directing council

PAN AMERICAN HEALTH ORGANIZATION

XVIII Meeting

regional committee

WORLD HEALTH ORGANIZATION

XX Meeting

Buenos Aires, Argentina
October 1968

Provisional Agenda Item 26

CD18/17 (Eng.)
22 October 1968
ORIGINAL: SPANISH

HEALTH IN THE INTEGRAL DEVELOPMENT OF THE RIVER PLATE BASIN

Document prepared by the Director, in accordance with the request of the VI Meeting of Ministers of Public Health of the River Plate Basin, Porto Alegre, 2-5 September 1968.

HEALTH IN THE INTEGRAL DEVELOPMENT OF THE RIVER PLATE BASIN

The Director of the Pan American Sanitary Bureau has the honor to submit herewith the document "Health in the Overall Development of the River Plate Basin" for the consideration of the XVIII Meeting of the Directing Council of the Pan American Health Organization, XX Meeting of the Regional Committee for the Americas of the World Health Organization.

This is in compliance with the decision of the Sixth Meeting of Ministers of Health of the River Plate Basin "to request the Director of the Pan American Sanitary Bureau to report to the XVIII Meeting of the Directing Council of the Pan American Health Organization, XX Meeting of the Regional Committee for the Americas of the World Health Organization, to be held in Buenos Aires in October, on the resolutions on various aspects of health adopted during the Meeting of Ministers of Health of the River Plate Basin."

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HEALTH IN THE OVERALL DEVELOPMENT OF THE RIVER PLATE BASIN

I. ANTECEDENTS

The countries of the Americas - and especially those of the River Plate Basin - have, as is clear from the documents of inter-American conferences and of international and regional organizations, shown great interest in the joint development of river basins.

During the Meeting of Foreign Ministers of Countries of the River Plate Basin held in Buenos Aires on 27 February 1967, the Ministers agreed that "the Governments carry out a joint overall study of the River Plate Basin with a view to developing a program of multinational, bilateral, and national projects that will further progress in the area." They pointed out that, to achieve such an objective, the study should cover seven subjects, including "the installation of water supplies, the preservation of animal and vegetable life, and joint cooperation in educational, health and epidemiological control programs," which are the responsibility of the health services. They added that "the technical and financial cooperation of international bodies will be indispensable for such studies to achieve the objectives sought. It will therefore be necessary to maintain close contact with assistance and credit organizations." They also proposed that appropriate measures be adopted so that in each country specialized national bodies centralize the studies and assessment of problems affecting the Basin.

In pursuance of the foregoing, the Governments of the five countries of the River Plate basin requested the cooperation of the Inter-American Development Bank in implementing a program to be carried out in three stages: (1) the preparation and presentation to the Governments of a preliminary regional report, based on the points established in the Declaration of the Foreign Ministers; (2) the carrying out of preinvestment studies for projects the Governments decided to undertake; and (3) the execution of the projects.

The Inter-American Development Bank approved this initiative and entrusted its implementation to the Institute for the Integration of Latin America. It also requested the collaboration of the specialized agencies of the United Nations and of the Organization of American States, including the Pan American Health Organization and the World Health Organization. The participation of the latter

organizations was owed its origin to the need to know the health problems of a program based on the maximum exploitation of water resources, from the point of view both of the relationship between the provision of water supplies and sewage discharge and of communicable diseases epidemiologically connected with water, in relation to health as well as other problems and the control of disease processes undermining the health and development of the region.

Greater emphasis was given to the project by the Declaration of the Presidents of the Americas at Punta del Este on 14 April 1967, which asserted the aim of establishing the material bases of Latin American economic integration by means of multinational projects, including the development of international river basins. The Chiefs of State also stated that "the improvement of health conditions is fundamental for the economic and social development of the Americas," thus reiterating the health objectives of the Charter of Punta del Este, and they resolved "to urge the Pan American Health Organization to collaborate with the Governments in the preparation of specific programs to attain those objectives."

The approval of the project led to the setting up of a Consultative and Coordination Board, for the secretariat of which the Institute for the Integration of Latin America is responsible, with authority to pursue joint action and to facilitate the support of the participating international organizations. An Inter-Governmental Committee, with headquarters in Buenos Aires, is in charge of the coordination of the different aspects of the project.

In accordance with the recommendations of the Foreign Ministers, the countries have formed national committees, consisting of experts from the various economic and social sectors concerned in the project, to study the problems of the Basin. It is to be hoped that the committees will also include a qualified representative of the national health services.

In view of the above, and at the special request of the Inter-American Development Bank, the Organization decided to participate in the project, appointing a medical consultant and a sanitary engineer to find out as much as possible in relation to this project. It also employed temporarily the services of the Director of the Health Division

of the Tennessee Valley Authority, an Assistant Surgeon General of the United States of America. At the same time, it is cooperating in the assessment and study of different specific subjects through its technical services at Headquarters, through the Zone Offices and through consultants in the various countries.

In 1948, the Ministers of Health, acting on behalf of the Presidents of the Republics and continuing the policy of collaboration among countries of the River Plate Basin - especially with regard to the health protection and preservation - signed a Health Convention by virtue of which they undertook to adopt permanent preventive measures for the solution of epidemiological problems of frontier zones in relation to communicable diseases. This Convention was based on the provisions of the Pan American Sanitary Code and acknowledged the geographic and economic reality of the River Plate Basin. It recognized the serious risk of spread of disease and recommended the cooperation of the Governments, either directly or through the Pan American Sanitary Bureau. It called for early notification of epidemic outbreaks and diseases, the control of water pollution, the encouragement of the study of health problems, the establishment of mixed committees of health experts, and the coordination of efforts without frontier restrictions. In a Protocol attached to the Convention similar measures were set out for some of the zoonoses.

Under the Convention, meetings of Ministers of Health were held in Montevideo, Uruguay (1948 and 1953); Asunción, Paraguay (1955); Porto Alegre, Brazil (1957 and 1968); and Iguazú, Argentina (1961). At those meetings, health plans for frontier areas, the improvement of vital, health, and administrative statistics and other technical problems were considered.

During the second Meeting of Foreign Ministers of the River Plate Basin, held at Santa Cruz de la Sierra, Bolivia, in May 1968, the Ministers decided to hold annual meetings for the purpose of drawing up a policy for a harmonious and balanced development of the region and to give guidance to the Inter-governmental Coordinating Committee, which acts as executive body of the Council of Ministers. The Ministers also requested the Coordinating Committee to prepare a draft treaty providing for the institutionalization of the River Plate Basin, for the approval

of which the Foreign Ministers will hold an extraordinary meeting in Brazilia. They also agreed to make preliminary studies of various projects to be shared by the five member countries and of other specific projects submitted by member Governments. The former include an "Inventory and Analysis of Basic Information on the Natural Resources of the Basin," the latter a "Study of the Basin of the Santa Lucía River, Uruguay."

The Foreign Ministers also recommended that the Committee take action to submit a report to international organizations within ninety days on ways and means whereby those organizations could participate in approved or recommended studies.

II. DESCRIPTION

The Basin of the River Plate, with an area of about 3,000,000 square kilometers, includes about 32% of the area of the Argentine Republic (900,000 square kilometers), 19% of the Republic of Bolivia (200,000 square kilometers), 17% of the Republic of Brazil (1,400,000 square kilometers), the entire area of the Republic of Paraguay (400,000 square kilometers) and 80% of the area of the Republic of Uruguay (150,000 square kilometers). A map is attached showing the administrative divisions of the countries of the region, including the topographical boundaries of the basin (Annex 1 and 2).

The waters of the Uruguay and Parana Rivers unite to form the River Plate. The Paraguay River, the third large water-way of the system, flows into the Parana at a point situated 1,100 kilometers above its confluence with the River Plate. The Parana is 4,000 kilometers long, taking into consideration a tributary such as the Paranaiba or Grande. The Uruguay is 2,500 kilometers long, and the Paraguay almost the same. However, the area of the Paraguay basin (1,100,000 square kilometers) is more than three times greater than that of the Uruguay. The average annual volume of water carried by the Parana before the Paraguay flows into it, is 12,000 cubic meters (tons) per second. The average annual volumes of the Paraguay and Uruguay rivers are 4,500 and 5,000 cubic meters per second, respectively.

