying these measures. The activities discussed in section III on program execution, which are described in greater detail in the environmental summary, will further enhance the environmental viability of the program by increasing the sustainability of the natural resources used in irrigation.

4.8 The program calls for setting up environmental monitoring and control committees (EMCC) at the level of the user boards, and environmental policy committees and supervisory committees at INDRHI's central and district levels, respectively. The environmental impact study conducted for this program outlines the makeup and functions of these committees. Establishment of these committees will be a condition precedent to first disbursement.

C. Institutional viability

4.9 Through the program, progress will be made toward the goal of making regulation and control INDRHI's principal responsibility with regard to irrigation. Activities will be carried out to recast the agency's mission, and the functions currently being performed by the Irrigation Districts Department will be transferred to the organized user groups. The cost of the studies needed to undertake the necessary institutional reengineering have been included in the program budget.

4.10 The sustainability of user self-management and maintenance of irrigation systems will derive from their strong interest in assuming these functions, which stems, in turn, from the considerable benefits they expect to derive and the modest fees to be charged for the service.

D. Financial viability

4.11 The local counterpart funds for the program will total US$13 million and will be provided, as in previous projects executed by INDRHI and cofinanced by international agencies, by the national government in the form of capital investments in INDRHI. Given (i) the priority attached to the program by the Executive Branch and (ii) the fact that the amount of the counterpart is not significant within the national government's total expenditure and

is in line with the amounts of similar investments made previously, there are not expected to be any impediments to timely availability of the resources to meet the planned timetable of investments.

4.12 Based on the data available for the six irrigation systems selected for the first year 4/, it is estimated that by the end of the six-year period, once the program has been fully implemented, INDRHI's current expenditures will decrease by RD$24 million annually (equivalent to US$1.8 million at the exchange rate of RD$13.38 per United States dollar). Bearing in mind that the agency's revenue from irrigation fees will also decrease (by RD$9 million), the overall fiscal savings will be an annual RD$15 million. These savings could be higher still if the authorities decide to gradually increase the bulk water fees. Such increases would be an efficient way of ensuring efficient use of water resources in drainage basins, as water becomes more scarce in the long term due to growing demand.

4.13 Fees collected by the user boards under the program is expected to exceed RD$24 million annually. 5/ This amount will be sufficient to enable the boards to cover the operation and maintenance costs of the transferred systems. The boards' financially self-sustainability will be ensured by collection of a volume-based fee charged to individual users. This fee will be the aggregate of the value of the input (bulk water) and the cost of operating, maintaining, and administering the irrigation districts.

4.14 Data from the sample indicate that – once the program has been completed – an estimated 40,000 families of farmers and farm workers will have received benefits worth a total of RD$311 million at constant 1995 prices, a 33% increase over their current average earnings.

E. Social and economic viability

4.15 Self-management in the operation of the irrigation systems will foster more equal access to irrigation water and the obligation of all user-board members to pay the corresponding fees. The principal benefits of the program will stem from more intensive use of the land. More equitable distribution of water resources will

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4/ In the six systems to be included in the program during the first year, the irrigation fees collected and the operation and maintenance costs per hectare will be lower than the average figures for the INDRHI-operated irrigation systems taken as a whole. Accordingly, the main projections for the program can be viewed as being on the conservative side.

5/ Fee collection in the six systems included during the first year will increase 138%, rising from RD$3.4 million to RD$8.1 million once users assume responsibility for operation and maintenance of the systems.

reduce wastage at the top of the irrigation distribution network. At the same time, more water will be available thanks to less water lost during conveyance, as the result of investments in system upgrading, better organized operations, and better maintenance. Other benefits will be derived, though to a lesser extent, from modest increases in productivity arising from better technical use of water and the conservation of soil quality, which is currently at risk due to over-irrigation and inadequate drainage.

4.16 As this investment program is to be carried out under the time-slice format, the economic and financial analysis concerns only the investments selected for the first year of project execution. The implicit assumption is that these investments constitute a sample that fairly represents the universe of investments to be financed over the life of the program.

4.17 In carrying out the economic analysis, the necessary adjustments were made in the exchange rate (factor of 1.15) to take account of the effect of import taxes and in unskilled labor (factor of 0.5) to allow for high unemployment. Economic prices were also estimated for tradable commodities and inputs. In the case of rice, the benchmark used was the border price for grains of comparable quality. Although a significant increase is expected in U.S. rice export prices (the region's main producer of the variety of rice grown in the Dominican Republic) owing to the gradual phasing out of unit production cost subsidies, no adjustments were made for this factor in the price projections.

4.18 Investments made previously in the systems have been treated as sunk costs. Hence, the only investment costs considered here have been those of the improvements undertaken as part of the program, in addition to the expenses incurred in training users. The expected benefits will be substantial in relation to the costs, yielding a high rate of economic return for the systems analyzed. In addition, irrigation system users will obtain sizable earnings, in comparison to which the proposed irrigation charges are modest. This situation will enhance the viability of the user boards and opens the possibility for a gradual increase in bulk rates in the long term.

4.19 In the analysis of economic return, all the projects in the sample showed return rates (economic internal rate of return-EIRR) of over 12% a year. The greatest potential was found in the Mijo, Yuna, and Mao-Gurabo systems, which account for most of the land area covered by the systems to be included during the first year. The sensitivity analysis indicates that the economic rate of return remains acceptable even if, with respect to the base scenario, farm commodity prices fall 10%, output increase only 13% (instead of the expected 33%), or investment costs rise by 20%.

ECONOMIC SITUATION AND SENSITIVITY ANALYSIS

FIRST YEAR PROJECTS	NET PRESENT VALUE (thousands of RD$)	IRR (%)	IRR SENSITIVITY (%)		
			PRICES -10%	OUTPUT -20 PERCENTAGE POINTS	INVESTMENT +20%
Mijo	62,936	80	69	39	69
Mao Gurabo	103,505	51	45	22	44
Yuna	81,464	33	25	12	28
Dajabón	11,074	31	25	14	24
FIDA III	16,830	117	102	50	94
San Rafael del Yuma	32,118	49	42	20	41
TOTAL	**307,928**	**45**	**38**	**20**	**39**

1. Impact on poverty

4.20 This program shows a strong bias in favor of the poor rural population. The figures provided by SDS/SOC put the poverty line for the Dominican Republic at a monthly per capita income of RD$519 at 1994 prices. Based on the agroeconomic data available for the six irrigation systems in the sample, the average farmer must till 3.24 hectares to earn a family income equivalent to the poverty line. Sixty-eight percent of the farmers in the sample have incomes below the poverty line because their farms are smaller than 3.24 hectares. Hence, this program meets the requirements for classification as a program targeting the poor, since more than 50% of its direct beneficiaries fall below the poverty line.

2. Other distributive effects

4.21 The project will have a progressive distributive impact among the irrigation system users. Users located close to the headgates of the canals, whose incomes are higher than the average for the system owing to their preferential access to irrigation water, will not derive many benefits, since their farming will not become more intensive. Their earnings may even decline, as they may be obliged to pay higher rates for water under the project than they have been paying up to now. In contrast, producers located near the tailgate of canals, whose incomes are below the average owing to the fact that they have little or no effective access to water, will see a substantial increase in their earnings once they began to receive a better flow of water for irrigation.

4.22 In addition, one of the criteria for selection of the systems to be included in the operation will be the proportion of users with farms smaller than the size needed to earn an income equal to the

poverty line established by the IDB. Another criteria for selection will be the percentage of female users of the irrigation systems, since households headed by women generally have lower average incomes than others, even after allowing for the effects of other explanatory variables.

