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PROGRESS REPORT ON THE PROGRAM OF RURAL WATER SUPPLY AND WELL-BEING

1. Background

1.1 One of the goals of the Charter of Punta del Este is the provision of potable water for 50 per cent of the rural population during the decade. Numerous steps have been taken by governments and by international agencies to promote progress toward this goal.

1.2 PAHO has been giving particular attention to the development of a program which will bring about the achievement of the goal of potable water for 50 per cent of the rural population, in accordance with its general responsibilities under both the constitution of PAHO/WHO and specific responsibilities assigned by its governing body and by various other actions within the Inter-American system.

Chronology of Developments:

a) The Act of Bogota and the Charter of Punta del Este establish policy on and specific goals for the improvement of the living standards and social conditions of the peoples of the Hemisphere. Special attention is given to "the provision of water supply facilities for purposes of health and economic development". (I-D1/f.).

b) Recommendation A-6 of the Task Force on Health at the Ministerial Level (Washington, D. C., April 1963) established under the terms of the Charter of Punta del Este recommended that the Pan American Health Organization study the possibility of establishing a mechanism under which international loans might be obtained for the creation of national revolving funds in borrowing countries, to be used for the supplementary financing of potable water supply and other rural welfare projects in suitably-organized rural communities. This was confirmed by Resolution IV of the 48th Meeting of the PAHO Executive Committee (Washington, D. C., April 1963).

c) Pursuant to this mandate, PAHO completed an initial study of the problem which was presented to the XIV Meeting of the Directing Council (Washington, D. C., September 1963) in Document CD14/23. Firm support for the concepts advanced in connection with the proposed program was given by the Directing Council in Resolution XX of 23 September 1963.

d) The PAHO proposal was finally considered by the Second Annual Meetings of the IA-ECOSOC at São Paulo in November 1963; Resolution 19-M/63 at the Ministerial Level approved the development of a program along the general lines laid down in the PAHO Document CD14/23. It suggested that the Inter-American Development Bank (IDB) undertake administration of external financial resources, and that PAHO undertake the provision of technical assistance to Governments at each stage of the program. It further suggested that PAHO, in collaboration with the IDB, appoint technical committees "to provide advisory services on the financing, organization, and motivation of communities, and other aspects of the program".

2. Further Actions Taken by PAHO

2.1 In response to this series of directives and recommendations, PAHO has proceeded to develop specific plans for orderly implementation of the rural program. In addition to the host of informal discussions and negotiations PAHO has taken the following specific actions:

a) Jointly with IDB, organized a meeting in Washington, D. C. with international agencies interested in the rural program for Latin America. (Discussed under 2.2).

b) Development of the basic plan, Document ES/RW 1, "Continent-Wide Program of Rural Environmental Health and Well-being - Rural Water Supply" as a revision of CD14/23. (Discussed under 2.4).

c) Appointed two Advisory Committees; one with experts on the technical engineering problems involved in this program and the other with experts in the field of behavioral sciences. These advisory groups met simultaneously in Washington, D.C., in February 1964. (Discussed under 2.3).

d) Worked with IDB and the Agency for International Development (AID) to develop, as a basis for policy decisions, a set of terms and conditions governing international loans in support of the rural water program. (Discussed under 2.5).

e) Jointly with IDB are considering the establishment of a pilot program to develop usable techniques and systems which can be utilized widely and which will assure that each government will be able to use most fully all sources of national and international support for such programs. It is understood, however, that such program will not be limited to the geographic area of the pilot program (countries of Central America and Panama), should other Governments be desirous of and capable of establishing such a program.

f) Established liaison relations with other agencies and groups having program interest in this field, in such a way as to begin to build the essential elements of this program -namely, maximum of community self-help and participation, payment for water, and establishment of revolving funds, into existing or newly developing systems for providing rural water supplies.

2.2 In accordance with Resolution 19-M/63 of IA-ECOSOC meeting (São Paulo), PAHO and IDB convened a meeting for preliminary exchange of views and financial aspects of the program. It was attended by officials of the IDB, the World Bank, AID, the U.S. Public Health Service and PAHO. The background and status of the rural program was dicussed in detail. While there was general agreement with the scope and method of the proposed rural water program, it was felt that a number of specific problems, such as national revolving funds and the problem of countries' foreign exchange resources and requirements, deserved further study by a subcommittee. These questions are under review.

2.3 Advisory Committees. On 25-28 February 1964, two advisory groups met in Washington, D.C. One was a technical committee, concerned principally with the engineering aspects of rural water supply, and the other a behavioral sciences committee concerned primarily with problems of community motivation and organization.

2.4 Basic Plan Document entitled "Continent-Wide Program of Rural Environmental Health and Well-being -Rural Water Supply-". (Doc. ES/RW 1 annexed). This is a revision of the original proposal CD14/23, with revisions based on discussions by delegates of the Member Governments at the Directing Council of PAHO and at the São Paulo meeting of IA-ECOSOC. The revised document retains the basic principles and concepts set forth in CD14/23, except for the establishment of a "Special Fund". This revision includes more specific plans for procedures and relationships between national and international agencies and is sufficiently flexible to permit the adaptation of the plan to conditions in each country. The plan emphasizes community organization and participation and the establishment of national revolving funds supported initially by international loans. Particular attention is given to problems of organization, maintenance, operation and management (including financing) of systems.

2.5 Collaboration with IDB and AID. PAHO is working closely with IDB and AID to attempt to develop a system of international loan supports for the rural water supply program. A study is now under way to develop standard terms and conditions for international loans to permit a simplification and standardization of procedures and techniques at all leves which will be essential if there is to be a build up of the program to the level of magnitude required to assure the attainment of the goal.

2.6 Cooperation with other International Agencies. PAHO is working out liaison relationships with other agencies having a program interest in this field. Included in this group are: United Nations Special Fund and World Food Program, UNICEF, the OAS, the Peace Corps, and private foundations. The objective is to focus attention on this program and to encourage a coordinated effort.

3. Summary and Status

3.1 In the Charter of Punta del Este, the signatory Governments pledged themselves to make potable water and sewage disposal facilities available to at least 70 per cent of the urban and 50 per cent of the rural population in a decade. During the past two years significant progress has been achieved in improving and extending urban water systems, particularly with the financial aid of the IDB and AID. More than $200 million in loans have been committed for the development of urban water supplies in Latin America and approximately the same amount of matching national financing has been obligated. Progress on provision of rural water supplies has been insignificant in comparison.

3.2 Only a few countries have submitted request for international loans to support rural water supply development. A major difficulty has been the lack of institutional bases and organizational structures for providing rural water supply which could qualify for international loans. AID and PAHO in their respective programs have given considerable attention to the rural water supply program, especially in terms of program stimulation, technical assistance and, on the part of AID, in actual program support. UNICEF, in collaboration with PAHO, has provided support for development of rural water supplies in a number of areas. However, the geographic and population coverage of all of these efforts are far from adequate to assure the achievement of the 50 per cent goal of the Charter of Punta del Este. The need is for a well-conceived, closely coordinated effort, which will join the Governments and the various sources of national and international technical assistance, capital and manpower in a common, well-planned, simple and feasible program.