The Uruguay and Parana rivers have floods that bring down far more water than the average annual volume. In the Uruguay river the volume of water during floods has reached 35,000 cubic meters per second, and in the Parana river, 1,000 kilometers from its confluence with the River Plate, flood peaks have been registered of approximately 50,000 cubic meters per second. Finally, the River Plate, with an annual average volume estimated at 22,000 cubic meters per second, has an average flow of water surpassing that of the Mississippi at its mouth.

It should be noted that there are considerable differences between the maximum and minimum volumes of water carried by these rivers. Owing to this, for the development of these rivers and adequate use of their water, it will be necessary to carry out large control and related works. The construction of dams and water utilization systems will involve a change in environmental conditions that may increase the incidence of certain communicable diseases.

The areas to benefit from the utilization of the waters of the rivers of the region have not been yet determined, but they may go beyond the strict limits of the water basins, that is, of the geographical basin of the River Plate. Within the area delimited by the "divortium aquarum" are situated the capitals of the five countries of the Basin: Asuncion, Brasilia, Buenos Aires, Montevideo, and Sucre, as well as very important cities such as Sao Paulo, Rosario, Curitiba, Santa Fe and others. There are also other large cities, such as Rio de Janeiro, Córdoba, Tucumán, Belo Horizonte, Porto Alegre and Santa Cruz which, although they do not belong to the geographical area of the basin, may have a highly significant influence on the decisions to be adopted for the exploitation of the water resources. It has been claimed that they belong to the River Plate Basin.

Annex 3 provides an overall view of the population and area of the Basin, as well as of their ratios in each of the countries. It gives an idea of the magnitude of the problems facing the countries of the Basin if they wish to meet the needs of the region.

Besides data on population, Annex 4 gives information on health in the main administrative divisions of the countries of the Basin.

This brief description is inadequate and must be considered as merely a preliminary one, which it is urgently necessary to supplement. There are some suggestions later in this report on how this might be done.

III. SIXTH MEETING OF MINISTERS OF HEALTH OF THE RIVER PLATE BASIN

Under the Health Convention of 13 March 1948, and at the request of the Minister of Health of Brazil, the Director of the Pan American Sanitary Bureau convened the VI Meeting of Ministers of Health of the countries of the River Plate Basin to consider the following agenda:

1. The River Plate Basin development program, its origin, structure and aims.

2. Health in the overall development of the River Plate Basin. Analysis of some of the problems:

(a) Communicable diseases:

i. Malaria
ii. Smallpox
iii. Urban and jungle yellow fever
iv. Schistosomiasis
v. Zoonoses: bovine tuberculosis, brucellosis, rabies
vi. Other diseases

(b) Nutrition

(c) Environmental health problems, with special emphasis on the exploitation of water resources and the inter-relationship between the provision of water supplies and the discharge of sewage waters.

3. The health plan in the overall development of the River Plate Basin:

i. Bases for its formulation
ii. Statistics

iii. Financing
iv. International coordination

To facilitate its work, the Meeting divided it into: (a) a consideration of the agenda at the technical level and the formulation of recommendations; and (b) a review of and decisions on the recommendations by the Ministers of Health.

To aid the discussions, the Pan American Sanitary Bureau prepared a document entitled: "Health in the Overall Development of the River Plate Basin; An Analysis of Some Important Problems" (MSCP-6/3), which outlined the antecedents of the project, described the area and provided information on environmental health problems, water resources and their connection with health, communicable diseases and nutrition. It also set out the bases for the formulation of a health plan for the overall development of the region. On the basis of this document and reports submitted by the participating countries, the Ministers made a series of recommendations, which are included in the Final Report (Document MSCP-6/13).

IV. SUBJECTS AND RECOMMENDATIONS

The following is a summary of the aforementioned document and of the recommendations made at the Meeting:

(a) COMMUNICABLE DISEASES

1. Smallpox. Argentina and Brazil reported cases of smallpox in 1967. In 1968, the only reports were made by Brazil. The greatest problem is still Brazil where 4,252 cases were notified in 1967, of which 3,232 were in the area of the Basin. In Bolivia the last 5 cases reported were in 1964. The same number of cases was reported in Paraguay in 1966. The last case (an imported one) reported in Uruguay was in 1965.

A basic element in the eradication of the disease from this part of the Continent is therefore the elimination of smallpox in Brazil.

With a view to coordinating efforts towards the goal of eradication, the Meeting of Ministers recommended that activities be intensified to eradicate the disease within a definite time limit;

that efforts to vaccinate the population of frontier areas be coordinated; that efficient systems be adopted for the notification and recording of cases; that action be organized to establish maintenance and epidemiological surveillance programs; that laboratory diagnosis services be established and collaboration be instituted with countries lacking such services; that the production of freeze-dried vaccine meeting the requirements by the World Health Organization Expert Committee be increased; and that international certificates be issued only by the health authorities.

2. Yellow fever. The problem in the River Plate Basin is jungle yellow fever, owing to the favorable ecological conditions in the forested areas and the influx of primates and vectors carrying the virus. This gives rise to periodic epizootics, reflected in the occurrence of human cases and the consequent danger of epidemics. A landmark in the course of these epizootics during the past thirty years was the appearance of the first human cases reported in the central part of the State of Mato Grosso, then in Goias and north-western Minas Gerais, and later throughout the whole of south Brazil. Another epizootic outbreak followed the forests along the banks of the Paraguay and Parana rivers. The last epizootic outbreak, in 1965-1966, spread to the State of Rio Grande do Sul in Brazil, and to the Provinces of Misiones and Corrientes in Argentina.

In 1966, 51 cases of jungle yellow fever were reported in Argentina, 47 in Bolivia and 167 in Brazil. In 1967 a single case was reported in Argentina. (These cases are those that occurred exclusively in the Basin; see Annex 5.)

The vector of urban yellow fever has been eradicated from all the countries of the Basin. Nevertheless, there were fresh infestations in 1968 both in Argentina and in Brazil.

The Meeting of Ministers, considering that the economic development of the Basin will lead to an important influx of population, that favorable ecological conditions for the transmission of jungle yellow fever exist in the area, and that the presence of Aedes aegypti in large areas of the Americas is a permanent threat to health, recommended the systematic vaccination of population in areas where favorable conditions exist for the transmission of jungle yellow fever; the establishment of epidemiological surveillance services which would make possible the early discovery of the presence of the virus; and the organization or

intensification of eradication campaigns to prevent reinfestation of countries free from the urban vector. It also recommended that the Pan American Health Organization and the World Health Organization continue to provide all possible technical and material assistance for the development of campaigns for the eradication of the vector, besides keeping Governments informed of the situation concerning A.aegypti in the Americas.

3. Schistosomiasis. Brazil is considered to be one of the most important foci of intestinal schistosomiasis, which is prevalent in more than 50% of the federal divisions of the country. Within the area of the River Plate Basin, there are foci in the State of Sao Paulo, both in the coastal regions and on the platea and in the Paraiba valley. In this region the vector is Biomphalaria tenagophilus. In the State of Parana, the disease is markedly more endemic in the breeding areas of B.glabrata. In the other southern States, Santa Catarina and Rio Grande do Sul, no indigenous cases have been reported. It is believed that schistosomiasis is spreading towards the south of Brazil.

The presence of potential vector snails and the recurrence of waves of migration containing infected persons are factors that could contribute the introduction and subsequent spread of the disease to other parts of the River Plate Basin.

Taking these facts into account, the Meeting of Ministers of Porto Alegre recommended: (a) that the countries of the Basin carry out studies on the geographical distribution of schistosomiasis and report on the results to the Governments concerned; (b) that information be obtained on the prevalence and distribution of potential vector snails, with the cooperation of the Pan American Health Organization and the World Health Organization; (c) that control measures be coordinated so as to prevent the spread of the disease; and (d) that stress be placed on the potential danger of areas in which irrigation or the dam construction projects are under way so that the necessary preventive measures can be taken.

4. Zoonoses. The River Plate Basin is the area in South America with the highest population of domestic animals; about 60% of the cattle and 50% of the sheep and pigs are concentrated in it. This is of the greatest importance for the countries within the Basin (Annex 6).

At present the development of the livestock industry in the region is hampered by the existence of endemic diseases which reduce the production and earnings. Moreover, a large part of the population lives in rural areas in close contact with domestic animals and is consequently exposed to the zoonoses.