3. Participation of women

4.23 The current water law, the specific regulations on irrigation fees, and the proposed water code do not discriminate on the basis of gender. Legally, any person listed in the registry of users, whether the owner or usufructuary of the land, is considered an irrigation system user.

4.24 The proportion of female users is small, ranging from a maximum of 10% of the registered users in some irrigation systems to a minimum of only 1% in other systems. Although women face no formal restrictions and are entitled to participate on an equal footing with men within user associations, there are no women at the executive level in user associations or boards. Their absence is due mainly to the fact that the women included in the registry of users are generally not in charge of production; rather, they delegate this responsibility to their spouse or sons. If they are widowed, they generally lease the farm.

4.25 The participatory events have shown that it is important to motivate women's involvement in order to ensure their cooperation in irrigation-related actions. This conclusion is based on the need to involve the entire household in productive activities, in other words, to have a social division of labor based on the family unit. For this reason, the program's motivation and training activities will make a special effort to include women as an active part of the family work force.

F. Special issues, risks, and safeguards

1. Special issues

4.26 The rice situation. Rice production has been the object of a special analysis because rice is the predominant crop grown in the irrigation systems and because rice growers receive substantial protection through quantitative restrictions on imports and through support prices (see technical file). It is expected that the significant increase in national rice production foreseen under this program, coupled with gradual compliance with international agreements within the framework of GATT and the consequent reduction of trade restrictions, will push domestic rice prices closer to the equivalent border price (adjusted to compensate for the subsidy component of prevailing international prices). This will mean a drop of almost 30% in domestic prices. An analysis of this eventuality has shown that rice growers would continue to

enjoy significant financial returns even if domestic rice prices decreased to the level of economic prices.

4.27 Considering that the elasticity of demand and supply vis-à-vis price changes on the rice market has been estimated at 0.47 and 0.5 respectively, and that national consumption is slightly over 320,000 tons (level registered in 1994), and assuming stable foreign trade volumes for purposes of this analysis, the 65,000 tons of incremental rice production expected under this project once it is fully under way would generate a reduction on the order of 20% in domestic rice prices.

4.28 Extension needs. The ultimate success of the program will hinge on the user organizations' ability to actually carry out the functions of operation and maintenance of the irrigation systems. In order to do so, they will have to have the technical and administrative skills needed to operate the systems efficiently and resolve any conflicts that may arise between users in a rational manner. In addition, they must be knowledgeable about efficient irrigation techniques and appropriate farming technologies for ensuring optimal use of water and land resources. To this end, the program includes specific training activities, both in organizational aspects and in irrigation management. With regard to technology and agricultural extension, the needs in these areas are expected to be met through the MIF-financed program mentioned above.

2. Risks and safeguards

4.29 The conceptual approach of the program requires a firm commitment from the government to effect the institutional changes needed to make the irrigation subsector self-managing, so that INDRHI's role in the subsector can be recast and savings in public spending can be realized as the systems are transferred. A significant risk in this regard is that the political will to go forward with the process will not be maintained. This risk is offset by the time-slice format that has been adopted for the program. Under this format, year-on-year monitoring will track the progress made with the administrative and policy measures associated with the transformation process as identified by the project team and will examine how these measures are being reflected in reductions in projected subsector spending and in the establishment of a system for programming and assigning priority to irrigation investments in keeping with the new policy approach.

4.30 Adjustment of the subsector will entail important institutional challenges relating to (i) INDRHI's ability to adapt its institutional profile to the exclusively regulatory and supervisory functions that it will have within the subsector's new structure, and (ii) the feasibility of transferring staff to the private sector, as a result of INDRHI's withdrawal from operation and maintenance functions. To offset the risk implicit in these challenges, the program includes – in addition to progress

monitoring under time-slice format – resources and activities to help INDRHI assess and implement its institutional reengineering efforts. The risk implicit in the need to rightsize staff will be mitigated by the experience gained thus far, which has shown that user boards tend to hire the most qualified system maintenance personnel from the Irrigation Districts.

4.31 The program's success will also depend on users' willingness to voluntarily take on self-management of the systems and assume the related responsibilities. Experience has shown that there is widespread user interest in becoming involved, so the risk in this regard is minimal. Nevertheless, various factors have been identified that could discourage users from voluntarily accepting the transferred responsibilities in specific cases, such as the following: (i) when the systems are in a very poor state of repair due to years of poor maintenance by INDRHI; (ii) unavailability or limited access to heavy equipment needed to maintain some systems; and (iii) uncertainty regarding property lines. In order to offset these risk factors, the program will include specific repairs and one-time infrastructure improvements, procedures to ensure access to heavy maintenance equipment when so required under the cost-recovery plan, and compilation and updating of a registry of users that will help to facilitate management of the irrigation systems.

MACROECONOMIC SITUATION OF THE DOMINICAN REPUBLIC

A. Recent economic trends

1. The country entered the 1990s immersed in one of the worst economic crises of its history. At the end of 1990, average inflation was 59.5%, the GDP had declined 5%, and the public deficit was equal to 5% of GDP. In response to the crisis, the government adopted a program of economic adjustment and structural reform intended to restore growth and stability. In August 1991 the IMF lent its support to the program through an 18-month stand-by arrangement.

2. The resulting fiscal discipline and a restrictive monetary policy enabled the country, during 1991 and 1992, to reduce inflation, reverse the economic decline, and turn the public deficit to a surplus, as can be seen in the table of indicators below. Controls on interest rates were lifted and the exchange rate policy produced stable parity in free market conditions. Parallel tax, financial, labor, customs, and tariff reforms launched the modernization of the State and promoted economic openness. The results of the program and the agreement with the IMF enabled the country to restructure its debt with the Paris Club.

Dominican Republic: Principal Economic Indicators, 1989-1994

	1989	1990	1991	1992	1993	1994 p/
GDP growth rate (%)	3.9	-4.8	0.8	7.8	3.0	4.3
Average annual inflation (CPI)	45.4	59.4	53.9	4.6	4.8	8.3
Consol. public sector balance (% of GDP)	-5.9	-5.0	0.1	1.3	-0.2	-0.8
Export of goods FOB (%)	3.9	-20.5	-10.4	-14.6	-9.1	26.0
Current account (% of GDP)	-5.9	-3.6	-2.3	-8.0	-2.9	-0.8
Exchange rate (nominal average)	6.3	8.5	12.7	12.8	12.9	13.75

Source: IDB, Economic and Social Data Base; IMF, *International Financial Statistics*; and Central Bank of the Dominican Republic

p/ = preliminary

3. The economic recovery produced by the adjustment program began to wane in 1993, when the GDP grew by only 3%, compared to 7.9% in 1992, and the fiscal deficit reappeared. Expansionist policies led to further deterioration of the indicators in 1994 since, coupled with electoral uncertainty and reduced capital flows, they exerted pressure on the exchange rate and caused net international reserves to drop from US$736 million in 1993 to US$315 million in September 1994. That month, however, the effort at stabilization was relaunched through monetary and fiscal measures and exchange adjustment. Inflation slowed and the country closed the year with a growth level of 4.3% and replenished international reserves of US$350 million.

B. Lessons from the adjustment program

4. Despite the policy changes, the stability achieved through the 1990 program proved to be insufficient, and the growth was not sustained enough, to improve social indicators. The decline in public spending produced levels of social spending during the 1990s that were below the 1989 level, and the inequality in the distribution of income grew more pronounced.

5. The public deficit was reduced mainly through the imposition of taxes on imports and the so-called petroleum differential, which is subject to changes in international prices. Hence, the fiscal balance achieved was excessively dependent on external factors and out of the control of Dominican authorities. Other factors contributing to fiscal instability have been the deficit of publicly owned enterprises and low rates of tax collection.