3.3 Under present rates of constructing rural water supply systems, progress towards the achievement of the goals established by the Alliance for Progress is inadequate. It is the objective of this program proposal to provide the type of approach which will assure the establishment of a rural water supply program on a continent-wide scale, on a sound basis and at a rate in keeping with the shifts and growth of rural populations.

3.4 The PAHO plan in essence is for a continent-wide rural water supply program which is uniform in concepts and principles, but sufficiently flexible to permit application throughout the Americas in spite of regional, social, economic, administrative, and cultural differences, and which will permit the utilization of the various national and international resources, in accordance with a set of policies and standards which will assure the maximum coverage of populations at the minimum of cost. More specifically, the major aspects of the plan embrace the following concepts and principles:

a) Establishment of a national revolving fund in each country to be used first for water, but in time to help finance construction costs of other rural environmental improvements required to promote health.

b) Community participation in planning, financing, organizing, and construction, community representation in management and maintenance of systems and payment for water.

c) Adequate and effective organization in each country for program administration.

d) International loans to help in the establishment of national revolving funds.

e) Establishment of adequate legal authority in each country, as needed, to permit implementation of the program.

f) Attention to be concentrated on rural communities ranging in population up to 2,000, occasionally up to 5,000, depending on internal policies and practices of the respective countries.

g) Program administration and responsibility within each country to be determined by the individual countries and not limited to a single Ministry or autonomous agency.

h) Domestic production of materials required, where presently inadequate, to be encouraged, in order to minimize import requirements during subsequent stages of revolving fund operation.

i) Water to be delivered to premises to the maximum extent feasible, in the interest of ready accessibility and of financially viable systems.

j) Design of rural water supply systems to be as simple as posible, in the interest of maximum rapidity of population coverage, minimum construction cost and minimum complexity of operation. Insofar as practical, in relation to other primary criteria, construction of those projects in areas of reasonable economic potential to receive first attention.

3.5 As to program status, essential planning measures have now been taken. The next step is to begin the action program.

As an initial starting point it is proposed to develop a two-year action program in Central America, as a pilot operation. PAHO is now working with the Governments in Central America and Panama to work out possible relations, procedures, and technical and administrative approaches required for the rural water supply program.

3.6 While the proposed two-year action program would be a full-scale operation in Central America, it will serve the additional purpose of demonstrating, in significant magnitude the practicability of an accelerated rural water supply effort in Latin America and will provide valuable operating experience for the continent-wide approach. Concurrently with the program in Central America, the PAHO will explore opportunities to extend the action program to other areas in Latin America. Extensions of the program will take place on the basis of experience gained in the pilot program in accord with the ability of other Governments to secure financing and to establish legal basis for such programs, and in accordance with the capability of PAHO to meet requests for technical assistance.

3.7 The continent-wide program for rural water supply is urgently needed; it is timely and it can be accomplished. However, it must evolve as operating experience permits the working out of various problems and the development of necessary techniques, staff, etc. It is obvious that the technical assistance, operational supports and fiscal resources required from PAHO, IDB, and other agencies for the Rural Water Program will require substantial increases in the PAHO resources as well as those of the other agencies and of the Governments themselves. This is especially true over the first few years of the program. The PAHO expense is estimated at 5 per cent of the project cost of the systems. Discussions are under way with respect to provision of essential new financial and personnel resources to initiate the program in Central America. However, a method for long-term financing of PAHO technical assistance remains to be worked out.

Annex: Document RES/RW 1

ES/RW 1
March 18, 1964
Original: English

CONTINENT-WIDE PROGRAM OF

RURAL ENVIRONMENTAL HEALTH AND WELL-BEING

- RURAL WATER SUPPLY -

Contents

OUTLINE SUMMARY

1. The Pan American Health Organization (PAHO) is giving priority to community water supply problems in Latin America. Progress has been made in improving urban water supplies; an aggressive effort, on a continent-wide basis, should now be made to improve rural water supplies.

2. This document presents background developments and supporting actions that have been taken by official groups. The plan describes a continent-wide program to provide water supply systems for rural towns and villages, with a ten-year rate of construction geared to the goals of the Alliance for Progress. This PAHO plan emphasizes community organization and participation and the establishment of national revolving funds supported initially by international loans. The plan recognizes the fundamental importance of good organization and management (including financing) of such systems.

3. One objective is to provide water supplies for about 50 million rural people in ten years, of whom about 10 per cent are now covered (See Appendix: Tables I and II).

A second objective is to develop a continuing financial and administrative mechanism to provide water supplies to other rural populations after the first stage program period.

4. If all countries should participate, the average annual total construction cost would be about $70 million during the initial ten-year program period. A series of international bank loans to establish national revolving funds would finance about half of this cost, with the remainning half to be provided by national governments and local communities. Under normal conditions, the national revolving funds would become self-sustaining in about 10 years and would provide for international loan repayments and program continuation.

5. Appendix: Tables III A and III B demonstrate the financial feasibility of local community repayment of a 16 year 6 per cent National Revolving Fund construction loan within the economic capacities of low-income water customers at a subsistence economic level. Appendix: Tables IV A and IV B illustrate the operation of the revolving fund concept under ideal conditions and demonstrate the financial feasibility of repaying an international development loan concurrently with establishing a self-sustaining fund.

CONTINENT-WIDE PROGRAM OF

RURAL ENVIRONMENTAL HEALTH AND WELL-BEING

- RURAL WATER SUPPLY -

1. Purpose of this Document

1.1 In addition to affecting health, man's physical environment has a significant influence on his socio-economic progress. One major problem area of that environment concerns water supply, especially for drinking and domestic use.

The object of this document is to focus attention on water supplies for rural communities -a relatively neglected area- and to present a program for improving these supplies.

2. Background

2.1 More than half the total population of the developing areas of the Americas lives in rural areas, largely small towns and villages. Despite trends toward industrial expansion and urbanization, a large proportion of the total population will continue for some decades to live in small towns and villages.

2.2 As a general rule, the rural population has been the last group to benefit from national programs for improved health and welfare. In the less developed countries of the Hemisphere, rural dwellers owing to their lack of financial resources and their isolation and tenuous linkage with the market economy, have been neglected. Social welfare programs have been applied mainly in urban centers.

2.3 The First Annual Meeting of the Inter-American Economic and Social Council at the Ministerial Level (Mexico City, October 1962) recognized the need for intensified effort to improve living conditions in rural areas. Resolution A-11 on Health and Economic and Social Development stressed the need for international credits in order to carry out a variety of programs, including rural community development and water supply.

2.4 Recommendation A-6 of the Task Force on Health at the Ministerial Level, Washington, April 1963, as confirmed by Resolution IV of the 48th Meeting of the Executive Committee of the Pan American Health Organization (PAHO), further recommended that the PAHO study the possibility of establishing a mechanism under which international loans might be obtained for the creation of national revolving funds in borrowing countries, to be used for the supplementary financing of potable water supply and other rural welfare projects in suitably organized rural communities. Ministries of Health would be active participants in such a program.

