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COUNTRY AND INTERCOUNTRY PROGRAMMES AND PROJECTS

FOURTH COUNTRY PROGRAMME FOR CHILE*

<u>Programme period</u>	<u>Actual resources programmed</u>	<u>US dollars</u>
1987-1991	UNDP IPF for 1987-1991	11 000 000
	Third cycle balance	1 900 000
	Other resources programmed	7 771 665
	Total	20 671 665

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* Detailed listings of projects and other related data prepared as part of the country programming exercise are available on request. These listings include (a) ongoing projects; (b) proposed projects; (c) distribution of the new country programme by sector.

I. DEVELOPMENT TRENDS, STRATEGIES AND PRIORITIES

A. Current economic trends

International recession

1. In 1981 the Chilean economy began to show a substantial macro-economic imbalance, resulting, in the main, from the unfavourable conditions which had begun to develop in the world economy. Although a great many developing countries were beset by difficulties, the impact of these phenomena was unusually harsh in the case of Chile.
2. In the first place, the terms of international trade - which were already showing a marked deterioration compared with the 1960s - suffered a substantial further decline, which led to a sharp drop in Chile's export earnings and an increase in import costs.
3. The second phenomenon was an unusually large increase in real interest rates, resulting from a greater relative shortage of capital in the international market. This exorbitant rise in interest rates was a disincentive to obtaining international loans and significantly increased Chile's debt-service payments abroad.
4. Deteriorating world economic conditions prevented the Chilean economy from maintaining the accelerated growth which had started in 1976 and which had been characterized by the dynamic presence of the nation's private sector. As the capacity to pay off the credits contracted by that sector diminished, and as access to the external capital market became more difficult because of the recession, the country had to initiate a rigorous adjustment process.

Implementation of the structural adjustment programme 1985-1987

5. During 1983 and 1984 macro-economic policy was pursued within the framework of a "stand-by" programme with the International Monetary Fund (IMF). While some progress was made in implementing that programme, the results fell short of expectations because of certain weaknesses in the Chilean economy. Those related primarily to the country's dependence on exports of copper and imports of intermediate goods. It therefore became necessary to start implementing a structural adjustment programme based on export promotion, increased savings and investment rates, and the strengthening of the private sector.

Medium-term economic trends

Global trends

6. In the medium term it is hoped that the current situation of the world market will have some positive effects on economic-growth targets. The fall in the price of petroleum and the recovery in the price of copper should lead to an improvement in the country's terms of trade. On that assumption, an increase in the balance-of-trade surplus is projected. To these developments must be added, during

the next few years, the expected reduction in financing resulting from the decline in international interest rates and from the reduction of the current-account deficit.

7. The projected growth of gross domestic product (GDP) of approximately 3.5 per cent in the medium term is compatible with the continuation of the economic structural-adjustment policy, which is aimed at reducing dependency on external resources - through the combined effects of increased exports and efficient import substitution - and increasing investments and domestic savings. The next few years should witness a very modest growth rate in domestic consumption together with a great increase in gross domestic fixed investment, concentrated in the flexible sectors of the economy and in the infrastructure supporting the export sector.

8. For the long term an expanding economy is visualized, but in a climate of austerity. It is hoped that there will be a series of productive investments, new exports and efficient import substitution, leading to sustained growth in employment, better performance by enterprises and the progressive recovery of their financial strength. Austerity essentially means a sustained effort to increase domestic savings, which have traditionally been insufficient to cover the needs of a long-term growth strategy. Such a savings effort assumes, to the extent that the terms of trade or payment conditions for the external debt do not improve, that per capita consumption will, as contemplated above, be maintained at current levels, or will rise slowly.

9. Within this context, in conjunction with increased savings and the increase in investment needed to achieve the desired growth rates, there is a need to increase the productivity and technological levels of enterprises. In particular, the volume of resources for scientific and technological research must be increased, and such resources must in the main be allotted to activities connected with the sectors showing the greatest promise.