6. The monetary policy, while successful in stabilizing prices, had adverse effects on the balance of payments. As inflation began to fall, real interest rates went from negative to highly positive. The high rates prompted an influx of short-term capital, giving an appearance of vigor to a banking system that in fact suffers from significant structural weaknesses. The infusion of capital also led to real appreciation of the Dominican peso, which discouraged productive investment and exportation.

7. In conclusion, despite the achievements of the economic program, the country continues to face formidable challenges. Although the control of inflation has curbed the erosion of real wages, and social spending has risen in recent years, poverty continues to be widespread, especially among the female population and in rural areas, where an estimated 36% of the population lives in poverty. Increased economic openness has accentuated the challenges of efficiency and productivity and has made the persistent imbalances in the external sector of the economy more critical.

C. Current situation and future prospects

8. The measures adopted in September 1994 were aimed at: (i) reducing pressure on the Dominican peso; (ii) enhancing the Central Bank's capacity to increase its international reserves; and (iii) reducing the level and growth of liquidity. These measures were accompanied by a policy that limits public spending.

9. The success of the stabilization plan will require continued application of restrictive policies. In 1995 the government set out to keep inflation at the single-digit level, maintain a growth rate of 4%, and ensure exchange stability in order to stimulate private investment. As a result of the stabilization plan, during 1995 inflation has remained at 11.8%, international reserves have grown, and the exchange rate has stabilized. The economy grew 3.5% during

the first half of the year. Renegotiation of the external debt with the private banking system (US$1.074 million), approved in June 1994, and the country's accession to the GATT intensified the process of liberalization and underscored the need for an economic policy of stability and strengthening of the reforms aimed at enhancing the competitiveness of the productive apparatus.

DOMINICAN REPUBLIC

PROGRAM FOR SELF-MANAGEMENT OF IRRIGATION SYSTEMS

(DR-0035)

PILOT EXPERIENCES IN THE TRANSFER OF IRRIGATION SYSTEMS

Summary Evaluation

I. BACKGROUND

1.1 The administration of irrigation water in the Dominican Republic has been centralized and non-participatory since efforts to develop large-scale irrigated agriculture began. Up to 1987, all matters relating to the administration, operation, and maintenance of irrigation systems were handled by the Dominican National Water Authority [Instituto Nacional de Recursos Hidráulicos] (INDRHI) through its Irrigation Districts Department.

1.2 In 1983, INDRHI and the United States Agency for International Development (USAID) signed an agreement to carry out the On-farm Water Management Project [Proyecto Manejo de Agua a Nivel de Fincas] (PROMAF), the objective of which was to strengthen INDRHI's capacity to plan and manage irrigation systems, promote agricultural productivity in those systems, and reclaim lands affected by waterlogging. In 1986, the first two water management centers (Southern Center of Azúa and Northern Center of Santiago) were created under PROMAF, and in 1987, acting on the legal authority accorded it under the current water law, INDRHI transferred responsibility for the first water distribution subsystems to user associations in Azúa and Santiago. These associations subsequently became user boards with authority over the entire system.

1.3 As a result of the experiences of the centers at Azúa (Yaque del Sur (River)-Azúa project, YSURA) and Santiago (Yaque del Norte (River), PRYN), in 1990 the Sabaneta, Bajo Yaque, Santa Cruz, Nizao-Valdesia, Nordeste, Pedernales, and Constanza water management centers were created. The experience thus far has shown strong evidence of improvements in the operation, maintenance, and administration of irrigation systems.

II. EVALUATIONS CONDUCTED

2.1 The first evaluations of the transfer activities were conducted to enable USAID to determine the results of its financial support of PROMAF, especially in the YSURA and PRYN systems. These evaluations were based on field studies by professionals hired for this purpose and on numerous interviews with users of the systems. 1/

2.2 INDRHI has carried out continuous monitoring of the experience, evaluating the results, extracting lessons from the process, and making needed adjustments to enhance it.

III. MOST SIGNIFICANT RESULTS

1. Azúa and Santiago systems

3.1 The evolution of the first two user boards (YSURA and PRYN), which inaugurated the decentralized management of irrigation in the country, has been strongly influenced by the dominant characteristics of the agricultural production systems transferred and by the specific deficiencies in each irrigation and drainage system. At the time that the YSURA system was transferred, all the users were experiencing severe problems due to the incapacity of the system to provide reliable water supply service and dispose of excess water. This situation motivated the users to organize themselves to improve the distribution and use of water. Hence, on each lateral canal an association of users was created and users began to participate actively in water distribution. This participation provided security and created trust among the users.

3.2 From the outset, in both systems a marked positive correlation was observed between transfer of responsibility for the systems to users and their motivation to participate actively in running the

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1/ Hanrahan, Michael et al. "Evaluation of the On-farm Water Management Project in the Dominican Republic." USAID; April 1990.

Bleidner, James O. "Evaluación del Proyecto de Manejo de Agua a Nivel de Finca. Republica Dominicana." International Development Assistance Company; February 1993.

Payeros, José et al. "Diagnóstico de la Participación de los Usuarios en la Administración de los Sistemas de Riego en el Área de Influencia de la Junta de Regantes CUFE." Winrock International and Instituto Superior de Agricultura (ISA); March 1995.

system. This new attitude on the part of the users contrasted sharply with the traditional indifference fostered by years of paternalistic involvement of the state. Once the users in the YSURA and PRYN systems took over direct control and supervision of irrigation, there was a notable increase in their willingness to pay their water bills on time and even voluntarily accept rate increases. This had an immediate positive impact on the quality of maintenance and the efficiency of water use because it created a more clear and immediate awareness among users of the connection between the operating and maintenance conditions of the systems and the profitability of their own farming operations.

3.3 The impact of direct participation of users in the YSURA system in water distribution activities was so significant that the flow rate decreased from 14 m^3/second to 8 m^3/second and at the same time the area under cultivation increased. As in the case of the PRYN system, more efficient use of water has tended to curb waterlogging, salinization, and sodification of the soil and other environmentally harmful processes resulting from years of excessive irrigation. A number of other positive changes were also observed, including a substantial increase in the collection of irrigation fees, elimination of conflicts between users and authorities, improved maintenance service, and increased physical efficiency in the use of water.

3.4 Notwithstanding the foregoing, the greater demands associated with agricultural planning and direct management of water use under the YSURA project placed an obvious strain on the system with the surge in activity observed during the first three years of decentralized administration. Consequently, the YSURA user board is still in the process of achieving financial consolidation. The fees being charged for irrigation service are not sufficient to cover the real costs of operation and maintenance, and there are deficiencies in the formation and functioning of the users' organization. These factors account for the lack of continued improvement in overall efficiency.

3.5 It is noted in particular that the highest level of the organization (the user board) lacks the necessary capacity to fully assume responsibility for its functions of medium- and long-range planning and formulation of water management policies designed to increase efficiency. Instead, it frequently penetrates the lowest operational level of the organization (the core group of users), practicing a sort of micromanagement of the irrigation units and ignoring the presence of the intermediate level of the organization: the associations of users. The is an evident lack of clarity with regard to the functions of this level of the organization and a need for training and general organizational strengthening of the users.

3.6 The evolution of the user board of the Yaque del Norte irrigation system (PRYN) has been more favorable. This board has achieved an obvious improvement in financial conditions, as collections and the percentage of users who pay irrigation fees have increased. The board has also made notable strides in improving the efficiency of irrigation and the involvement and participation of users.

3.7 The relatively rapid progress of the PRYN board can be attributed to the fact that the irrigation system was in better condition at the time it was taken over by the users and there was already a tradition of user participation, in contrast to the situation that existed in the YSURA system. This has meant that the organization and training process has been somewhat less difficult in the case of the PRYN system, although it is still ongoing in both systems.