2.5 Results of the initial PAHO study, made pursuant to this recommendation, were presented in PAHO Document CD14/23 of 7 August 1963 to the XIV Meeting of the Directing Council of PAHO. This group gave support to the concepts advanced for the proposed program (PAHO Directing Council Resolution XX of 23 September 1963).

2.6 The PAHO proposal was considered as an agenda item at the Second Annual Conference of the Inter-American Economic and Social Council (IA-ECOSOC) in November 1963. By Resolution 19-M/63 at the Ministerial Level, the IA-ECOSOC supported the proposal (Appendix I). The resolution, among other things, recommended to the Governments of the member states that they consider assigning high priority to programs of water supply in rural areas, within the context of over-all rural development; recognized the cardinal principles of community participation, national revolving funds, an adequate and competent organization, and external financing toward support of the program. It suggested that the Inter-American Development Bank (IDB) undertake administration of external financial resources and that PAHO undertake the task of supplying technical advice to Governments at each stage of the program. It also suggested to the PAHO that it appoint technical committees, in collaboration with the IDB, "to provide advisory services on the financing, organization and motivation of communities and other aspects of the program".

3. The Rural Community in Transition

3.1 The rural community in developing countries of the Americas and particularly in Latin America today is in a period of transition. Although it is still traditionally oriented, with its basic major values unchanged for many years, the rural community is being exposed increasingly to modern technology and to the appeal of the city with its promise of the amenities of modern living.

3.2 The cityward migration in many such countries has developed more rapidly than urban job opportunities and urban housing, creating slum areas in and around the major cities where unemployment, inadequate housing, poor environmental sanitation, disease and social unrest prevail.

3.3 Orderly economic growth can occur only when the flow of population to urban areas matches, at least approximately, the increasing job opportunities and the physical absorption capacity of the cities, and when sufficient productive workers remain on the land to provide food both for themselves and for the growing urban population.

3.4 Rural unemployment and poverty provide an incentive to leave the land even when urban job opportunities do not exist. Development planners are increasingly concerned with creating new productive job opportunities in towns and villages, and with improving the environmental well-being of the rural community, both to mitigate urban unemployment and overcrowding and to stimulate agricultural production.

3.5 Economic incentives alone are not enough to hold people on the land when they imagine that life is more pleasant elsewhere. It is now generally recognized that the rural community must offer more attractive living, more of the characteristic urban amenities, if the outflow of population is to be held to reasonable proportions.

3.6 Experience in a number of Latin American countries has shown that facilities such as water supply, housing, schools, community buildings and the like cannot be imposed effectively from above. When facilities are provided as a gift, the population tends to expect that maintenance service will also be given, and the new installations quickly fall into disrepair. It has been demonstrated that only by stimulating community interest and individual participation, by mobilizing community resources of labor and materials as well as money, can a sense of individual involvement and the resultant incentive be created to improve operation and maintenance of such facilities.

3.7 Community self-help creates interest and awareness and takes advantage of local resources. In areas where underemployment is prevalent, a contribution of labor time does not jeopardize other activities. Locally available wood, sand, gravel and other building materials add to the community contributions. Both a psychological and a material stimulus to development is thus encouraged.

3.8 Rural welfare facilities and improvements in the Americas should depend as far as possible on the resources of local communities. These facilities should be based on active community participation with provincial and national governments intervening only to the extent necessary to make up the difference. International resources should be called upon only to the extent that local and national resources are clearly insufficient to achive the desired result by themselves in terms of the urgent time factor.

3.9 In Latin America, a limited number of sanitation and rural welfare projects have already been executed successfully with community participation. However, these undertakings have been spotty and are much too limited in the aggregate population coverage to keep up with the needs and trend of the times.

3.10 Rather than supplement national and local effort by grants or by loans on comercial terms, it would seem more logical to use the more flexible instrument of international development financing to support national revolving funds to assist local communities. Attention would be concentrated on rural water supplies over the 10-year period of the initial program. The revolving funds --once they become self sustaining-- could be used to supplement community self-help for other undertakings designed to improve the level and attractiveness of rural living.

4. The Need for Initial Emphasis on Water Supply

4.1 Healthy communities require a healthful environment which is imposible to obtain without adequate water supply. Water is essential to housing, school and food hygiene, health centers, industrial activities, recreational facilities and many other aspects of life, in addittion to meeting the needs for personal cleanliness and comfort.

4.2 By common consent, water occupies a first priority due to human and animal physiological need, its influence upon health and disease, and its bearing upon the economy and level of living.

4.3 It is scarcely necessary to detail the relationship of water supply to public health. The filth-borne diseases such as typhoid and dysentery are transmitted by water, as are such virus diseases as infectious hepatitis. The lack of abundant water for bathing and cleansing is closely related to the prevalence of infections transmitted by contaminated hands and fomites. Beyond this, adequate water supplies promote general well-being.

4.4 Reports of Member Governments show that in most Latin American countries enteritis and diarrhea are the main causes of death in the 1-4 year age group. This points up the significance of a water supply program with respect to attainment of one of the goals of the Charter of Punta del Este, to raise average life expectancy at birth by 5 years and to cut in half infant mortality in the 0-5 year group.

4.5 The Charter of Punta del Este proposes to stimulate economic growth in harmony with social development. To accomplish this, the first and basic need is for the people to have good water in sufficient amounts for drinking and other domestic purposes.

4.6 Furthermore, a good water supply is also required for a multitude of economic purposes. Water is required for a great number of commercial uses. Unless it is available for the support of industrial processes, as well as for the health and convenience to the workers, industry will not develop. History is replete with case-histories of communities that have moved ahead under this stimulus and of those which have withered and died from its lack.

4.7 Money spent on water supplies purchases more than improved health. The provision of readily accessible water is basic to due attainment of a higher level of living. It allows women and children to devote to other activities the time which would otherwise be spent in carrying the water required for existence. A one-inch pipe can deliver as much water to a community as 150 women carrying jars for eight hours a day.

4.8 Water pays great economic dividends not only by reducing lost man hours of labor and related costs for medical care resulting from diseases of filth but also by making the community more stable and attractive to capital investment. Above all, adequate water service at reasonable cost is an attainable objective for the rural community. International aid can play a true catalytic role in the initiation of rural water supply programs, with full knowledge that efficiently mobilized local and national resources will soon result in self-sustaining growth.

4.9 In summary, the justification for concentration of efforts on rural water supply is based on the following:

a) It satisfies a human want as well as an objectively verifiable need.

b) Experience has shown that with hard work it can be achieved.

c) It can become economically self-sustaining.

d) It yields returns in health, comfort, and economic development.

e) It involves the whole community and contributes to its development.

f) It rests on a sound and scientifically accepted technical base.