Sectoral trends

10. The global trends described above suggest that the factors which will stimulate sectoral growth in the next few years are: (a) increased demand for capital goods; (b) increase in exports; and (c) substitution of imported consumer and intermediate goods.

11. The greater demand for capital goods will mainly affect the following sectors: production of machinery and equipment, construction, mineral prospecting, and cultivation of fruit-trees and timber forests.

12. It is hoped that in the future the most dynamic sectors will be: (a) the livestock and agricultural sector, in particular export produce such as fresh fruit and vegetables, and substitutes for imports; (b) the industrial sector, with growth expected in the production of wood, paper, cellulose, machinery and equipment, and in basic industries such as iron and steel; (c) the building sector, which must essentially grow through investments in the construction of non-residential units and in engineering projects.

B. National development strategies

National development strategy

13. The national development strategy will be implemented in the medium term as part of the structural adjustment programme mentioned above. This programme is completely in line with the general objective of socio-economic development as defined by the Government, which has the following aims in view:

(a) To achieve a high and sustained level of economic development;

(b) To reach a level of social development which is consonant with economic development and eliminates extreme inequalities;

(c) To work towards an effective geographical decentralization of the economy, so as to make full use of the natural and human resources and geographical potentialities of the various regions of the country;

(d) To consolidate individual development, both economic and social.

14. The various strategies on which work is proposed for the medium and long term so as to overcome the country's main constraints and utilize its potentialities are the following: (a) export promotion; (b) increased investment and savings; (c) enhancement of the role of the private sector.

Export promotion

15. The aim of sustained export growth is to improve the employment situation and increase productivity in conjunction with the gradual reduction of the country's heavy external debt. It therefore constitutes the corner-stone of the scheme. At the same time, it is impossible to achieve growth in exports without a proportional effort to stimulate profitable investments in sectors which have export potential. It is hoped that exports will grow at the expected rate, owing both to the investments made in recent years, mainly in the agricultural, fisheries and forestry sectors, and to the effects of a set of policies designed to promote exports and efficient import substitution.

16. Policies for promoting exports include the following: (a) maintenance of a real and stable rate of exchange; (b) maintenance of uniform customs tariffs; (c) maintenance of a flexible labour system so that pay claims do not damage the competitiveness of domestic production; (d) maintenance of an efficient port system; (e) redirection of public investment in infrastructure, designed to support the mobilization of exports; (f) further development of the systems for customs tariff refunds on imports of materials used by exporters; (g) further development of the system for refunding indirect taxes to exporters; (h) State support for the development of new exports, opening up of new markets and co-ordination of private and public efforts in the export sector.

Increased investment and savings

17. Historically the Chilean economy has been marked by low rates of investment and savings. Export growth and increased productivity require a proportional growth in investment, which will be possible only with an increase in the rate of savings. Such an increase cannot be obtained by further reducing consumption, for the level of consumption is already very low. The programme proposes to maintain per capita consumption at a relatively stable level and ensure that any rise in income is accompanied by an equivalent increase in contributions to national savings. It is hoped that the public sector, by implementing a tight spending policy, will substantially increase its contribution to national savings. Furthermore, the private sector will be encouraged to raise its level of savings through a series of policies involving: (a) maintenance and consolidation of the new, provisional system; (b) implementation of tax reform, the first stage of which is already under way, to promote the reinvestment of profits in enterprises; (c) maintenance of a cautious wages policy that would not limit the savings capacity of enterprises; (d) continuation of policies for subsidizing savings for housing; (e) progressive normalization of the capital market, with realistic interest rates that provide incentives for saving, and a moderate and decreasing rate of inflation, accompanied by improved legislation on banking, corporations, and bankruptcy.
18. As the planning model adopted by the country is indicative, it is impossible to predict with any degree of certainty the results that will be achieved by the proposed national development strategy.