2. Other systems transferred

3.8 The other user boards that are currently active are: Nizao-Valdesia, Dajabón, Presa de Sabaneta (Sabaneta Dam), AGLIPO, and Bajo Yaque del Norte (Lower Yaque del Norte River). These are recently formed boards which are still in the initial phases of organizational consolidation. In these systems, as in the first systems transferred in Azúa and Santiago, the user boards have tended to hire agricultural professionals to replace the traditional "water bosses" of INDRHI and have involved farmer volunteers, under the supervision of technical experts, directly in the operation of farm turnouts. This experience has significantly reduced friction and improved coordination among users.

3.9 The revision of rate scales has helped considerably to bring user charges into line with the real costs of operation and maintenance. Collection of user fees has also improved, as is evidenced by the experience of the user board of the Ulises Francisco Espaillat canal, which, in addition to assuming responsibility for the system, increased fees 133% and improved the collection rate by more than 100%. In the three years following the establishment of the board, the rates continued to be adjusted and eventually increased by more than 600%. Nevertheless, the collection rate remained much higher than it had been when the system was under INDRHI administration.

3.10 The evaluations indicate that the principal obstacles to the process of transferring responsibility for irrigation systems to their users are the following: (i) inadequate institutional organization of INDRHI to fully comply with the agreements, and (ii) weaknesses in the organizational capacity of the producers.

3. General conclusions

a. Achievements

3.11 Although the original problems have not been entirely resolved, the same positive correlation noted in the first two experiences with the YSURA and PRYN projects between the transfer of responsibility and the motivation of users to participate has been observed in all the other transferred systems. The result has been the progress discussed above with regard to collection of charges, reduction of waste, mitigation of waterlogging and other negative environmental impacts, and conservation of the irrigation systems.

3.12 An important factor in the improvement of operation and maintenance has been the tendency of the user boards to hire professional personnel from the private sector with a view to further modernizing the management of the systems for which they are now responsible as well as utilizing, on a private basis, the services of the most well-qualified system maintenance personnel formerly employed by INDRHI's irrigation districts.

3.13 The improvement in the control of water flow and the reduction of waste that has resulted from self-management has also led to more equitable access to the water resources in the systems. Previously only users located near the headgates of the systems had access to the water, while those located at the tailgate received insufficient supplies. The users appreciate the fact that they now have equitable access to the water, regardless of the location or size of their farms. This has helped considerably to improve the resolution of conflicts between users, which before, with INDRHI serving as operator and arbiter, were a constant source of corruption and disorganization.

3.14 The transfer of the systems has created opportunities for INDRHI to gradually withdraw from its operational functions and play a role that is more exclusively limited to regulation and general administration of water in the irrigation districts. Under the self-management scheme, not only have former INDRHI maintenance experts been hired privately by the user boards, but the practice by the "official custodians" of the canals of selling water to the highest bidder has been totally eliminated, as has the equally vicious practice by disgruntled users of sabotaging water gates in retaliation for this favoritism.

b. Deficiencies and needs

3.15 One of the deficiencies found is the poor quality and lack of timely and appropriate analysis of hydro-agricultural data that would make it possible to optimize the operation of the transferred systems.

3.16 The evaluations also revealed the need to improve the transfer process, especially with regard to the training of users in the areas of administration and planning. The need to strengthen the various levels of user organization was also noted, especially in the case of the intermediate and base levels. In addition, INDRHI's capacity to effectively assume the functions it will have after withdrawing from the operational sphere needs improvement. In the early phases of the transfer process, it has been noted that the boards of irrigation require close supervision and monitoring in order to strengthen and adequately equip them to manage the systems. The less attention paid to the boards at this initial stage, the longer it will take them to become fully independent and therefore the longer they will remain under the tutelage of INDRHI.

3.17 The evaluations have also shown an inverse correlation between the degree of infrastructure deterioration in the system and the willingness of users to take responsibility for its operation. The users generally feel that correcting the deterioration, the result of years of poor maintenance prior to the transfer, is primarily the responsibility of INDRHI, and failure to make the necessary repairs commonly discourages user participation and willingness to accept responsibility for the system.

3.18 Although the evaluations have recommended that the aforementioned repairs and physical improvements be made, especially those relating to the main drains and other collective elements of the systems, they have also recommended that investments not be made at the farm level, since such intervention in the individual responsibilities of each user would be counterproductive and detrimental to the self-management and organizational processes.

3.19 In those systems whose characteristics make it necessary to use heavy machinery for maintenance, the lack of local availability of this equipment is also a factor that diminishes the ability and inclination of the user to participate and take on responsibilities.

IV. STATUS OF THE TRANSFER PROCESS

4.1 To date (September 1995) INDRHI has transferred to organized users the seven largest systems in the country, which cover a total land

area of 58,452 hectares (25% of the total) and serve 19,815 farmers (28% of the total), as indicated below: 2/

Area transferred to organized users by irrigation district (as of September 1995)

Irrigation District	Area (hectares)			Users (no.)		
	Total	Transferred	%	Total	Organized	%
Ozama-Nizao	16,447	13,516	82	8,037	4,113	50
Azúa Valley	19,064	7,555	40	8,088	4,638	57
San Juan Valley	31,727	13,045	41	9,043	3,404	38
Yaque del Sur	36,083	0	0	15,789	0	0
Yuna-Camú	27,546	0	0	5,825	0	0
Bajo Yuna	21,429	6,932	32	14,143	3,160	22
Upper Yaque del Norte	36,953	6,042	16	3,218	2,015	63
Lower Yaque del Norte	34,245	11,362	33	5,789	2,485	43
Eastern Operating Unit	8,179	0	0	1,789	0	0
Total	231,673	58,452	25	70,202	19,815	28

2/ The seven systems that have been transferred are as follows: PRYN I in the upper Yaque del Norte River region; Nizao-Valdesia in Ozama River-Nizao region; YSURA in the Azúa Valley; Sabaneta in the San Juan de la Maguana Valley; Valerio and Juan Calvo in the lower Yaque del Norte River region; and Aglipo in the lower Yuna River region.

DOMINICAN REPUBLIC

PROGRAM FOR SELF-MANAGEMENT OF IRRIGATION SYSTEMS

(DR-0035)

INSTITUTIONAL AND FINANCIAL FRAMEWORK OF THE IRRIGATION SUBSECTOR

Summary analysis

I. INSTITUTIONAL FRAMEWORK

1. History and functions of INDRHI

1.1 INDRHI was created in 1965 under Law 6 of September 8, 1965. The regulations governing its operations were issued under Decree 1,558 of June 29, 1966, which established the agency as the highest authority over the country's surface and underground waters, with the power to control and regulate their use, as well as to directly operate irrigation systems.

1.2 INDRHI's central operational arm is the Irrigation Districts Department, which is responsible for overseeing the development and maintenance of the districts. Its functions include: (i) supervision, coordination, and administration of the work of the districts; (ii) control and supervision of water distribution; (iii) maintenance and operation of irrigation canals; and (iv) design of policies for the districts. The districts encompass irrigation zones, subzones, and units, where the largest share of expenditure on personnel involved operationally in irrigation is concentrated.

2. Personnel

1.3 As can be seen from the following table, more than 70% of INDRHI staff members are assigned to the irrigation districts, where they are directly involved in operation and maintenance.