4.1. Brucellosis. Although the prevalence of bovine brucellosis cannot be assessed exactly, it can be said that it is widespread in the area of the Basin, causing heavy economic losses in Argentina, Brazil and Uruguay. Porcine brucellosis is important in Argentina and Brazil, and caprine brucelosis is becoming significant in Argentina, with high infection rates. This latter form of zoonosis is of the greatest importance in public health since, besides causing disease in human beings, it affects the only source of animal protein in many poor and desert districts.

In 1966, 1,000 cases of human brucellosis were reported in various Argentine provinces in the River Plate Basin.

In connexion with brucellosis, the Meeting of Ministers recommended that programs for the vaccination of cattle be intensified; that the Governments be urged to comply with international commitments on the traffic of vaccinated animals; that epidemiological studies on caprine and ovine brucellosis be continued with a view to the adoption of suitable control measures; and that antigens be standardized, using the Pan American Zoonosis Center as a reference center.

4.2. Animal tuberculosis. Bovine tuberculosis is the most important form of animal tuberculosis. Apart from the loss of cattle it involves, it is a source of infection for other animal species and for man. In the River Plate Basin the infection rates in cattle are in general high.

With regard to animal tuberculosis, the Meeting of Ministers recommended that national control programs be intensified; that long-term loans to finance them be requested from international credit institutions; that a tuberculin for animal use be standardized; and that the identification of the types of Mycobacterium isolated from human cases be stepped up.

4.3. Rabies. This disease is widespread throughout all the countries of the Basin, and even Uruguay, considered until a few years ago

to be free from rabies, has been reinfected. During the period 1957-1966, 441 cases of human rabies were reported in the five countries of the Basin.

The dog is the main reservoir and vector of the disease in the area. The great human exodus from the rural areas to the cities has led to a substantial increase in the dog population, especially of stray dogs.

Rabies in Chiroptera is also a problem, both because of reported human cases transmitted by vampire bats (Desmodus rotundus) and because of the serious economic effects of the death of thousands of head of cattle from paralytic rabies. Uruguay is the only country in the Basin where rabies transmitted by vampire bats is unknown.

The control programs that have so far been put into effect for this form of zoonosis have been of limited scope and have not succeeded in reducing the problem to any significant extent.

With reference to the control of rabies, the Meeting of Ministers recommended: (a) that information on the disease be centralized so as to prevent reduplication of the data; (b) that an adequate system be established for the international livestock trade; (c) that studies be carried out in each country on wild rabies; (d) that vaccine of proven power and harmlessness be used both for human beings and for animals and that the Pan American Zoonosis Ceter be used as a reference center; (e) that programs be coordinated so that they can be carried out jointly in frontier areas; and (f) that countries of the River Plate Basin hold periodic meetings to coordinate their activities and exchange experience.

4.4. Hydatid disease. This disease is also a serious problem in the River Plate Basin, from the point of view both of public health and of the economy. The disease has spread through almost the whole Basin, Uruguay, Argentina, and the south of Brazil being the areas mainly affected, Bolivia and Paraguay to a far lesser degree. Hydatid disease is considered in Uruguay to be the most important disease affecting rural areas. In Argentina it is especially prevalent in the provinces situated within the Basin.

As regards the control programs so far carried out, it can be asserted that they have not attained their objective because of the persistence of the disease in different animal species and the consequent infection of man.

The following recommendations were made by the Meeting of Ministers: (a) that pilot control programs be organized as demonstration and training areas; (b) that the importance of health education in control programs be duly recognized; (c) that a notification system for human cases be established; (d) that diagnostic methods and epidemiological, laboratory and control procedures be standardized; and (e) that clandestine slaughterhouses be eliminated and efforts made to improve those situated in rural areas and to establish veterinary inspection services.

5. Malaria. Malaria is an endemic disease in four of the five countries of the River Plate Basin (Annex 7) and, owing to its rural characteristics, it prevents agrarian reform programs from receiving the stimulus they need for the land to become an economically stable basis for the man who works it. The countries represented at the Porto Alegre Meeting therefore agreed on the necessity of making all possible efforts to achieve its eradication.

It was recommended that the countries of the River Plate Basin where malaria represents a health problem continue giving the appropriate priority to programs already under way, assigning the necessary resources and funds with sufficient flexibility; that Argentina, Bolivia, Brazil and Paraguay coordinate their efforts towards the same end and exchange information on the work done every three months; that research be continued with a view to discovering the response of P. falciparum to antimalaria drugs and that studies be pursued on treatment bringing about a radical cure of P. vivax infections within a shorter period than in existing treatment schedules; that work be continued and intensified in connetion with the distribution, ecology and role of A. darlingi, considered to be as the primary vector in the malarious areas of the Basin; that charts be drawn at local level recording population and settlement movements that may have some effect on malaria epidemiology in areas of joint interest; that studies be continued on anopheline susceptibility to DDT; and that attack operations in frontier areas not be discontinued until neighbouring countries achieve an adequate safety level.

(b) NUTRITION

There is little specific information available on the state of nutrition in this area, considered as a geographical entity. The

respective countries have carried out partial studies of selected populations within their own territories. These studies have been made at different times, frequently at intervals of years and utilizing different techniques. It is consequently, impossible to give an overall and comparable picture of the situation in the area as regards nutrition.

A useful index to the state of nutrition is obtained by assessing the food intake per inhabitant in terms of the calory and protein content and comparing it with the estimated requirements of the population. The most recent available information in the five countries is given in Annex 8.

The Meeting pointed out that the River Plate Basin produces abundant foodstuffs, although pockets of malnutrition may exist in some geographical areas. It considered that, once certain animal health problems were solved, water resources adequately exploited and controlled, and other easily manageable technological and economic factors dealt with, nutritional deficiencies could be remedied and food production intensified.

The Meeting accordingly recommended:

- That the Ministries of Health of countries of the region play a dynamic part in the formulation, execution and evaluation of food policies;

- That food and nutritional surveys to determine the relative urgency of nutritional problems of the region be carried out or brought up to date;

- That in frontier areas countries coordinate investigations on the nutrition problem and the control policies to be adopted.

- That projections be made of the demand for foodstuffs for the next twenty years, with a view to determining the production quotas necessary to meet the demand and to take the appropriate steps in relation to the distribution and consumption.

- That the requirements of the health sector be determined and be included in the 1970 census questionnaires, with a view to determining the characteristics of the population in relation to its nutritional demands.

- That the most practical and economic indicators for the evaluation of nutritional problems be studied and determined while programing health activities.

- That Ministries of Health prepare the technical norms to be followed by personnel in action related to the assessment of existing nutritional problems and to prevention and treatment when dealing with such problems.

- That problems arising from the use of food additives and contamination with pesticides and other toxic substances be studied, and that the appropriate tolerance limits be established.

c) SANITATION, WATER RESOURCES AND HEALTH

In all river basins water is a natural resource, renewable but limited. The limitation can become apparent when the water is not available in sufficient quantity in certain places or at certain periods, or when its quality makes it unfit for certain uses. It may even happen that the water has to be controlled when in excessive amount, to prevent damage by flooding.

There is an increasing demand today for water that can be used for a variety of purposes such as drinking water supplies for cities, industry and agriculture, power production, and recreation, navigation and fishing.

Frequently, there is competition for the water among these various uses or activities, and it is consequently necessary to assign fixed amounts of water of due quality to each of them.

The development of techniques to make the distribution equitably brought out the need to establish economic and social criteria of benefits and costs based on objectives and also criteria for their adoption. The objectives generally express a policy and the criteria are the norms for estimating benefits, costs or damage.

Since the availability of water supplies is limited, they must be used efficiently. Ways and means are available today of solving the problems involved (Annex 9 and 10). Amongst the various uses of water, some are connected with health. It clearly follows that the health sector must be considered in planning the development of river basins, the appropriate criteria being applied in a scientific and rational manner.

The problem has still to be solved of establishing an appropriate methodology, in which the factors related to health protection and promotion are taking into account, due attention being paid to the limitations on them made inevitable by developing countries.