Regional development strategy

19. The regional development strategy is part of the national development strategy. Through it efforts will be made to find an effective way to decentralize capital resources, the population and the economy, so as to make the best possible use of the natural and human resources of each region. The attainment of these objectives calls for: (a) the balanced use of natural resources; (b) a more homogeneous geographical distribution of the population, so that the national territory can be used in a more effective and rational manner; (c) true participation by the people in the regional development process; and (d) equal opportunities for all Chileans. It is hoped that a constantly high and sustained level of development will thus be achieved in all parts of the national territory.
20. There should also be further efforts to promote decentralization in the administration of financial resources, and promote the devolution of powers to the regions, provinces and boroughs. Decision-making in a decentralized form by authorities which are constantly in touch with the situation in the regions should increase the efficiency of the Civil Service. The only activities to remain centralized will be those involved in the State's lawmaking and tax-collecting functions. The advantage of this kind of focus is that it enables the resources earmarked in social plans, programmes and projects to be allocated according to the genuine and particular needs of the various areas of the country.

Scientific and technological development

21. As indicated above investment will play a vital and crucial part in the next few years in accelerating social development and consolidating the bases for stable economic growth. Both national and regional strategies are tailored to this objective and, in order to achieve it, the aforementioned policy instruments have been strengthened and reoriented. There is, however, a key factor for the achievement of this objective, i.e., scientific and technological development. Investment and research in this sector do not constitute an end in themselves; on the contrary, they form the basis for stable and lasting growth. The economic growth of a country and improvement in its quality of life depend largely on its ability to develop and apply skills effectively.

22. The developed countries owe much of their well-being to their ability to develop skills and to apply them in a practical way. Most research and development take place in the production sector, with a lesser proportion taking place in government agencies and institutions of higher education. Given that Chile's situation differs considerably from that of the developed countries, government policy is also designed to concentrate investment in science and technology in the private sector, particularly the export-oriented private sector.

23. In the allocation of resources there will be public bidding for projects, as well as joint participation by the State (through national funds for the science and technology sector) and the private sector in financing research and development. This machinery for the allocation of resources guarantees an effective link between the scientific and technological system and the sector producing goods and services, so as to ensure that new technologies are disseminated and adapted to the real needs of the country.

C. Technical co-operation priorities

24. Chile's economic and social characteristics place it at the mid-point in the range of developing countries, which is why standard international criteria for the allocation of financial resources by way of technical co-operation result in a relatively small contribution for Chile. This applies, in general, to all the external sources of technical co-operation.

25. The resources provided by way of international technical co-operation substantially complement the country's efforts in priority areas. The nation's technical co-operation policy comprises two principal elements: decentralization and specialization. With regard to decentralization, it should be noted that general economic and social development objectives include the promotion of effective geographical decentralization of the economy, so as to take full advantage of the natural and human resources and geographic potential of the different regions of the country. To that end, various regional development policies have been implemented, including the establishment of a national fund for regional development, the transfer of public services to municipalities, the delegation of authority and responsibilities to the regions, an increase in municipal funding, etc. Accordingly, it is in this context that an entire scheme

of regional development incentives is included under the National Technical Co-operation Programme. With regard to resource specialization, this should be understood as the concentration in specific sectors of the resources provided by way of international technical assistance, thus avoiding the dispersal and subsequent dissipation of resources in discrete applications.

26. The policies of decentralization and specialization with respect to international technical co-operation, combined with other elements such as the Structural Adjustment Programme, the Three-Year Programme 1986-1988, and specific directives and recommendations, mean that technical co-operation priorities will focus essentially on scientific development and technological innovation within a framework of technical, administrative and financial decentralization.

27. There are, of course, other constraints to national economic development that are to be tackled by the State with international co-operation. They have to do with, inter alia, the formulation of programmes to eradicate extreme poverty, the general improvement of infrastructure, the training of personnel and the adjustment of the size and functions of the State sector. The constraints are being tackled, in whole or in part, in co-operation with international financial and technical agencies through reimbursable contributions for Chile. The characteristics of these agencies and the procedures governing the credits in question have made it advisable for the national authorities to administer them in co-ordination with, but apart from, the non-reimbursable contributions received by way of international technical co-operation.