5. Objectives of the Charter of Punta del Este

5.1 In the Charter of Punta del Este, the American countries pledged themselves to make potable water and sewage disposal facilities available to at least 70 per cent of the urban and 50 per cent of the rural population in a decade. During the past two years significant progress has been achieved in urban water systems, particularly with the financial aid of the IDB and the United States Agency for International Development (AID). More than $200 million in loans have been made for the development of urban water supplies in Latin America. Progress on rural water supplies has been insignificant by comparison.

5.2 In the past only a few countries have submitted requests for international loans to support rural water supply development. In the few cases where sound proposals have been submitted, favorable action has been taken by IDB and by AID. A main difficulty has been the lack of sound institutional and program bases for developing rural water supply proposals which could qualify for international loans. AID in its assistance program has given considerable attention to the rural water supply problem, especially in terms of program stimulation, technical assistance and actual program support. UNICEF, in collaboration with PAHO, has provided assistance on rural water supplies in a number of areas. However, the over-all effort in this field is far from adequate. The great need is for a well-conceived, closely coordinated mass effort.

5.3 Under present rates of constructing rural water supply systems, progress towards the goals established by the Alliance for Progress will fall far short of achievement. It is now imperative to develop bold new approaches in order to get the rural water supply program moving on a continent-wide scale, on a sound basis and at a rate in keeping with the trend of the times.

6. Outline of the PAHO Plan

6.1 Scope:

a) The plan is continent-wide in its ultimate application. The program would be initiated as rapidly as the countries are prepared and make application. Because it is impractical to start the program simultaneously everywhere, PAHO will work jointly with IDB and other interested international agencies and with the Member Governments to determine where the continent-wide program would begin.

b) By concentrating on rural communities, as distinguished from isolated farmsteads, a large part of the total rural population can be served by safer and more economical community-type systems, due to the tendency of many rural populations to live in community clusters.

c) The program should be coordinated with other related rural development activities in agriculture, education, organization of local credit unions and the like.

6.2 Program Magnitude:

a) The total rural population in need of water service under the continent-wide program is shown in Table I. These values are based on a ten-year construction program and include the present unserved population plus estimated rural population growth during the ten-year period.

b) An estimated 10 per cent of the present rural population on a continent-wide basis is considered to be suitably served with water. The percentage in individual countries varies widely. While data are available for a few countries, they are lacking for the majority. The percentage presently served can only be approximated on a continent-wide basis at this stage of program planning. Applications from individual countries will be expected to provide clarification of this situation. Most national governments in Latin America are presently subsidizing the construction and maintenance costs of community water systems, including systems for small communities. In conformance with established practices, continuation of such construction subsidization at present levels, or even at higher levels, is contemplated. In this way, construction will proceed at a faster pace than would be possible with revolving fund resources alone and the financial strain on local resources of water usage charges to meet debt service and operating and maintenance costs will be lessened. Such subsidization of small community water systems is considered desirable in view of the subsistence level of the economies of many of them and the tendency for per capita costs of water systems to be higher for very small communities than for most larger communities. The national contribution to construction would supplement local self-help; not supplant it.

6.3 The Revolving Fund:*

a) It is contemplated under the plan that water supply construction costs during the ten-year period would be financed within countries through mechanisms of national revolving funds for loans to community water projects. In addition, local contributions (cash, materials and labor) would be supplied directly to the individual project, and personal services in planning, community organization, design and supervision of construction, operation, and maintenance, would be provided directly by national or provincial Governments.

b) As indicated by the name, the proposed revolving fund would be replenished by payments made primarily or entirely by the benefiting communities following completion of construction of individual projects. Principal emphasis would be placed on water revenues as a source of funds for repayment from local sources, but other sources of local repayment would not be ignored where special conditions might favor their use. The revolving fund is the key element of the program since, in effect, it is an instrument of social policy designed to mobilize community resources on a self-sustaining basis.

c) Contributions to revolving funds in the form of payments from provincial and national appropriations (in addition to such direct subsidization to construction as might be made) would not be ruled out, but again, emphasis should be placed on making the water systems self-sustaining enterprises. Under normal terms of international development loan contracts, the national Governments assume the repayment responsibility.

d) Each participating country would have to make appropriate legal and administrative arrangements to establish the national revolving fund. Financial administration could be entrusted to a national bank, existing water authority or ministry, or a completely new and separate administrative entity might be required by local conditions. The specific arrangement would have to meet the conditions established by the international lending agency and PAHO in agreement with the country or countries concerned.

e) The rates at which revolving funds would be replenished thus permitting a second series of rural projects to be undertaken, necessarily will vary in different countries. It is anticipated that repayment of the debt for an individual project would begin within a few months after completion of the system, including service connections, but there will be considerable variation in the rate of water supply program progress and in local economic conditions in different countries, and hence in repayment patterns.

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* To be established initially by international loans.

f) It is doubful whether a uniform interest rate for local projects within all countries, or even throughout the entire national territory in the case of those countries having widely varying internal economic conditions, would be appropriate. However, it is anticipated that local project interest rates will be appreciably higher than the international loan interest rates or service charges. This spread between carrying charges would permit the revolving fund either to expand in size with passage of time beyond its original level, or provide against defaults, or both. Growth in size would permit earlier expansion in scope of the community development program. The growth potentialities of revolving funds are well known to development loan agency officials. A representative interest rate for debt repayment by local communities is expected to be about 6 per cent.

g) To compensate for inflation, water rates would be expressed as a percentage of the minimum wage for the local area involved, or tied to changes in the level of consumer prices. A value of 5 per cent of the family cash income is considered the highest water rate that is practical for low-income water customers to pay.

6.4 Community Participation in Early Planning and Management

The importance of community participation in all phases of the program, will be stressed along the lines spelled out in Items 3.6, 3.7 and 3.8 of this document. In general, water systems have been eagerly sought by rural people -especially so in those programs where no self-help is required and where water rates barely meet operating cost. Program of this type have seldom been sufficiently financed to meet fully the rural water supply needs. Under the PAHO plan community participation and payment are emphasized at all stages -planning, construction and management. This, together with the national revolving fund mechanism, should stimulate faster progress, provide continuity in financing, and give reasonable assurance of steady increase in extent of coverage of the rural Americas.

6.5 Local Representation in Management

The community development and water supply organizational pattern will necessarily vary in different countries. As one example, the type of organization for the management of individual water systems in the smaller rural communities might be a small, duly constituted, local community development board or committee composed primarily of local lay citizens but also containing one representative from the local incorporated government and one from the nearest office of the provincial or national agency responsible for technical and financial management of the program.

6.6 Organization for Program Administration within Countries:

a) The principal elements of program administration in rural water supply activities comprise:

- promotion and evaluation of community participation
- engineering planning, design and supervision
- supply services
- supervision of operation, maintenance and systems management, including water rates and water revenue collection; and
- the fiscal aspects of administering international loans proceeds and domestic funds for construction and loan repayment.

b) PAHO, in collaboration with IDB, will assist individual Governments in developing organizations and in expanding and strengthening existing organizations where needed.

c) In some countries, such organizational development will need to be preceded or accompanied by legislative or executive action pertaining to the organizations themselves and/or to loan contract aspects at either national and local levels, or both.

d) The choice of the particular Ministry (s) or other national agency which will be responsible for program administration is necessarily a prerogative of each individual national Government. It is visualized that, in most instances, more than one Ministry and/or agency will participate in this over-all multi-faceted program of rural development.