During the Second Meeting of Foreign Ministers of the Countries of the River Plate Basin, held in Santa Cruz de la Sierra, it was agreed to carry out studies on the development of the basin of the Santa Lucia River, in Uruguay. This has the advantage of covering a relatively small area (13,000 square kilometres), being readily accessible, and being representative of water supply problems in cities and industries and of problems connected with sewage discharges, irrigation, and flood control. In this case more than the half of the population of the country is affected. The Uruguayan Government has approved a study that will be carried out with the collaboration of the Organization of American States and the Pan American Sanitary Bureau. It is believed that answers will be forthcoming from this study to questions on the methodology to be applied for the overall development of river basins and that they could be later used in the River Plate Basin, of which the Santa Lucia basin forms a part.

The Sixth Meeting of Ministers of Health, held in Porto Alegre, bearing in mind the decisions made by the respective Governments regarding the maximum utilization of the water resources of the region; the need to meet the demand forecast, as regards both the quantity and the quality of the water available; the existence of economic and social reasons for preserving the quality of the water of the Basin, as well as of direct and indirect relationships between the quality, quantity and availability of water and human and animal health, recommended:

- That representatives of the respective Ministries of Health be included in the National Committees of each country in the River Plate Basin.

- That in all projects involving irrigation systems and the dam construction, the necessary steps be taken for the control of the vectors and intermediate hosts of communicable diseases.

- That environmental health plans of national interest be formulated with the participation of Ministers of Health and that the maximum support be guaranteed for the execution of environmental health projects.

- That problems related to the administration and control of the quality, quantity and availability of the waters of the Basin, including surface and underground waters of multinational interest, be studied. In this connection it was pointed out that it is essential to complete the information on the characteristics of the water quality in all its aspects and determine the demand directly related to present and future health uses, stress being placed on the advisability of setting up a network of quality control laboratories, establishing norms for the analysis and the quality of the water, creating a system for making data available, training the personnel necessary, and studying the legal, financial, administrative and institutional consequences of the health uses of the water in the Basin.

- That the present and future uses of water resources be assessed, as well as the effects of damage, costs and benefits arising from the quality characteristics of the water.

The above recommendations form a coherent set of instructions on how to achieve fuller utilization of water resources, with due attention to factors having a bearing on health.

d) HEALTH PLANS IN THE OVERALL DEVELOPMENT OF THE RIVER PLATE BASIN

It was stressed that the active and continuing participation of the health sector is inescapable in a joint overall study of the Basin and in the formulation of a program of multinational, bilateral and national projects, since the carrying out of development projects is to a certain extent conditioned by the health situation in the area. On the other hand, it may have its own repercussions, creating new health problems or aggravating existing ones. This must be foreseen and dealt with right from the preinvestment stage. The participation of the health sector should assume the form of a sectoral planning process duly integrated with the national programing of the countries, and be technically in harmony with the development program of the Basin. It is necessary to establish or strengthen previously determined basis conditions rendering such a process feasible.

While these conditions are being established, it is possible to program health activities on the basis of technical criteria, for which there is an established corpus of knowledge and methodological techniques.

It is also possible to attempt to achieve effective coordination among countries, owing to the permanent increase of population interchanges.

This effort can only be carried out by stages, in accordance with a plan based on technical criteria and an analysis of the present situation, for the design and implementation of which the technical and financial cooperation of the Pan American Health Organization and of other international organizations was requested.

Among the recommendations made by the Ministers on this item, the following deserve mention:

- That the health sector be permanently present and actively participate in a joint, overall study of and the preparation of development plans for the River Plate Basin.

- That a joint plan of work be formulated in accordance with the development program of the Basin, taking into account a study of the present situation which will include: The establishment of and/or strengthening of basic conditions making it possible to program and carrying out the appropriate activities of the health sector by means of: (a) the establishment of a system of health statistics, (b) the study of the measures necessary for the progressive expansion and strengthening of an adequate basic health infrastructure ensuring the coverage of the population, (c) the study of the measures necessary to achieve better utilization of available health resources, and (d) the study of the coordination mechanisms necessary for the joint action to be carried out.

- That a system be instituted by which the health authorities of the countries should be informed early of all development projects (multinational, bilateral or national), to able them to study their effects on the health sector.

- That a methodological model be designed that would facilitate the programing of health activities considered to support development projects. Programs of this kind should be included in national health programs of the countries.

- That, while the information and criteria necessary for the planning process are being obtained, local health structures should simultaneously be developed and utilized rationally to meet the demands of the population.

- That the training, preparation and in-service training of the necessary professional, technical and auxiliary personnel be developed, making use of the teaching resources of the countries. These activities should have the full support of the respective Governments.

The Meeting also made the following recommendations of a general nature:

- That the resolutions adopted be reported through the appropriate national channels, with a view to their being considered at the proper political level, within the scope of the Basin Program.

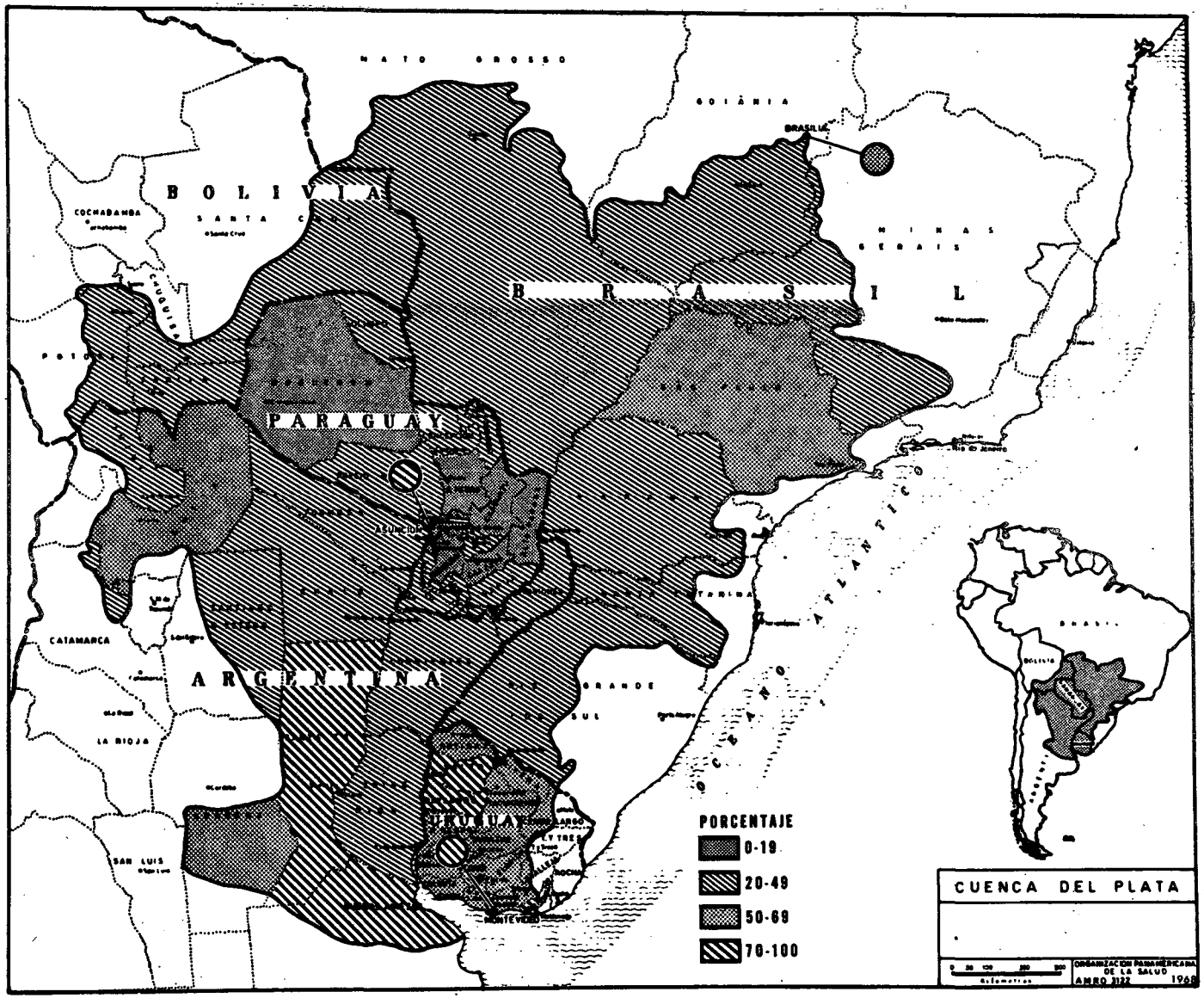
- That annual meetings be held two months before the annual meetings of Foreign Ministers of Countries of the River Plate Basin for the purpose of making available the decisions made at the meetings at the appropriate political level, through the national and inter-governmental mechanisms in force for the Program.