DISTRIBUTION OF INDRHI PERSONNEL

LEVEL	HEADQUARTERS	IRRIGATION DISTRICTS	TOTALS	%
Technical	480	338	818	16
Administrative	511	347	858	17
Unskilled	434	2,908	3,342	67
Total	1,425	3,593	5,018	100
Percentage (%)	28	72	100	

3. Progress in institutional strengthening

1.4 With funds from loan 570/SF-DR, the IDB financed a study of institutional strengthening aimed at improving INDRHI's capacity to carry out the functions assigned to it under its charter. The consultants conducted a comprehensive study in the areas of planning, organization, personnel policies, etc. and recommended that responsibility for irrigation management be transferred to organized groups of users and that a new water code be adopted. The consultants also made recommendations regarding the consolidation of administrative decentralization, structural adjustments, and the implementation of systems and procedures to improve the agency's accounting and auditing practices. Loan 903/SF-DR, which is currently being executed, provides resources to support the implementation of these recommendations for administrative improvements.

4. Irrigation rates and collection

1.5 Rates are calculated on the basis of a budget of costs for administration, operation, and maintenance, but no estimate of the marginal cost for the volume of water delivered is incorporated. A common applicable factor per hectare is calculated for each irrigation zone on the basis of its physical characteristics and the types of crops grown. Hence, there is no explicit link between the rates charged and the volume of water used. Payment, which is chronically delinquent, is made directly to INDRHI, unless a user has a farm credit, in which case he makes his payment through the Banco Agrícola. The latter is required to transfer the payment to INDRHI under a 1985 agreement. However, the Banco Agrícola currently owes INDRHI RD$4.9 million for water bills collected on its behalf. Insufficiency of the rates charged and delinquency in collections largely explain INDRHI's limited capacity to sustain itself financially.

II. FINANCIAL SITUATION

2.1 INDRHI's operating income has been insufficient to cover its operating expenses, as can be seen in the following table. Investments in capital goods have therefore had to be financed through contributions from the government and local and external credit.

BUDGET PERFORMANCE FOR 1992-1994
AND BUDGETED AMOUNTS FOR 1995
(in millions of United States dollars)

ITEM	1992	1993	1994	1995
Operating income	1.8	1.4	1.5	2.9
Fiscal revenues	56.3	42.5	45.8	103.9
External loans	5.6	9.3	10.6	29.7
Other income	1.8	2.2	2.3	3.5
Total income	**65.5**	**55.4**	**60.2**	**140.0**
Current expenditure	7.3	12.4	14.1	14.7
Capital expenditure	62.0	43.8	45.1	125.3
Total expenditure	**69.3**	**56.2**	**59.2**	**140.0**
Surplus/(deficit)	**(3.8)**	**(0.8)**	**1.0**	**0.0**

2.2 The following table reveals the cash flow shortages associated with operations for the period 1991-1994.

CASH FLOW STATEMENT
(in millions of United States dollars)

	1991	1992	1993	1994
1. Cash provided for/(used on):				
a. Operating activities	(0.3)	(2.2)	(2.0)	(10.4)
b. Investment activities	(119.0)	(117.4)	(92.0)	(50.3)
c. Financial activities	118.2	118.6	92.5	61.0
2. Annual cash increase (decrease)	(1.1)	(0.9)	(1.4)	0.2
3. Cash on hand as of January 1	4.6	3.5	2.6	1.2
4. Cash on hand as of December 31	3.5	2.6	1.2	1.4

2.3 Analysis of the agency's balance sheets shows an acid ratio of 0.31, which indicates that liquidity is very tight, making it difficult for INDRHI to meet short-term obligations. The average delay in collection is more than two years from the date of billing, but real delinquency is not as high as the ratio would appear to indicate because, as was noted above, the Banco Agrícola is generally slow in crediting user payments. The transfer of these accounts to the user boards is expected to improve collections.

2.4 The income statement for the period shown below confirms INDRHI's operating deficit. Government contributions to offset this debt and finance investment were equal to eight times the amount of income.

INCOME STATEMENT
(in millions of United States dollars)

ITEM	1991	1992	1993	1994
Water sales	6.2	4.7	4.8	4.7
Operating costs	10.0	13.9	24.8	24.3
Net operating income (loss)	(3.8)	(9.2)	(20.0)	(19.6)
Net nonoperating income (loss)	4.9	7.4	11.8	11.5
Net profit (loss)	**1.1**	**(1.8)**	**(8.2)**	**(8.1)**

PROGRAM FOR SELF-MANAGEMENT OF IRRIGATION SYSTEMS
(DR-0035)

LOGICAL FRAMEWORK

OBJECTIVES	INDICATORS 1/	MEANS OF VERIFICATION	ASSUMPTIONS
Goal			Relative to the goal
To rationalize the use of irrigation subsector resources	■ Overall efficiency of irrigation increases from 25% to 40% in 6 years	■ Hydrometric statistics compiled by the program	■ Users will exercise appropriate self-management of systems
	■ Irrigated land use rate increases from 0.94 to 1.17 in 6 years	■ Agricultural statistics and land tenure maps updated by the program	■ INDRHI will review its mission and make changes in its institutional profile so as to focus on regulation of irrigation
	■ Public spending (INDRHI, 1994) on irrigation maintenance and operation decreases 15% in 6 years.	■ INDRHI budget execution	■ No major distortions will occur in the sector
	■ Collection of fees increases 125% over the 1994 level in 6 years	■ Collection records of user boards	
Purpose			Relative to the purpose
To implement the first stage of transferring irrigation systems to users	■ Forty systems in good operating condition will be transferred to user boards encompassing 20,000 users and 80,000 hectares in four years	■ Signed transfer agreements	■ Users will accept responsibility for the use of the systems
		■ Signed transfer contracts	■ Users will be trained and the systems will be repaired and improved
Components			Relative to the components
1. Information and planning systems and basic studies implemented	1.1 Three hundred and nine registries of users/maps of land ownership updated in four years	1.1 Registries updated and updating systems	1. INDRHI authorities and users will collaborate in the execution and facilitate the activities of PCU
	1.2 Forty hydroagricultural information and planning and environmental monitoring systems implemented in five years	1.2 Equipment, software, database functioning	
	1.3 Thirty four preinvestment studies for the program conducted in three years	1.3, 1.4 Documentation, studies	
	1.4 Five specific studies in five years		
2. Irrigation systems improved and equipped for operation, maintenance, and environmental monitoring	2.1 Forty systems with improved infrastructure functioning in four years	2.1, 2.2, 2.3 Acceptance certificates, supervision reports, procurement documents, field inspections, interviews with users	2. Idem
	2.2 Forty systems appropriately equipped for administration and operation of irrigation and environmental monitoring in four years		
	2.3 Eight systems equipped with heavy machinery for maintenance in four years		
3. User boards trained appropriately	3.1 Forty user boards legally established and consolidated, with 20,000 users trained to operate irrigation and hydroagricultural information systems in six years	3.1.1 Official registry of user boards	3. Idem
		3.1.2 Records of attendance at courses and other training activities; manuals and other materials	

1/ See breakdown of indicators by year on the following pages

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PROGRAM FOR SELF-MANAGEMENT OF IRRIGATION SYSTEMS
(DR-0035)

LOGICAL FRAMEWORK

BREAKDOWN OF GOAL INDICATORS 1/

TIVES	INDICATORS	CUMULATIVE PROGRESS TOWARD OBJECTIVE				
	Years:	0	2	3	4	5
e the use nent of sector	Overall efficiency of irrigation (conveyance, distribution, and applications) in the systems included in the program increases from 25% to 40% in six years	25.0%	28.0%	30.0%	33.0%	36.0%
	Irrigated land use rate in the systems included in the program increases from 0.94 to 1.17 in six years	0.94	0.96	0.98	1.05	1.11
	Public spending (INDRHI) on irrigation maintenance and operation decreases 15% with respect to 1994 in six years.	-	2.5%	6.5%	9.5%	13.0%
	Collection of water fees in the systems included in the program increases 125% over the 1994 level in six years	-	20.0%	55.0%	80.0%	110.0%

BREAKDOWN OF PURPOSE INDICATORS 2/

TIVES	INDICATORS	CUMULATIVE PROGRESS TOWARD OBJECTIVE			
	Years:	1	2	3	
t the first ferring tems *to*	Transfer of 40 systems in good operating condition to user boards in four years	6	16	28	
	The systems transferred under the program will benefit 20,000 users in four years	10,000	14,000	17,000	2
	The systems transferred under the program cover 80,000 hectares in four years	26,500	44,500	62,500	8

PROGRAM FOR SELF-MANAGEMENT OF IRRIGATION SYSTEMS
(DR-0035)

ed that the results of the program in each system will become apparent two years following the initiation of the works on each system and one year after they are formally tra
ed that transfer of each system will take place within a period of one year from the date on which infrastructure works on the system begin.