6.7 International Financial Support

There are at least three concepts of international funding which might be considered. These are listed below in order of program simplicity.

Plan A - Special Fund

Under this plan a special rural water supply fund would be established, which fund would be made up by contributions on a quota basis from all Member Governments of PAHO. Under this concept, loans would be made to countries participating in the rural water supply program under a set of established qualifying criteria (including national revolving funds, community participation, etc.).

Plan B - Use of Existing Sources of International Loans

Under this plan, PAHO, in collaboration with IDB, would work with the other international lending agencies to develop joint agreements on relations and procedures for developing and handling international loans under the continent-wide program. The object would be to establish a simplified uniform system for considering rural water supply loan requests from the

Governments, including criteria and conditions for such loans and the administrative procedures for their processing and use. To be effective, some general understanding would have to be reached as to minimum levels of financial support that would justify a major continent-wide effort. On the basis of these agreements, PAHO would work with the Governments in the preparation of loan applications and would upon request provide technical support and operational assistance in carrying out the program.

Plan C - Present System of Loans

Under this plan, any Government would submit loan applications for rural water supply construction to any one of the existing international development loan agencies. PAHO would upon request assist Governments in the preparation of such applications.

6.8 Encouragement of Domestic Production of Materials:

a) The principal construction material which will be needed for rural water supplies will be pipe. Concrete and masonry will be used to a lesser extent for protection of springs and for storage reservoirs, buildings, and special structures. Valves and pipe fittings also will be used to a significant extent. Limited use of power pumps is contemplated -at least in the initial stage.

b) All of these items are produced in most of the larger countries involved in the program, although some expansion in production capacity may be found necessary to satisfy the needs of large-scale village water supply construction in addition to urban water supply construction needs.

c) The smaller countries are more nearly self-sufficient on a national or regional basis in concrete materials production than in the other items. Because galvanized steel pipe requires the highest capital investment in production facilities and is also expensive to ship, lighter weight plastic pipe requiring limited investment in production facilities might be substituted for steel pipe. For the same reason, in the larger diameters, asbestos cement pipe could be used in preference to cast-iron pipe, where cast-iron pipe is not domestically produced.

d) Whenever practical, such arrangements should be made within the framework of programs for regional economic integration.

6.9 Delivery of Water to Premises

It has been demonstrated that diarrhea and enteritis rates are lower in families provided with on-premises water service than in those depending on off-site sources of supply. Also, it is often impractical and at best difficult to charge for water when it is not supplied through premises connection lines. For many reasons, on-premises delivery of water should be provided to the maximum extent feasible.

6.10 Simplified Design and Operation:

a) Because of the small average-size of communities involved, engineering plans and specifications for construction can be very much simplified and also standardized for a sizable area or region. Construction of systems supplied by ground water sources (wells and springs) should be favored over systems with surface sources, insofar as possible, and systems served by gravity head will be favored over pumped systems. Distribution systems should be composed largely of small diameter pipes or mains.

b) Because of cost and operating problems, it will not be practical to provide conventional types of water meters on service connection lines. In order to provide continuous delivery of water at an adequate, but limited rate, extensive use of simple water conservation devices should be practiced.

7. Summary of Rural Water Supply Plan

7.1 The PAHO plan in essence is to develop a continent-wide water supply plan for small communities which is uniform in concepts and principles, but sufficiently flexible to reflect conditions in, and thus to be applicable to, the different nations. Under this plan, PAHO would render technical and planning assistance to Member Governments on a community development water system program supported by external and internal financing. The external financing would be supplied by one or more international loan agencies. More specifically, the major aspects of the plan include:

a) A national revolving fund in each country to be used for financing small community water supply development. (See 6.3).

b) Community participation in planning, financing and construction, and community representation in management. (See 3.6; 3.7; 3.8; 6.1c and 6.5).

c) An adequate and effective organization in each country for program administration. (See 6.3d; 6.5; and 6.6).

d) International loans to help in the establishment of national revolving funds. (See 6.7).

e) Establishment of adequate legal authority in each country as needed to implement the program and to administer the loans to communities. (See 6.3d).

f) Attention to be concentrated on rural communities ranging in population up to 2,000, occasionally up to 5,000, depending on internal policies and practices of the respective countries. (See 6.1b).

g) Program administration within each country to be determined by the individual Government and not necessarily limited to a single Ministry or autonomous agency. (See 6.6 d).

h) Domestic production of construction materials where presently inadequate, to be encouraged in the first stage in order to minimize extraregional import requirements during subsequent stages of revolving fund operation. (See 6.8).

i) Water to be delivered to premises to the maximum extent feasible, in the interest of ready accessibility by rural users and the establishment of financially viable systems. (See 6.9).

j) Design or rural water supply systems to be as simple as possible, in the interest of maximum coverage of populations, minimum construction cost and minimum complexity of operation. Insofar as practical, in relation to other primary criteria, construction of such projects in areas of favorable economic potential to receive priority attention. (See 6.10).

8. PAHO Technical Assistance and Operational Supports

8.1 A significant percentage of the technical resources of PAHO is presently used to assist countries with their programs of water supply development. It is planned that this assistance will continue. However, for PAHO to provide the technical assistance and operational supports which will be needed for the program proposed herein, additional resources will be required. This is especially true over the first few years of the program.

8.2 The financing of the PAHO Technical Assistance is felt to be a proper charge against the cost of the continent-wide program. In the case of a Special Fund (Plan A) for rural water supply, a service charge against such a fund could provide the needed resources. In the case of uniform loan procedures by international agencies (Plan B), a service charge against each loan would be practical to cover all or part of PAHO technical assistance.

Under the latter proposal (Plan B) the technical assistance funds would become sufficient, once the program became fully operational. Possibilities for meeting deficiencies include:

a) Contributions by Member Governments to the existing Special Water Fund.

b) Contributions to PAHO from each Member Government, on a quota basis, to be used for technical assitance and operational supports.

c) Technical assistance grants to PAHO from international lending agencies for continuing assistance on water supply projects.

9. Conclusion

In conclusion, it is proposed that national and international resources be mobilized for a continent-wide rural water program as the first phase of a long-range program for the improvement of rural environmental health and well-being.

The plan calls for maximum use of individual and community resources, and proposes the mechanism of national revolving funds as an assurance of program viability and continuity. The need is urgent, it is timely and small-scales experience to date indicate that the objectives can be accomplished.