- That the Government of the Republic of Bolivia be informed, through the Chairman of the Sixth Meeting, of the decisions made at that Meeting, to enable it to adopt whatever measures it deems fit; and that that Government be also requested whether it agrees to the Seventh Meeting of Ministers of Health of the River Plate Basin, which is to take place in 1969, being held in its country.

A N N E X E S +

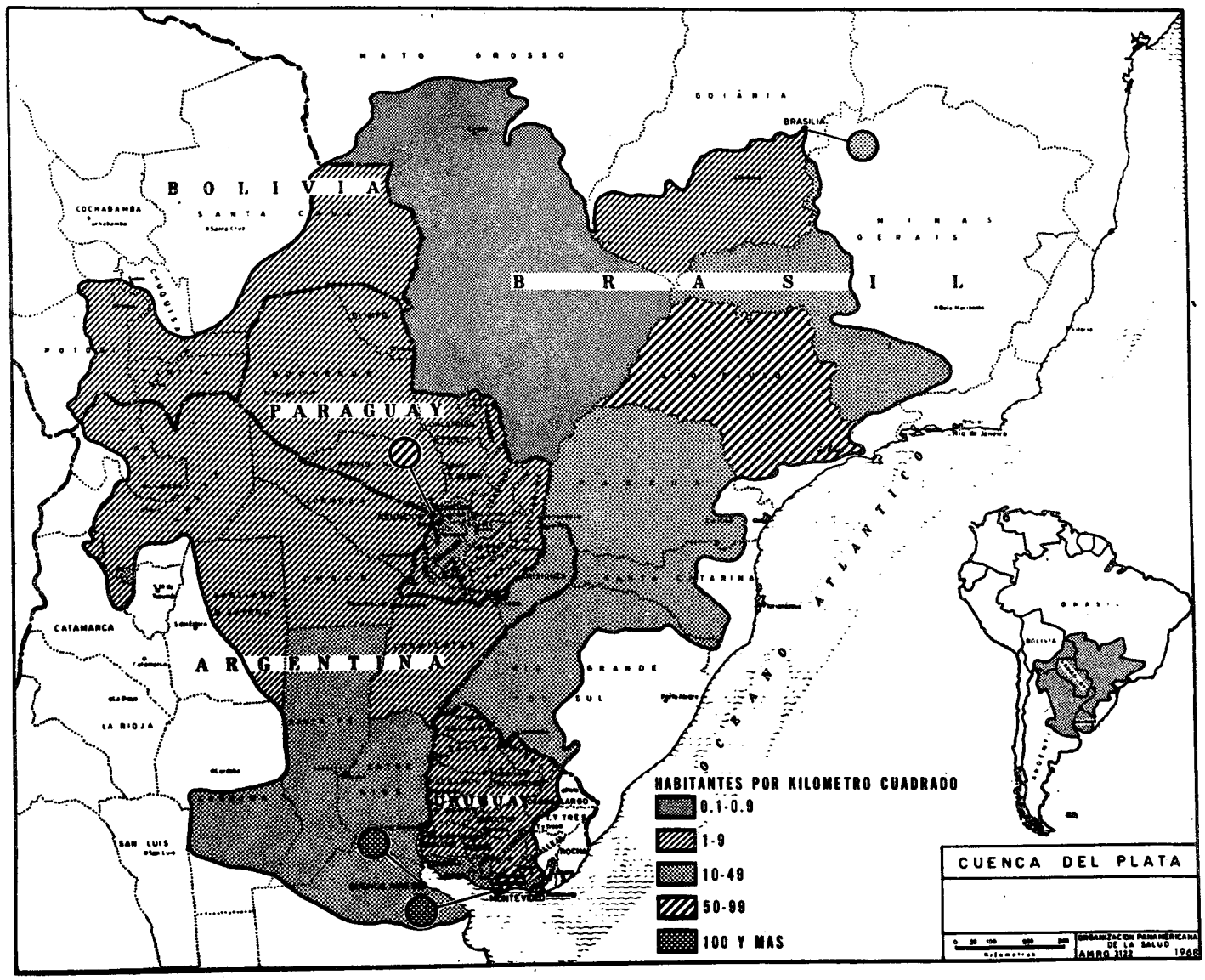
+ They have not been translated into English.

PORCENTAJE DE LA POBLACION RESIDENTE EN LAS AREAS URBANAS DE LA CUENCA DEL PLATA POR DIVISIONES ADMINISTRATIVAS PRINCIPALES DE CADA PAIS



ANEXO I

DENSIDAD DE POBLACION DE LA CUENCA DEL PLATA POR DIVISIONES ADMINISTRATIVAS PRINCIPALES DE CADA PAIS SEGUN LOS ULTIMOS CENSOS



ANEXO II

ANEXO III

Población y superficie de la Cuenca del Plata

(Millones de Habitantes)
(Miles de Km^2)

PAIS	Población			Superficie	
	Año 1967	% - respecto al total del país	Año 1980	Km2	% - respecto al total del país
Argentina	18.7	81	23.6	900	32
Bolivia	1.2	28	1.9	200	19
Brasil	54.9	63	82.9	1.400	17
Paraguay	2.1	100	3.1	400	100
Uruguay	2.5	93	3.1	150	80
TOTALES	79.4		114.6	3.050	23

Ref.: Informaciones de INTAL-BID-Cuenca del Plata.

ANEXO IV

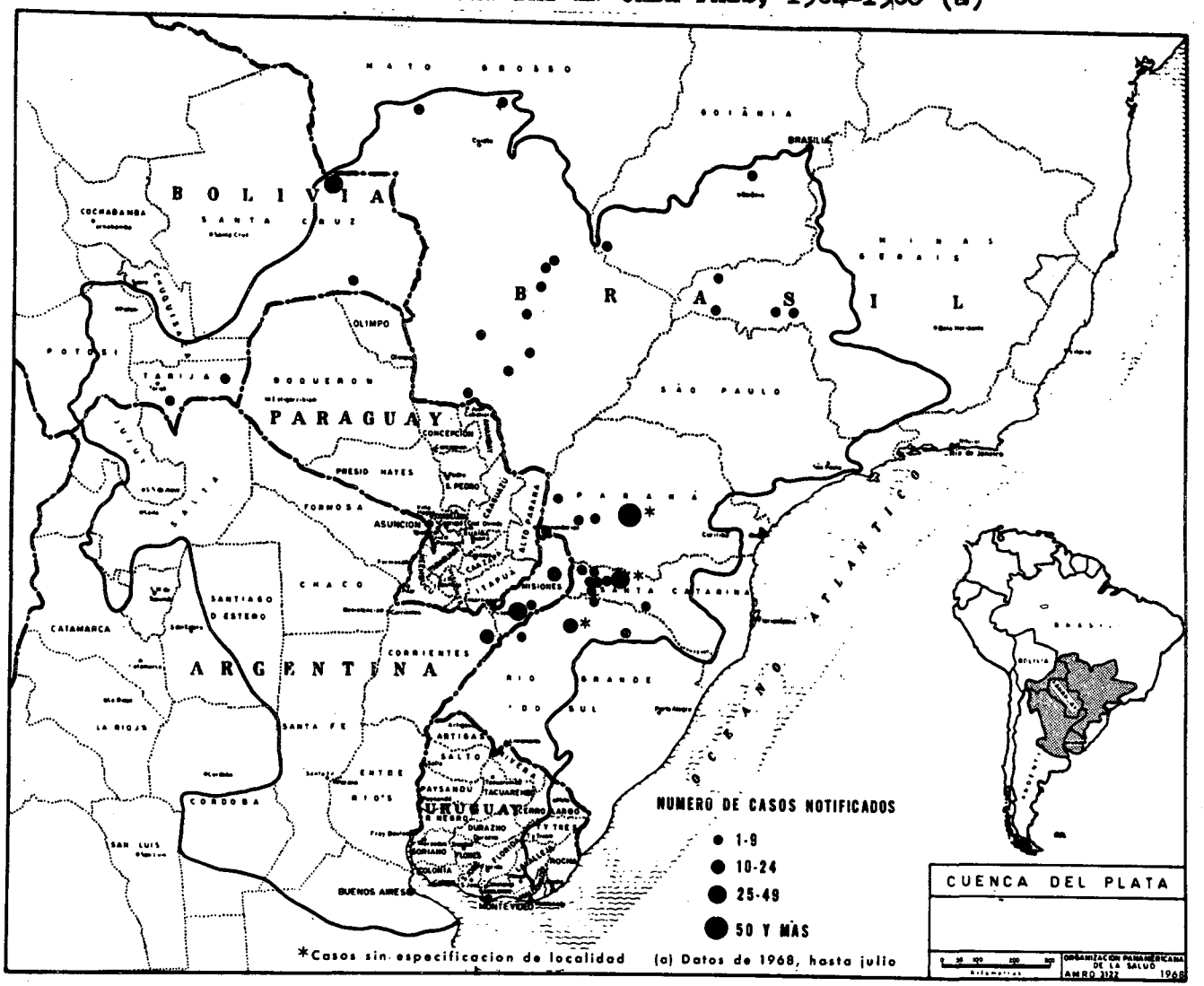
Población e indicadores de salud en la Cuenca del Plata, por divisiones administrativas principales de cada país, años recientes