LOGICAL FRAMEWORK

BREAKDOWN OF COMPONENT INDICATORS

JECTIVES		INDICATORS	CUMULATIVE PROGRESS TOWARD OBJECTIV			
		Years:	1	2	3	4
on and planning basic studies	1.1.1	Forty registries of users verified and updated in accordance with program methodology and delivered to user boards in four years	6	16	28	40
	1.1.2	Eighty-nine maps of official land ownership	89	-	-	-
	1.1.3	Three hundred and nine maps of apparent land ownership	309	-	-	-
	1.2	Forty hydroagricultural information and planning and environmental monitoring systems for agricultural systems implemented in five years	-	6	16	28
	1.3	Thirty-four preinvestment studies for the program conducted in three years	10	22	34	-
	1.4	Five specific studies: (one on investment programming, one on reengineering of INDRHI, three on new projects) in five years	1	2	3	4
systems improved for operation, and environmental	2.1	Forty systems with improved infrastructure functioning in four years	6	16	28	40
	2.2	Forty systems appropriately equipped for administration, operation, and environmental monitoring in four years	6	16	28	40
	2.3	Eight systems equipped with heavy machinery for maintenance in four years	2	4	3	3
ds trained	3.1	Forty user boards formed, organized, and consolidated in four years	-	6	16	28
	3.2	Twenty thousand users trained in various areas to strengthen the self-management process	-	3,000	7,000	14,000
	3.1	Forty user boards legally established and trained to operate the irrigation systems transferred to them, in six years	-	6	16	28

PROGRAM FOR SELF-MANAGEMENT OF IRRIGATION SYSTEMS
(DR-0035)

LOGICAL FRAMEWORK

GENERAL ACTIVITIES AND PRELIMINARY BREAKDOWN OF INDICATORS 3/

OBJECTIVES	INDICATORS					MEANS OF VERIFICATION	ASSUMPTIONS
	Annual budget (thousands of US$)						
	1	2	3	4	5		
Activities							Relative to the activities
Component I:							
1. Preinvestment studies for the program contracted for and conducted	623	325	325	325	-	Audited accounting records and financial statements of the program and the executing agency	Compliance with the disbursement conditions
2. Advisory services and other studies contracted for and completed	807	450	550	550	445		Availability of the budgetary and human resources
Component II:						Idem	Idem
1. Supervision of works contracted for and executed	520	320	360	400	-		
2. Infrastructure improvements contracted for and executed	9,880	6,080	6,840	7,600	-		
3. Heavy machinery acquired and supplied	900	900	900	900	-		
4. Vehicles and small equipment acquired and supplied	180	300	360	360	-		
Component III:						Idem	Idem
1. Consultancies in organization and training courses contracted for and implemented	405	1,080	1,485	1,620	810		

3/ Preliminary table to be revised and agreed annually with the executing agency. A detailed description of the activities may be found in the terms of reference for the various studies and consultancies and in the documents of the technical file for the project.

SELF-MANAGEMENT OF IRRIGATION SYSTEMS
(DR-0035)

OUTLINE OF THE IRRIGATION SYSTEMS TRANSFER PROCESS

STEPS/ACTIONS	CONDITIONS FOR TRANSFER	RECOVERY OF OPERATING, MAINTENANCE AND REPLACEMENT COSTS
1. Land tenure registry		
1.1 Identification of users and parcels	1.1 Users become responsible for administration of registry	2.1 Internal fees of user boards
1.2 Preparation of land tenure maps	1.2 Users become responsible for updating maps	2.1 Internal fees of user boards
2. Equipment and infrastructure improvement		
2.1 Equipment for measuring and administration	2.1 Ownership transferred to users, except in case of environmental monitoring equipment, which continues to be property of INDRHI	2.1 Internal fees of the user boards
2.2 Machinery and equipment for operation and maintenance	2.2 Ownership transferred to users	2.2 Internal fees of the user boards
2.3 Infrastructure improvement		
2.3.1 Major segments (outlets and conveyance)	2.3.1 Ownership retained by INDRHI	2.3.1 Fees paid by the boards to INDRHI for bulk water delivery
2.3.2 Irrigation segments (lateral and parcel)	2.3.2 Ownership retained by INDRHI; responsibility for operation and maintenance transferred to users	2.3.2 Internal fees of the user boards
3. Organization and training of users		
3.1 Establishment of user boards	3.1 Transfer contract signed with the established boards	n/a
3.2 Training of users		

SELF-MANAGEMENT OF IRRIGATION SYSTEMS

OPERATING REGULATIONS

PROCEDURES FOR PROCUREMENT OF GOODS AND SERVICES

I. GENERAL PROVISIONS

1.1 No deviation whatsoever from the Bank's procurement procedures is proposed. The procedures governing the awarding of contracts for works and the procurement of goods and services shall be those of the Bank. International competitive bidding shall be mandatory for procurements valued at US$250,000 or more and construction works valued at US$1,500,000 or more. Contracts for consulting services for amounts of US$200,000 or more shall be awarded on the basis of an international competitive selection process.

1.2 Competitive selection and bidding for amounts below these thresholds shall take place in accordance with the following provisions:

a. Unlimited national bidding or competitive selection:

(i) Goods: between US$150,000 and US$249,999

(ii) Works or installation: amounts between US$250,000 and US$1,499,999

(iii) Consulting services: between US$100,000 and US$199,999

b. Limited national bidding or competitive selection:

(i) Goods: amounts under US$150,000

(ii) Works and/or installation: amounts under US$250,000

(iii) Consulting services: amounts under US$100,000

c. Under no circumstances shall provisions or stipulations be established that restrict or impede the participation of consultants, suppliers, or contractors from member countries of the Bank.

1.3 The procedures explained below shall be followed in applying the foregoing provisions:

II. PROCEDURES FOR AWARDING CONTRACTS FOR MINOR WORKS, FOR THE PROCUREMENT OF MINOR GOODS, AND FOR THE AWARDING OF CONTRACTS FOR MINOR CONSULTING SERVICES

1. Purpose

2.1 The purpose of this appendix is to establish the procedures to be followed by the Program Coordination Unit (PCU) for the procurement of goods, the awarding of contracts for minor works, and the awarding of contracts for minor consultancies to be carried out under the projects financed with program resources.

2.2 These procedures, because they are special contractual conditions, must be applied in awarding all contracts for the above-mentioned goods and services.

2. Definitions

2.3 The term minor works is understood to mean works executed under the projects of the program whose estimated value is less than the equivalent of US$1.5 million. Should the Bank, at some future time, modify this threshold, the new threshold shall serve to define the concept of minor works, and the procedures established here shall be applicable to works whose cost is equal to or less than the new threshold.