Appendix: IA-ECOSOC Resolution 19-M/63 (November 1963)
PAHO Directing Council Resolution Nº XX (September 1963)
Tables: I, II, III, III A, III B, IV A, IV B

RESOLUTION 19-M/63 [1]

CONTINENT-WIDE PROGRAM OF RURAL, ENVIRONMENTAL HEALTH AND WELL-BEING

WHEREAS:

The document on the establishment of a continent-wide program of rural environmental health and well-being (OEA/Ser.H/X.4, CIES/341) has been examined;

Rural environmental health is important to the economic and social development of the rural population of the Americas;

One of the objectives set forth in the Charter of Punta del Este was to supply potable water and sewage-disposal services for at least 50 per cent of the rural population during the present decade;

Resolution A-11 of the First Annual Meeting of the Inter-American Economic and Social Council at the Ministerial Level recognized the need to intensify efforts to improve living conditions in rural areas and to obtain international credits for the development of programs for this purpose;

The program received firm support at the Meeting at the Ministerial Level of the Task Force on Health (Washington, April 1963), the Eighth Meeting of Ministers of Health of Central America and Panama (San Jose, July-August 1963) and the XIV Meeting of the Directing Council of the Pan American Health Organization (Washington, September 1963); and

Due account has been taken of the recommendations contained in the Report of Special Committee VII (Health Group) of the Inter-American Economic and Social Council (San Jose, August 1963),

The Second Annual Meeting of the Inter-American Economic and Social Council at the Ministerial Level

RESOLVES:

1. To recognize the importance of the problem of supplying potable water in rural environments, within the context of over-all rural development, and to recommend to the member states that they assign high priority to programs aimed at solving these problems.

2. To recognize the necessity of developing the Continent-wide Program of Rural Environmental Health and Well-being along the lines set out in Document OEA/Ser.H/X.4, CIES/341, based on the participation of the communities, the establishment of national revolving funds, and contributions of external funds, with a view to achieving the objectives set forth in Resolution A-2 appended to the Charter of Punta del Este.

1/ Pages 32-33 of the Final Report of the Second Annual Meeting of the IA-ECOSOC at the Ministerial Level, Document OEA/Ser.H/X.4, CIES/580, Rev. of 6 December 1963

3. To suggest that, after consultation with the interested countries, the Inter-American Development Bank undertake the responsibility for the administration of external financial resources, and, that the Pan American Sanitary Bureau undertake the responsibility for supplying technical advice to the governments at each stage of the program, and to suggest to both these organizations, that, with the cooperation of other interested agencies they study and establish appropriate procedures and relations that will make it possible to begin the program, it being understood that each government shall choose the appropriate time to begin the program, in accordance with the socioeconomic situation of the respective country, bearing in mind, in all cases, the social capacity for absorption of this type of investment of the communities that are to benefit.

4. To suggest to the Pan American Health Organization the appointment, in collaboration with the Inter-American Development Bank, of technical committees, to provide them with advisory services on financing, organization, community motivation, and other aspects of the program.

5. To recommend to the governments of the member states that they establish, and make proper legal and financial provision for, the most adequate and competent organization to administer the program at the national level.

6. To recommend to the governments that they adopt the necessary financial measures that will enable them to select and organize the communities for begining this program as soon as possible.

RESOLUTION XX [1/]

ESTABLISHMENT OF A RURAL WELFARE FUND

THE DIRECTING COUNCIL,

Having examined the report of the Director on the establishment of a rural welfare fund (Document CD14/23);

Bearing in mind the importance of environmental sanitation to the health and social and economic development of the rural population of the Americas and the target established in the Charter of Punta del Este of supplying water and sewage disposal services to at least fifty per cent of the rural population in the decade;

Mindful of Resolution A-11 of the First Annual Meeting of the Inter-American Economic and Social Council at the Ministerial Level (Mexico City, November 1962) which recognized the need to intensify efforts to improve living conditions in rural areas and to obtain international credits to develop programs for that purpose, and

Noting the support for such programs expressed by the Task Force on Health at the Ministerial Level (Washington, D. C., April 1963), by Resolutions IV and XIII of the 48th Meeting of the Executive Committee (Washington, D.C., April 1963), by the VIII Meeting of Ministers of Health of Central America and Panama (San José, July-August 1963), and by Committee VI of the Inter-American Economic and Social Council (San José, August 1963), and in view of the favorable opinion and the unanimous approval of the Members of the Council at its XIV Meeting,

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1/ XIV Meeting of the Directing Council of PAHO, Document CD14/40 (Eng.) pp. 28 and 29.

RESOLVES:

1. To approve the rural health program along the general lines described in Document CD14/23, and based on community participation, establishment of national revolving funds, and the need for international capital contributions.

2. To urge the Director to seek assistance from all possible sources for implementation and financing the program, including the Governments and the international development and credit institutions.

3. To recommend that the Director appoint a Technical Committee to give advice on financing, community organization and motivation, and other aspects of the program.

4. To recommend that Member Countries establish competent organizations to take charge of the execution of the national programs.

(Approved at the tenth plenary session, 23 September 1963)

Table I

Estimated Rural Population in 1974 to be Provided with Water Under 10-Year Program (1965-1974)

Country	Total Rural Population in 1974	Population to be Provided with Water*
Argentina	6,924,000	2,770,000
Bolivia	2,894,000	1,158,000
Brazil	50,715,000	20,286,000
Chile	1,900,000	760,000
Colombia	3,784,000	1,514,000
Costa Rica	433,000	173,000
Dominican Republic	1,894,000	758,000
Ecuador	3,717,000	1,487,000
El Salvador	1,947,000	779,000
Guatemala	1,682,000	673,000
Haiti	4,977,000	1,990,000
Honduras	1,575,000	630,000
Mexico	21,378,000	8,551,000
Nicaragua	1,216,000	486,000
Panama	739,000	295,000
Paraguay	1,281,000	512,000
Peru	8,001,000	3,200,000
Uruguay	683,000	273,000
Venezuela	2,974,000	1,190,000
	118,714,000	47,485,000

* Population to be served under 10-year program (1965-1974): 47,485,000 (40 per cent)

Added to the estimated existing facilities the new construction will serve the 50 per cent of the population in 1974.

Note: Populations do not include British Guiana, Surinam or Caribbean Islands other than Haiti - Dominican Republic. To the extent they are included in the loan program, they will increase Table I values by a small increment.

Table II

Estimated Yearly Capital Investment to Provide Water Supplies for 50% of the Rural Population Under a Ten-Year Program (1965 - 1974)

Argentina	US$	4,155,000
Bolivia		1,737,000
Brazil		30,429,000
Chile		1,140,000
Colombia		2,271,000
Costa Rica		259,000
Dominican Republic		1,137,000
Ecuador		2,230,000
El Salvador		1,168,000
Guatemala		1,009,000
Haiti		2,985,000
Honduras		945,000
Mexico		12,827,000
Nicaragua		729,000
Panama		442,000
Paraguay		768,000
Peru		4,800,000
Uruguay		410,000
Venezuela		1,785,000
Total	US$	71,226,000

Note: The yearly total investment has been computed on an average per capita cost of US$15.00.