Area	Población (a)	Porcentaje de población en zonas urbanas (censos)	Densidad por kilómetro cuadrado (censos)	Tasa de natalidad por 1,000 habitantes	Mortalidad infantil por 1,000 nacidos vivos	Casos de viruela 1967	Casos de fiebre amarilla 1964-68	Casos de paludismo por 100,000 habitantes 1966	Médicos por 10,000 habitantes	Camas de hospital por 1,000 habitantes	Porcentaje de población urbana con servicio de agua	Porcentaje de población urbana con servicio de alcantarillado
Argentina	18 700 000	73.0	12.4	21.1	61.2	23	54	2.8	16.9	6.5	66	34
Capital Federal	2 966 634	100	14870.3	21.7	40.4	-	-	0.0	42.7	9.7	100	84
Buenos Aires	6 734 548	80.0	21.9	15.3	52.3	-	-	0.2	12.9	5.9	52	18
Catamarca	168 231	41.9	1.7	28.5	79.0	-	-	0.8	6.0	4.0	...	...
Córdoba	1 753 840	68.2	10.4	20.3	56.9	-	-	-	18.0	8.3	63	17
Corrientes	533 201	46.4	6.0	29.7	77.8	-	12	1.6	6.0	4.1	53	18
Chaco	543 331	37.8	5.5	36.8	79.0	-	-	0.8	4.8	3.8	36	5
Entre Ríos	805 357	49.5	10.6	23.6	57.6	-	-	-	7.5	6.3	79	30
Formosa	178 526	33.6	2.5	37.7	42.4	2	-	5.9	4.7	2.5	33	12
Jujuy	241 462	49.1	4.5	41.9	125.1	-	-	11.8	7.6	10.8	71	14
Misiones	361 440	31.8	12.1	35.2	59.1	20	42	51.5	4.8	3.2	24	2
Salta	412 854	55.0	2.7	34.9	102.3	-	-	11.7	8.1	6.9	87	32
Santa Fe	1 884 918	76.2	14.2	19.2	52.1	1	-	-	14.7	6.2	62	33
Santiago del Este	476 503	35.2	3.5	27.6	52.0	-	-	4.8	3.8	3.0	52	12
Tucumán	773 972	54.4	34.4	26.9	88.3	-	-	4.2	10.0	4.8	61	10
Bolivia	1 200 000	26.9	2.7	b) 40.5	b) 108.2	-	47	93.2	2.2	2.8	c) 35	c) 25
Chuquisaca	356 810	24.9	6.9	...	...	-	-	40.3	2.4	2.6	...	...
Potosí	675 764	23.2	5.7	...	...	-	-	....	1.7	2.7	...	...
Santa Cruz	353 062	36.9	1.0	...	...	-	38	15.3	3.1	3.2	...	...
Tarija	161 164	24.8	4.3	...	...	-	9	381.4	1.7	2.8	...	...
Brasil	54 900 000	46.8	11.4	...	d)	3264	189	74.5	4.1	3.2	53	33
Distrito Federal	142 000	63.3	24.4	...		32	-	-	17.4	2.8	72	55
Goiás	2 565 000	30.7	3.0	...		341	3	366.4	2.0	1.7	26	10
Mato Grosso	1 254 000	40.0	0.7	...	74	37	14	245.9	2.3	1.9	37	10
Minas Gerais	11 189 000	40.2	16.7	...	89	84	5	38.8	3.2	3.3	...	...
Paraná	6 450 000	31.0	21.4	...		61	100	27.0	2.8	2.1	32	2
Río Grande do Sul	6 340 000	44.9	19.3	...	73	290	22	...	4.6	4.6	59	18
Santa Catarina	2 579 000	32.4	22.4	...		158	45	363.2	1.6	4.0	30	4
São Paulo	15 845 000	62.8	52.3	...	75	2 261	-	11.2	5.8	3.6	44	27
Paraguay	2 100 000	35.6	4.5	e) 42-45	b) 91.3	-	-	1563.9	5.2	2.1	b) 14	b) 13
Asunción	305 160	100.0	1525.8			-	-	59.6	26.1	6.8		
Alto Paraná	26 680	9.8	1.3			-	-	8118.9	2.5	1.6		
Amambay	33 782	37.7	2.6			-	-	466.8	1.6	0.6		
Boquerón	42 223	14.2	0.3			-	-	f) 743.8	2.1	4.5		
Caaguazú	123 590	16.1	5.7			-	-	9421.9	1.2	0.6		
Caazapa	91 807	16.5	9.7			-	-	1100.3	0.8	0.5		
Central	204 719	31.4	77.2			-	-	252.4	2.5	0.9		
Concepción	86 336	29.7	4.8			-	-	873.4	2.3	2.1		
Cordillera	189 041	15.0	38.2			-	-	2751.4	0.9	0.4		
Guaira	114 297	29.3	35.7			-	-	707.0	1.5	1.0		
Itapua	151 035	25.5	9.1			-	-	306.6	2.1	1.4		
Misiones	59 454	31.6	7.6			-	-	78.2	1.9	1.1		
Neembuco	58 621	25.9	4.2			-	-	13.6	1.9	0.8		
Olimpo	3 362	49.6	0.2			-	-	f) 743.8	4.9	1.0		
Paraguari	204 220	16.8	24.7			-	-	874.3	1.0	1.8		
Presidente Hayes	31 572	23.6	0.5			-	-	f) 743.8	1.7	1.0		
San Pedro	90 991	18.7	4.5			-	-	5009.1	1.0	1.2		
Uruguay	2 500 000	80.7	15.2	b) 21.7	b) 42.7	-	-	0.1	11.7	6.2	b) 83	b) 47
Artigas	52 261	66.8	4.3			-	-	-	3.9	3.3		
Canelones	256 200	68.9	56.5			-	-	0.2	4.0	0.9		
Cerro Largo	71 441	62.3	5.2			-	-	-	3.3	1.5		
Colonia	105 209	67.1	17.2			-	-	-	5.1	2.8		
Durazno	53 362	66.8	4.4			-	-	-	5.6	5.5		
Flores	23 550	68.6	4.6			-	-	-	5.8	6.0		
Florida	63 899	62.5	6.2			-	-	-	5.1	2.5		
La Valleja	65 525	64.1	6.5			-	-	-	4.9	2.2		
Maldonado	62 344	76.6	13.3			-	-	-	6.4	3.5		
Montevideo	1 202 890	96.3	2215.3			-	-	-	19.5	7.5		
Paysandú	87 229	73.6	6.2			-	-	-	5.3	4.9		
Río Negro	46 852	65.5	4.9			-	-	-	3.5	3.8		
Rivera	77 496	63.3	8.5			-	-	-	4.2	2.8		
Salto	92 216	70.6	6.4			-	-	-	4.5	4.6		
San José	77 300	51.7	15.5			-	-	-	3.2	38.0		
Soriano	78 234	69.9	8.8			-	-	-	4.9	4.9		
Tacuarembo	77 409	60.2	4.8			-	-	-	4.2	3.1		

(a) La población total por país es la correspondiente al área incluida en la Cuenca del Río. Para las divisiones administrativas, las poblaciones son estimaciones recientes o cifras censales de la entera división, incluyendo la población que reside fuera de la Cuenca - Argentina, censo de 1960; Bolivia, estimación para 1966; Brasil, estimación para 1966; Paraguay, censo de 1962; Uruguay, censo de 1963. (b) Tasa para todo el país. (c) Para Chuquisaca, Santa Cruz y Tarija. (d) Estimaciones para la región, tomadas de Brasil, Sumula do Programa de Ação do Ministério da Saúde. Quadrienio 1967/1970 (Río de Janeiro, 1966). (e) Estimación tomada de Naciones Unidas, Population and Vital Statistics Report, XX, No. 2 (Abril de 1968). (f) Tasa para tres departamentos.