2.4 The term minor goods is understood to be goods whose estimated value is less than the equivalent of US$250,000. Should the Bank, at some future time, modify this threshold, the new threshold shall serve to define the concept of minor goods, and the procedures established here shall be applicable to the procurement of goods whose cost is equal to or less than the new threshold.

2.5 The term minor consultancies is understood to mean consultancies whose estimated value is less than the equivalent of US$200,000. Should the Bank, at some future time, modify this threshold, the new threshold shall serve to define the concept of minor consultancies, and the procedures established here shall be applicable to the awarding of contracts for consulting services whose cost is equal to or less than the new threshold.

3. Applicable procedures

a. For awarding of contracts for minor works:

2.6 Awarding of contracts for minor works/installations whose estimated value is less than the equivalent of US$250,000 shall be accomplished in accordance with the limited bidding procedure established in section 4 of this appendix.

2.7 Awarding of contracts for works/installations whose estimated value is between US$250,000 and US$1,499,999 (or the equivalent thereto) shall be accomplished in accordance with the procedure of unlimited open national bidding established in section 5 of this appendix.

b. **For the procurement of minor goods:**

2.8 Procurement of goods whose estimated value is less than the equivalent of US$150,000 shall be accomplished in accordance with the limited bidding procedure established in section 4 of this appendix.

2.9 Procurement of goods whose estimated value is between US$150,000 and US$249,999 shall be accomplished in accordance with the procedure of unlimited open national bidding established in section 5 of this appendix.

c. **For awarding of contracts for minor consultancies**

2.10 Awarding of contracts for minor consultancies whose estimated value is less than the equivalent of US$100,000 shall be accomplished in accordance with the limited competitive selection procedure established in section 6 of this appendix.

2.11 Awarding of contracts for consultancies whose estimated value is between US$100,000 and US$199,999 (or the equivalent thereto) shall be accomplished in accordance with the procedure of unlimited national competitive selection process established in section 7 of this appendix.

4. Limited bidding

2.12 The limited bidding procedure described below shall apply to the categories of minor works and goods defined in paragraphs 1.2(b)(i) and 1.2(b)(ii):

a. In the limited bidding procedure, the invitation to submit a bid shall be issued to at least five potential bidders, with deadlines for bid submission that will ensure competition. Prequalification will not be necessary unless the Bank expressly requires this modality because it considers the work or procurement to be complex in nature. It is understood that the entity issuing the invitation to bid may agree with the Bank, as a prequalification modality, to establish a register of firms, which may be individuals or corporations. Should such registers be organized, they shall remain open for registration for all procurements included in the program.

b. In this procedure the standard bidding documents agreed to by the Bank and the PCU shall be used.

c. When this procedure is used, the entity issuing the invitations to bid shall prepare and send to the invited firms the bidding conditions and technical specifications for the work to be contracted for or the goods to be procured.

d. Within three working days from the deadline for submission of bids, the entity issuing the invitation to bid shall award the contract to the party submitting the bid judged to be the most advantageous in accordance with the criteria set forth in paragraph 3.13 of Annex B of the Loan Contract, or it shall declare the bidding process void, in which case bidding may be reopened, after making any necessary adjustments and modifications in the bidding conditions, within the next 20 calendar days; at least three more firms in addition to those that submitted bids originally shall be invited to participate. In the event that bidding is reopened, all the conditions established for this procedure shall remain in effect.

e. Once the contract has been awarded but before it is signed, the entity issuing the invitation to bid shall ensure that it meets with the Bank's approval.

5. Unlimited national bidding

The unlimited national bidding procedure described below shall apply to the categories of minor works and goods defined in paragraphs 1.2(a)(i) and 1.2(a)(ii), respectively.

a. The system of nationally announced unlimited national bidding shall be employed. Unlimited participation by firms from member countries of the Bank shall be permitted. Prequalification will not be necessary unless the Bank expressly requires this modality because it considers the work or procurement to be complex in nature. It is understood that the entity issuing the invitation to bid may agree with the Bank, as a prequalification modality, to establish a register of firms, which may be individuals or corporations. Should such registers be organized, they shall remain open for registration for all procurements included in the program.

b. In this procedure the standard bidding documents agreed to by the Bank and the PCU shall be used.

c. The national announcement of the invitation to bid shall be published two times in one newspaper or one time in two

newspapers. In any case, the newspaper or newspapers must have a large national circulation. The deadline for the submission of bids shall be at least 30 calendar days from the last date of publication of the announcement. The deadline may be extended at the discretion of the entity issuing the invitation to bid, depending on the complexity of the work to be contracted for or the value of the goods to be procured.

d. Bids must be submitted in a single envelope, which must contain the bid itself as well as legal, technical, and financial background information on the bidder. The envelopes containing the bids shall be opened at a public session of the contracts committee held on the date and at the time that the deadline for bid submission ends in the presence of the bidders who are in attendance, and all the procedures to ensure the transparency required by the standard bidding conditions shall be followed. At this same session the committee shall appoint a three-member technical working group to undertake a legal, technical, and economic analysis of the bids. Within ten working days the group shall submit a report that includes all necessary comparative data.

e. The contract shall be awarded to the bidder submitting the lowest evaluated bid, in accordance with the criteria set forth in paragraph 3.13 of Annex B of the Loan Contract. For this purpose, a single technical working group shall first evaluate the bids to determine whether or not they conform to the bidding documents and shall rank the bids, beginning with the bid judged to be the lowest. The group shall then analyze the legal, technical, and financial documentation pertaining to the firm judged to be the lowest bidder in order to establish whether or not it meets the corresponding requirements. If so, the contract shall be tentatively awarded to that firm; if not, the group shall examine the credentials of the next firm, and so on.

f. The technical report relating to the proposed awarding of the contract, together with the corresponding support documents (including the draft of the contract proposed for signature), shall be sent simultaneously for approval by the Bank. Once these requirements have been met and the formal approval has been obtained from the PCU and the Bank, the final decision regarding the awarding of the contract shall be announced and the contract shall be signed with the winning bidder. No substantive changes may be made in the draft contract once it as been approved by the Bank.

g. By mutual agreement with the Bank, other procedures or modalities may be applied within the procedures established here for minor works that must be carried out or goods that must be procured as a result of events which, in accordance with Bank policies, are considered natural disasters.

6. Limited competitive selection process

The limited competitive selection process described below shall apply to the awarding of contracts for consulting services as defined in paragraph 1.2(b)(iii).

a. In the limited competitive selection process the invitation to submit proposals shall be issued to at least three but no more than six candidates, with deadlines for the submission of bids that will ensure competition. For this purpose, the contracting entity may agree with the Bank to require prequalification or the registration of firms. Should such registers be organized, they shall remain open for registration for all procurements included in the program.

b. In this procedure the standard proposal documents agreed to by the Bank and the PCU shall be used.

c. As part of this procedure, the contracting entity shall prepare and send to the invited firms the conditions for submitting proposals and the terms of reference for the consultancy.

d. The proposals must be submitted in two envelopes, which for purposes of this procedure will be called envelopes 1 and 2. The first (envelope 1) shall contain the technical proposal, as well as legal background information and documents verifying the financial solvency and technical capability of the firm. The second (envelop 2) shall contain the financial proposal. These conditions for the submission of proposals shall be clearly explained in the documents concerning the selection process.

e. The first envelopes (envelope 1), containing the technical proposals and the financial and legal information on the candidates, shall be opened in the presence of the contracts committee of the PCU. Subsequently, within 10 calendar days from the date on which the first envelopes are opened, the contracts committee shall establish a ranking of the technical proposals and shall convene the representatives of the firm ranked in first place to negotiate the corresponding contract, all in accordance with the stipulations of Annex C of the Loan Contract.

f. The technical report relating to the proposed awarding of the contract, together with the corresponding support documents (including the draft of the contract proposed for signature), shall be sent simultaneously for approval by the Bank.

g. Once negotiation of the contract has been finalized and the Bank's concurrence has been obtained, the contracting entity may proceed to execute the contract.