Table III

* Example of Financial Mechanism of National Revolving Funds (NRF)
(Annual Loan requirements of US$4,500,000 for a Group of Countries)

Year	Loans to Communities from NRF (1)	Repayment of Principal and Interest from Communities to NRF's (2)	Direct Loans from Internat'l. Credit Institution to NRF's (3)	Amortization from NRF's to Internat'l. Credit Institutions (4)	Cash on Hand in NRF's (5)	Operation Charges of Internat'l. Loans due by NRF's (6)
1	4,500,000	-	4,500,000	-	-	Financed totally by Government
2	4,500,000	611,406	3,888,594	-	-	"
3	4,500,000	1,222,812	3,277,188	-	-	"
4	4,500,000	1,834,218	2,665,782	-	-	"
5	4,500,000	2,445,624	2,054,376	-	-	"
6	4,500,000	3,057,030	1,444,297	-	-	"
7	4,500,000	3,668,436	831,564	-	-	"
8	4,500,000	4,279,842	220,158	-	-	"
9	4,500,000	4,891,248	-	-	391,248	Financed partially by Government
10	4,500,000	5,502,654	-	-	1,393,902	Financed totally by NRF's
11	-	6,114,060	-	188,800	7,319,162	"
12	-	5,502,654	-	188,800	12,633,016	"
13	-	4,891,248	-	188,800	17,335,464	"
14	-	4,279,842	-	188,800	21,426,712	"
15	-	3,668,436	-	188,800	24,906,348	"
16	-	3,057,030	-	188,800	27,774,578	"
17	-	2,445,624	-	188,800	30,031,402	"
18	-	1,834,218	-	188,800	31,676,820	"
19	-	1,222,812	-	188,800	32,710,832	"
20	-	611,406	-	188,800	33,133,438	"
	45,000,000	61,140,598	18,880,063	1,888,000		

* See explanatory notes in the following page.

Table III Notes:

a) The computations are based on a group of countries requiring US$4,500,000 annual loan that will provide, in 10 years, water supplies for 6,000,000 rural inhabitants, at a total cost of US$90,000,000.

50% of the construction investment: US$45,000,000, will be provided directly by the countries and by the communities benefited.

29% of the construction investment: US$26,119,937, will be provided by the communities benefited through assessments and/or tariffs.

21% of the construction investment: US$18,880,063, will be provided by international loans.

b) Column (1) reflects the international loans plus the income from assessments and/or tariffs paid by the communities.

c) Column (2) reflects annual payments of principal and interest from the communities to the NRF's, on the following terms: 11 years for amortization plus 6% interest for both amortization and interest with one year period of grace. This may be administered in one of two ways:

- Comply with the time programmed using subsidies to cover any deficiencies that may occur.

- Change the terms of amortization and interest, hence delay the year the NRF becomes self-supporting.

d) Column (3) lists the international loans needed.

e) Column (4) reflects the amortization of the international loans by the NRF's based on the following terms: 10 years of grace, payment of 1% of principal on year 11.

f) Column (5) lists the cash on hand in NRF's, once the amortization of the international loan is paid.

g) Column (6) relates to operation charges, -financed totally by Governments until year 8, partially on year 9, and from year 10 self-sustaining.

Tables IIIA and IIIB

Example of Ability of a Small Rural Community to Repay a Revolving Fund Loan at an Economically Practical Water Rate (Subsistence Economy Community)

Assumed Conditions:

Base-Year Population: 1000	
Ann. Growth Rate: 1.7% Arithmetic, Decennially Compounded	
Design Populations:	
1st-Stage Construction (New System for 10-Future Year Population)	1170
2nd-Stage Construction (System Expansion in 11th Year for 20-Future Year Population)	1370
Assumed Per-Capita Construction Costs	
1st-Stage - $20. for total population	
2nd-Stage - $20. for population increase	
Total Construction Costs (Incl. Construction Interest)	
1st-Stage - 1170 x $20 =	$23,400
2nd-Stage - (1370-1170) $20	$ 4,000
Revolving Fund Loan (50%)	
1st-Stage	$11,700
2nd-Stage	$ 2,000

Revenue Factors

Percent Population Connected	90
Av. No. Persons/Connection	5
No. Connections: 18% of Population	
Assumed Av. Water Bill - 75¢/Connection-Month	
Estimated Operating Costs - 25¢/Connection-Month	
Amount Available for Debt Service 50¢/Connection-Month	

R.F. Loan Repayment Terms

Interest Rate	6%
Max. Loan Life (Ann. Repayment)	16 yrs.

Remarks:

A per capita construction cost of $20. has been assumed instead of the continent-wide value of $15. because of the small size of community and also as a safety factor.

Estimated operating costs of 25¢/customer-month are based on a simple gravity system with either a part-time operator or a full-time operator shared with other nearby systems, and on subsistence economy conditions.

Table IIIA

Water Revenues Available for Debt Service
1st 20 years. - Constant Price Basis

Year	Population	No. Water Customers	Amt. 1/ Available for Debt Service	Remarks
0	1000	0	0	Construction Year
1	1017	183	1098.	
2	1034	186	1116.	
3	1051	189	1134.	
4	1068	192	1152.	
5	1085	195	1170.	
6	1102	198	1188.	
7	1119	201	1206.	
8	1136	204	1224.	
9	1153	208	1248.	
10	1170	211	1266.	
11	1190	214	1284.	Construction Year
12	1210	218	1308.	
13	1230	221	1326.	
14	1250	225	1350.	
15	1270	229	1374.	
16	1290	232	1392.	
17	1310	236	1416.	
18	1330	239	1434.	
19	1350	243	1458.	
20	1370	247	1482.	

1/ Based on 50¢/Connection-Month ($6/Yr.).

Table IIIB

Debt Service Repayment Schedule

Year	Debt Outsdg. Year Begin	Available for Debt Service	Interest Payments	Principal Retirement
1	$11700	$1098	$702	$396
2	11304	1116	678	438
3	10866	1134	652	482
4	10384	1152	623	529
5	9855	1170	591	579
6	9276	1188	557	631
7	8645	1206	519	687
8	7958	1224	477	747
9	7211	1248	433	815
10	6396	1266	384	882
11	7514	1284	451	833
12	6681	1308	401	907
13	5774	1326	346	980
14	4794	1350	288	1062
15	3732	1374	224	1150
16	2582	1392	155	1237
17	1345	1416	81	1335
18	10	1434	1	1433
19	1423 Surplus	1458	0	1458
20	2881 "	1482	0	1482

Notes: Outstanding debt of $7,514 at start of 11th year is composed of $2,000, for 2nd-Stage construction and $5,514. for 1st-Stage construction. By end of 16th year, all 1st-Stage debt and $655. of 2nd-Stage debt have been retired. At end of 20th year, surplus of $4,363. ($2,881. + 1,482), would be available as local contribution toward 3rd-Stage construction for 30 future-year population.

Tables IVA and IVB

Example of the Financial Resource-Generating Capability of a Series of International Loans for a National Water Supply Development Revolving Fund.