ANEXO V

CASOS NOTIFICADOS DE FIEBRE AMARILLA SELVATICA EN LA CUENCA DEL PLATA, POR LOCALIDAD EN CADA PAIS, 1964-1968 (a)



ANEXO VI

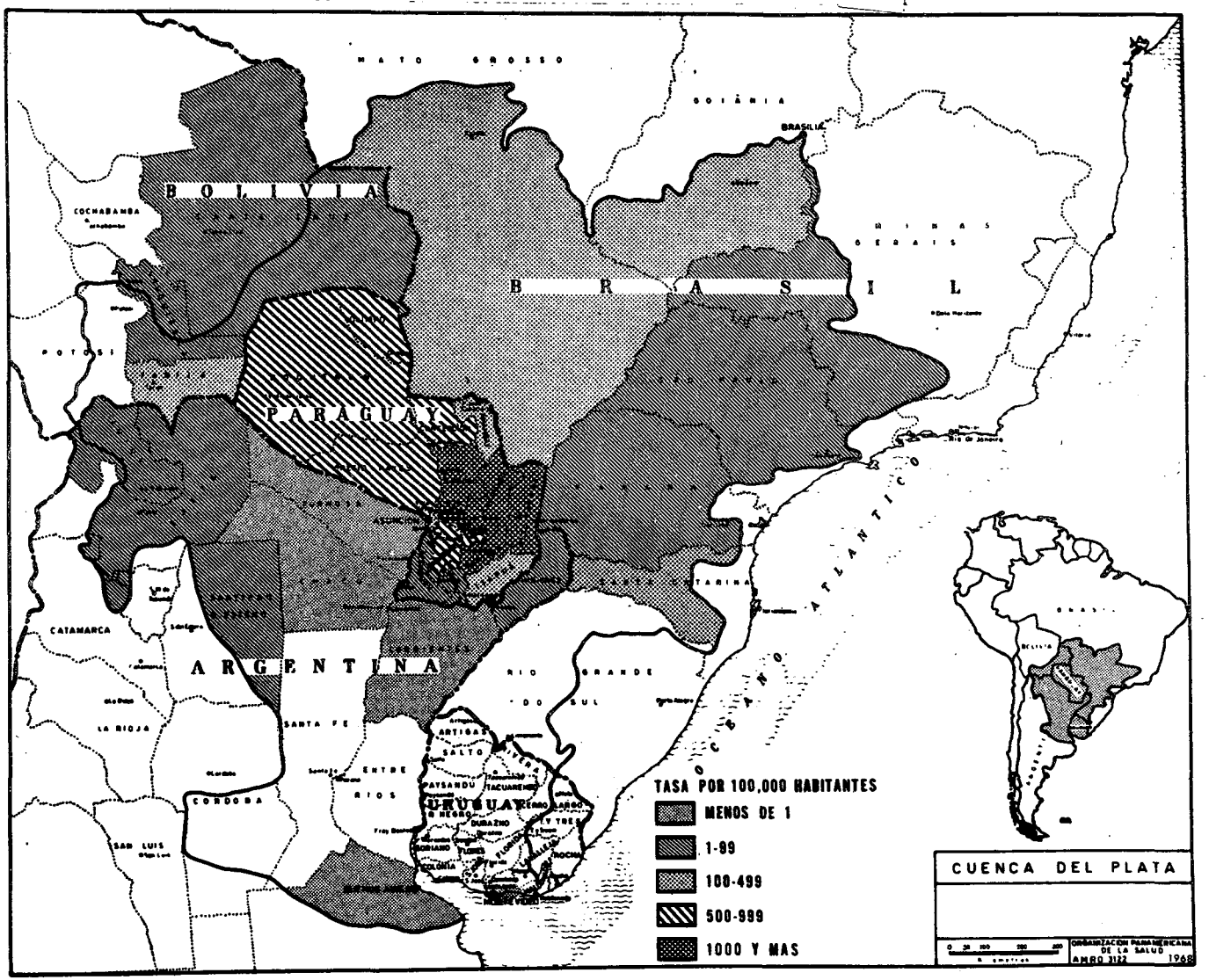
Población ganadera de la Cuenca del Plata (en miles de cabezas)

País	Divisiones Administrativas	Bovinos	Ovinos	Suinos	Caprinos	Equinos
ARGENTINA	Buenos Aires	19.953	17.412	1.013		
	Córdoba	7.901	957	946		
	Corrientes	3.509	3.161	43		
	Chaco	1.158	112	99		
	Entre Ríos	3.933	2.032	76		
	Formosa	940	51	26		
	Jujuy	74	395	3		
	Misiones	141	6	91		
	Salta	464	346	44		
	Santa Fe	6.526	254	797		
	Santiago del Estero	720	502	75		
	Tucumán	66	104	28		
	Sub-total	45.385	25.332	3.241		
BOLIVIA	Tarija	150				
	Chuquisaca	200				
	Santa Cruz	400				
	Sub-total	750				
BRASIL	Rio de Janeiro (a)	1.796	38	889	199	170
	Guanabara (a)	20	1	25	1	4
	São Paulo	11.659	141	5.273	487	851
	Paraná	3.203	301	7.865	765	672
	Sta. Catarina	1.866	274	5.359	212	430
	Rio Grande do Sul	11.126	11.934	7.701	222	1.324
	Mato Grosso	12.448	297	2.569	128	626
	Goiás	8.227	137	5.051	252	794
	D. Federal	17			6	3
	Sub-total	50.362	13.123	34.732	2.272	4.874
PARAGUAY	Total del país	5.853	345	773	55	624
URUGUAY	Total del país	9.000	21.482	381	14	557
	TOTALES	111.350	60.282	39.127	2.341	6.055

(a) No se incluyen en otros cuadros.

Fuentes: Argentina: Informes del Primer Seminario Internacional sobre Rabia para las Américas, Centro Panamericano de Zoonosis, OPS/OMS, Septiembre de 1967.
Estadísticas Básicas, Junta Nacional de Carnes, 1963 y 1965.
Brasil y Bolivia: Datos correspondientes a 1965 tomados de los Informes del Primer Seminario Internacional sobre Rabia para las Américas, Centro Panamericano de Zoonosis, OPS/OMS, Septiembre de 1967.
Paraguay: Anuario FAO 1966.
Uruguay: Situación Económica y Social del Uruguay Rural - Datos correspondientes a 1956 - Ministerio de Ganadería y Agricultura, 1963.