7. Unlimited national competitive selection process

2.13 The unlimited national competitive selection process described below shall apply to the awarding of contracts for consulting services as defined in paragraph 1.2(a)(iii).

a. In the unlimited national competitive selection process the invitation to submit technical-financial proposals shall be published one time in two newspapers or two times in one newspaper. In any case, the newspaper or newspapers must have a large national circulation. The deadline for the submission of proposals shall be set with an eye to ensuring broad participation by firms and thus guarantee competition among them.

b. In this procedure the standard proposal documents agreed to by the Bank and the PCU shall be used.

c. The last publication of the call for proposals shall take place at least 20 days prior to the deadline for proposal submission. This period may be longer, depending on the magnitude or complexity of the study.

d. The proposals must be submitted in two envelopes, which for purposes of this procedure will be called envelopes 1 and 2. The first (envelope 1) shall contain the technical proposal, as well as legal background information and documents verifying the financial solvency and technical capability of the firm. The second (envelop 2) shall contain the financial proposal. These conditions for the submission of proposals shall be clearly explained in the documents concerning the selection process.

e. The first envelopes (envelope 1), containing the technical proposals and the financial and legal information on the candidates, shall be opened in the presence of the contracts committee of the PCU. Subsequently, within 10 calendar days from the date on which the first envelopes are opened, the contracts committee shall establish a ranking of the technical proposals and shall convene the representatives of the firm ranked in first place to

negotiate the corresponding contract, all in accordance with the stipulations of Annex C of the Loan Contract.

f. The technical report relating to the proposed awarding of the contract, together with the corresponding support documents (including the draft of the contract proposed for signature), shall be sent simultaneously for approval by the Bank.

g. Once negotiation of the contract has been finalized and the Bank's concurrence has been obtained, the contracting entity may proceed to execute the contract.

PROGRAM OF ADMINISTRATION OF IRRIGATION SYSTEMS BY THEIR USERS (DR-0035)
PLANNED PROCUREMENTS BY COMPETITIVE BIDDING

MAIN PROCUREMENTS UNDER THE PROJECT	Financing (%)		Method	Prequalification (Yes/No)	Estimated date of publication of the AEA
	IDB	Local			Quarter/Year
Component: Infrastructure improvement and equipment for operation and maintenance					
A. Procurement of goods:					
1. Heavy machinery					
4 lots					
US$900,000	100		OIB	Yes	IV/96
US$900,000	"		"	"	III/97
US$900,000	"		"	"	III/98
US$900,000	"		"	"	III/99
2. Vehicles and small equipment					
4 lots					
US$180,000	100		OIB	Yes	II/96
US$300,000	"		"	"	I/97
US$360,000	"		"	"	I/98
US$360,000	"		"	"	I/99
B. Civil works and installation:					
1. Improvement of irrigation systems					
4 lots					
US$9,880,000	100		OIB	Yes	I/96
US$6,080,000	"		"	"	I/97
US$6,840,000	"		"	"	I/98
US$ 760,000	"		"	"	I/99
C. Consultancies:					
Supervision of works					
4 packages					
US$520,000		100	UNB	Yes	I/96
US$320,000		"	"	"	I/97
US$360,000		"	"	"	I/98
US$400,000		"	"	"	I/99

Notes:
OIB - open international bidding
UNB - unlimited national bidding

MAIN PROCUREMENTS UNDER THE PROJECT	Financing (%)		Method	Prequalification (Yes/No)	Estimated date of publication of the AEA
	IDB	Local			Quarter/Year
Component: Information systems and studies					
A. Consultancies					
1. Preinvestment studies 4 packages:					
US$623,000	100		UNB	Yes	II/96
US$325,000	"		"	"	II/97
US$325,000	"		"	"	II/98
US$325,000	"		"	"	II/99
2. Special advisory services					
5 packages	100		OIB	Yes	II/96
US$807,000	"		UNB	"	I/97
US$450,000	"		"	"	I/98
US$550,000	"		"	"	I/99
US$550,000	"		"	"	I/2000
US$445,000					
Component: Organization and training of users					
A. Consultancies					
1. Support for organization and training					
5 packages:	100		OIB	Yes	I/96
US$ 405,000	"		"	"	I/97
US$1,080,000	"		"	"	I/98
US$1,485,000	"		"	"	I/99
US$1,620,000	"				
US$ 810,000					

Notes:
OIB - open international bidding
UNB - unlimited national bidding

RGII-DR013P
DR-0035

PROPOSED RESOLUTION

REPUBLICA DOMINICANA. LOAN No. ___/OC-DR.
(Program of Administration of Irrigation Systems by Their Users)

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 República Dominicana, as Borrower, for the purpose of granting it a financing to cooperate in the execution of the Program of Administration of Irrigation Systems by Thier Users. Such financing will be for the amount of up to US$52,000,000, or its equivalent in other currencies, except that of República Dominicana which are part of the Ordinary Capital resources of the Bank, and will be subject to the "Special Contractual Conditions" and the "Terms and Financial Conditions" of the Executive Summary of the Loan Proposal.

RGII-DR014P
DR-0035

PROPOSED RESOLUTION

REPUBLICA DOMINICANA. PARTIAL PAYMENT OF INTEREST ON LOAN ___/OC-DR TO THE REPUBLICA DOMINICANA

Program of Administration of Irrigation Systems by Their Users

The Board of Executive Directors

RESOLVES:

1. That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, as administrator of the Intermediate Financing Facility Account, hereinafter referred to as the "account", to enter into such contract or contracts as may be necessary with the República Dominicana as Borrower, and to adopt other pertinent measures to use the resources of the account to pay a part of the interest due by the Borrower on outstanding balances of the loan authorized by Resolution DE- /94, for financing part of the cost of the Program of Administration of Irrigation Systems by Their Users, hereinafter referred to as the "approved loan." Such part shall represent up to 5% per annum on the outstanding balances of the loan.

2. That the Bank shall charge to the account the amounts due by the Borrower and to be paid by the account, in the currencies designated by the Bank and available in the account, on the dates specified for the payment of interest or on the date or dates the Bank receives the payment of the remainder of the interest owed by the Borrower, hereinafter referred to as the "remainder". Should the Borrower not have paid on the date due the remainder, as well as any payment of principal or fees, the Bank shall withhold payment of the amount of interest authorized to be paid from the account to the Bank. In such event, the Borrower shall remain liable for the total amount of the interest due and owed until such time as the Bank has received payment of the remainder and of the respective amounts for amortization and fees.

3. That to the extent that the Bank receives payments from the account for interest on the approved loan, the Borrower shall not be liable for the payment of such amounts and, consequently, it shall not be obligated to repay to the Bank any amounts of interest paid from the account to the Bank.

4. That the Borrower may decide to pay the whole amount of the interest accrued on the outstanding balances of the approved loan either during the effectiveness of the loan or only during the amortization

period of said loan. In both cases the Bank shall, as soon as possible, reimburse the country for interest paid to the Bank and which may be charged to the account in accordance with Clauses 1 and 2 above.

5. That to the extent that the Bank determines that there are not sufficient resources available in the account for making the payments referred to in Sections 2 and 4 above, the Borrower shall pay the interest due on the dates and the amounts specified in the loan contract, up to the full amount accrued on the outstanding balance of the approved loan without any obligation for reimbursement by the Bank.