Assumed Conditions:

1. A series of international development loans advanced over a 10-Year Period to be credited to a National Revolving Fund in annual increments of $1 million. Loans to be at 0.4% interest during grace period and 1.25% during repayment period, with service charge of 0.75% on outstanding loan balance throughout full loan period. Total charges 1.15% in Years 2-6 and 2% during repayment years.

2. International loans to have a full 5-year grace period, based on years in which the loans are advanced. Repayment of principal of each annual loan advance to follow grace period, continuing in equal annual installments for 30 years.

3. Financial resources of National Revolving Fund would consist of international loans balances plus revolving fund debt-service receipts from local communities.

Table IVA

Example Schedule of Advances and Repayments on a Series of International Loans Totalling $10 Million (Thousand Dollars)

Year	Loan Advances	Cumulative Amt. Loaned	Balance of Loans Outsdg. at Year End	Debt Service		
				Interest	Principal	Total
1	1000	1000	1000	0	0	0
2	1000	2000	2000	11.5	0	11.5
3	1000	3000	3000	23.	0	23.
4	1000	4000	4000	34.5	0	34.5
5	1000	5000	5000	46.	0	46.
6	1000	6000	6000	57.5	0	57.5
7	1000	7000	6960	77.5	40	117.5
8	1000	8000	7880	96.7	80	176.7
9	1000	9000	8760	115.1	120	235.1
10	1000	10000	9600	132.7	160	292.7
11			9400	149.5	200	349.5
12			9160	154.	240	394.
13			8880	157.7	280	437.7
14			8560	160.6	320	480.6
15			8200	162.7	360	522.7
16			7800	164.	400	564.
17			7400	156.	400	556.
18			7000	148.	400	548.
19			6600	140.	400	540.
20			6200	132.	400	532.
21			5800	124.	400	524.
22			5400	116.	400	516.
23			5000	108.	400	508.
24			4600	100.	400	500.
25			4200	92.	400	492.
26			3800	84.	400	484.
27			3400	76	400	476
28			3000	68	400	468
29			2600	60	400	460
30			2200	52	400	452
31			1800	44	400	444
32			1440	36	360	396
33			1120	28.8	320	348.8
34			840	22.4	280	302.4
35			600	16.8	240	256.8
36			400	12.	200	212.
37			240	8.	160	168.
38			120	4.8	120	124.8
39			40	2.4	80	82.4
40			0	0.8	40	40.8

Note: Interest column includes service charge payments. Interest and service charge payments are for balance of loan outstanding at end of preceding year.

Table IVB

Example Cash Flow and Capital Investment Table for a National Revolving Fund Financed by a Series of International Loans (Thousand Dollars)

Year	Receipts: Loan Advances	Receipts: Local Payments 1/ Principal	Receipts: Local Payments 1/ Interest	Receipts: Local Payments 1/ Total	Debt Service on International Loan 2/	Amount Available for Lending 3/	New Loans Made	Cumulative Face Value Outstanding Local Loans 4/	Net Capital Invested 5/
1	1000	0	0	0	0	1000	0	0	0
2	1000	0	0	0	11.5	1988.5	1000	1000	1000
3	1000	62	38	100	23.	2065.5	1500	2500	2438
4	1000	156	94	250	34.5	1781.	1400	3900	3682
5	1000	228	140	368	46.	1203	1400	5300	4854
6	1000	332	198	530	57.5	1775.5	1400	6200	5922
7	1000	419	251	670	117.5	1928.	1500	8200	7003
8	1000	510	310	820	176.7	2071.3	1500	9700	7993
9	1000	600	370	970	235.1	2306.2	1800	11500	9193
10	1000	720	430	1150	292.7	2364.5	1800	13300	10273
11		850	510	1360	349.5	1575	1000	14300	10423
12		820	530	1420	394	1601	1000	15300	10533
13		955	575	1530	437.7	1583.3	1100	16400	10678
14		1025	615	1640	522.7	1600.6	1100	17500	10753
15		1090	660	1750	522.7	1728	1200	18700	10863
16		1170	700	1870	564	1834	1300	20000	10993
17		1250	750	2000	556	1978	1400	21400	11143
18		1340	800	2140	548	2170	1600	22000	11303
19		1310	790	2100	540	2130	1600	22600	11593
20		1410	850	2260	532	2258	1700	22800	11883
21		1425	855	2280	524	2314	1800	23200	12158
22		1450	870	2320	516	2318	1900	23700	12608
23		1480	890	2370	508	2284	1800	24100	12928
24		1510	900	2410	500	2394	1900	24500	13418
25		1530	920	2450	492	2452	2000	25000	13888
26		1560	940	2500	484	2468	2000	25200	14328
27		1575	945	2520	476	2512	2000	25400	14803
28		1590	950	2540	468	2584	2100	26500	15313
29		1660	990	2650	460	2674	2200	27700	15853
30		1730	1040	2770	452	2722	2400	29000	16323
31		1815	1085	2900	444	2848	2400	30300	16908
32		1900	1130	3030	396	3082	2500	31600	17508
33		1980	1180	3160	348.8	3393	2800	33100	18320
34		2070	1240	3310	302.4	3601	3100	34800	19350
35		2180	1300	3480	256.8	3724	3200	36400	20370
36		2280	1360	3640	212	3952	3500	38300	21590
37		2400	1430	3830	168	4114	3600	40200	22790
38		2520	1500	4020	124.8	4409	3900	42300	24170
39		2640	1590	4230	82.4	4657	4300	44700	25830
40		2800	1670	4470	40.8	4486	4400	47300	27430
Total							80100		

Summary of National Revolving Fund Conditions at End of 40th Year.

1. All external loans paid in full.
2. $80 million dollars of local community development loans made.
3. 33 million dollars of local loans repaid.
4. Over 47 million dollars remaining as a National Revolving Fund asset in form of annually, maturing local loans for a continuing community development program.
5. All of the above resources were generated by 10 million dollars of external loans to establish the National Revolving Fund.

Footnotes: 1/ For schedule similar to that shown in Table IVA, the average annual debt service on a 16-year 6% loan is about 10.5% of the face value of the loan, averaging 6.25% in principal repayments, with the balance in interest payments. In these columns of Table IVB, debt service receipts from local loans have been rounded at a net of 10% of the cumulative face value of outstanding local loans in the preceding year. The remaining 0.5% is reserved for fiduciary expenses. Principal repayments are shown at their average value of 6.25% annually; they actually would be lower during the earlier years of the local loans and higher in the later years.

2/ From Table IVA

3/ Advances from external loan plus receipts from local loan payments, and cash balance from preceding year less debt service on external loan.

4/ Year 18 is the terminal year for debt service on the first local loans made in Year 2. Beginning in Year 19, the cumulative face value of outstanding local loans represents the new loans made in a given year, less the value of local loans which terminated in the preceding year.

5/ Based on capital investment in local water systems for preceding year, plus new loans in current year, less principal repayments in current year.