CASOS NOTIFICADOS DE PALUDISMO POR 100,000 HABITANTES EN LA CUENCA DEL PLATA, POR DIVISIONES ADMINISTRATIVAS PRINCIPALES DE CADA PAIS



ANEXO VII

ANEXO VIII

SUMINISTROS DE CALORIAS Y PROTEINAS POR HABITANTE,
Y ESTIMACION DE LAS NECESIDADES, 1966*

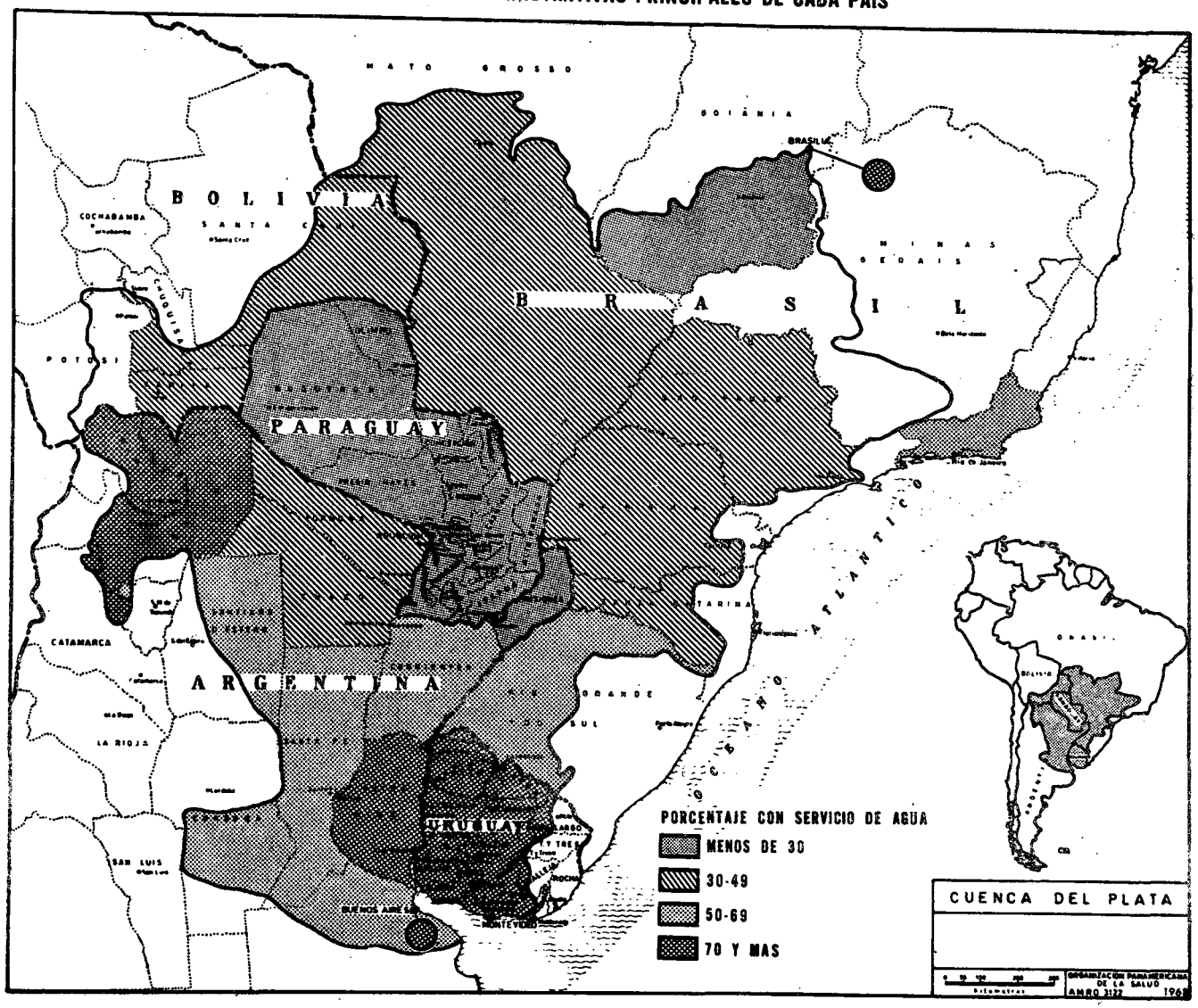
País	Calorías		Proteínas (gramos)			
			Sumin.	Necesidades	Fuente	
	Sumin.	Necesidades	Total Prot.	Total Prot.	Animal	Vegetal
Argentina	2.820	2.580	81,6	42	52,4	29,2
Bolivia	1.840	2.400(aprox.**)	47,9	48(aprox.**)	12,7	35,2
Brasil	2.780	2.310	66,3	45	18,0	48,3
Paraguay	2.560	2.280	64,1	43	24,4	39,7
Uruguay	3.220	2.580	104,3	42	68,5	35,8

*Balances alimentarios, 1960-1962

Organización de las Naciones Unidas para la Agricultura y la Alimentación, Roma 1966.

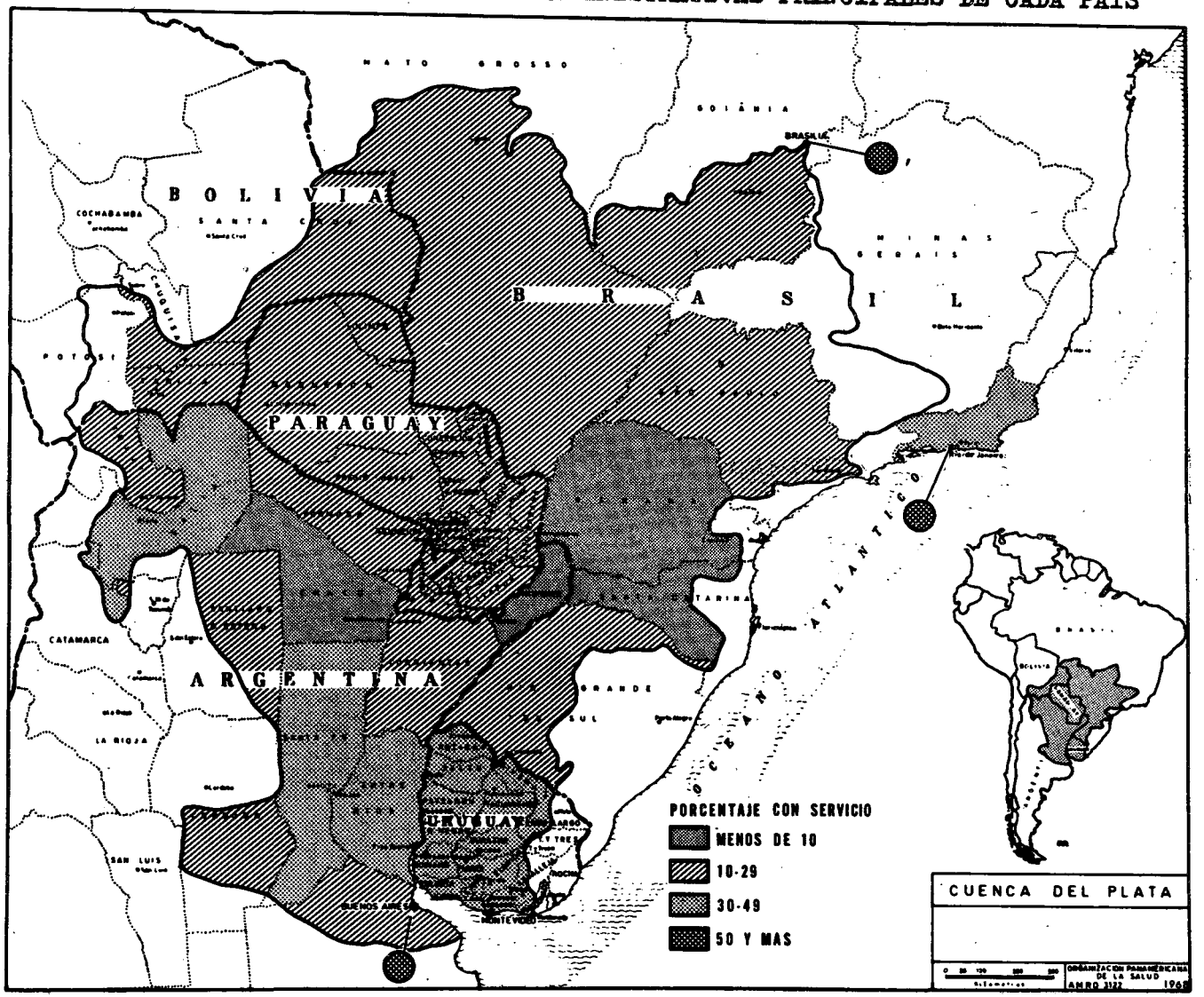
**Aproximaciones basadas en otros países con una estructura demográfica semejante.

PORCENTAJE DE LA POBLACION URBANA CON SERVICIO DE AGUA DOMICILIARIO
POR DIVISIONES ADMINISTRATIVAS PRINCIPALES DE CADA PAIS



ANEXO IX

PORCENTAJE DE LA POBLACION URBANA SERVIDA POR SISTEMAS DE ALCANTARILLADO EN LA CUENCA DEL PLATA POR DIVISIONES ADMINISTRATIVAS PRINCIPALES DE CADA PAIS



ANEXO X