28. International technical co-operation resources will be programmed in accordance with the same criteria used for UNDP's fourth programming cycle referred to in the following chapter. This approach has already begun to be applied in certain programmes, such as that of OAS, whose biennial programming (1986-1987) contains a major technological management and rural development component intended to eradicate pockets of extreme poverty.

D. Aid co-ordination arrangements

29. The technical co-operation made available to Chile during 1984 and 1985 totalled \$7.8 million per annum, which was similar to the figure for 1983. Of the total amount of resources, 43 per cent was provided by the United Nations system, of which, in turn, 65 per cent represented UNDP financing.

30. The Government attaches importance to the function of overall co-ordination discharged by the UNDP Resident Representative as the Resident Co-ordinator for operational activities of the United Nations system. The function allows for the co-ordination not only of UNDP-financed projects, but also of the other funds administered by the UNDP Office in Chile. This function also extends to the remaining funds and agencies of the system, which enables resources to be co-ordinated, complemented and focused on a solution to the problems identified. The co-ordinating function assumes particular importance in that it not only avoids a duplication of effort, but also provides the Government with an effective mechanism to ensure the allocation of international co-operation resources with due

regard for national development priorities and donors' preferred areas of concentration.

31. Chile receives technical co-operation from the United Nations system; in addition to UNDP resources, mention should be made of resources from the following agencies (annual figures): the World Health Organization (WHO) - \$500,000; the International Atomic Energy Agency (IAEA) - \$290,000; the Food and Agriculture Organization of the United Nations (FAO) - \$130,000; and the United Nations Industrial Development Organization (UNIDO) - \$130,000. The annual programme of the United Nations Children's Fund (UNICEF) totals \$70,000. The Government has been provided with a major source of financing for technical assistance projects by the FAO Technical Co-operation Programme, which is directly co-ordinated by the Office for Agricultural Planning of the Ministry of Agriculture and the Office of the FAO Representative in Chile. Several projects under the indicative planning figure (IPF) have complemented projects begun in that way. It is hoped that there will be increased co-ordination in future, with a view to more effective use of the resources available under the IPF and under the regular FAO programme.

32. The Resident Representative is also the UNIDO Representative in Chile, and in discharging that function, he enjoys the co-operation of the Senior Industrial Development Field Adviser (SIDFA), who is based in Lima, but frequently travels to Santiago on mission. It is hoped that in the next five-year period there will be an increase in such participation, as well as in the use of the resources of the Special Industrial Services (SIS), particularly to deal with situations which are unforeseen or difficult to plan for, and which complement operational financing projects.

33. As for multilateral organizations, special mention should be made of the technical co-operation provided by the Organization of American States (OAS), which totals \$1.5 million.

34. With regard to technical co-operation from bilateral sources, Chile receives technical co-operation from France, Japan and the Federal Republic of Germany. The most significant source is Japan, whose co-operation has been increasing every year and now amounts to approximately \$5 million, not counting non-reimbursable financial co-operation amounting to a biennial figure of \$4-8 million. The national authorities have taken particular care to co-ordinate bilateral co-operation activities with the activities of the Fourth National Technical Co-operation Programme (PNCT). An example of bilateral co-operation is found in the fisheries sector.

35. Mention should also be made of the resources received by Chile for carrying out technical assistance programmes or programme components under loans from multilateral financial institutions. This includes, in particular, an \$11 million loan from the World Bank for technical assistance and a loan from the Inter-American Development Bank (IDB) for the Agricultural Research Institute (INIA). In both cases, as in others, appropriate measures have been adopted to ensure that UNDP-financed projects do not conflict with the above-mentioned projects. The activities of UNDP may be complementary to those which are undertaken with financing from the international banks.

36. The government body which, by virtue of its legal mandate, represents the country before the international community, in other countries and in international organizations is the Ministry of Foreign Affairs. In the field of technical co-operation, it operates through the Department of International Economic Relations (PROCHILE) and receives technical advice from the National Planning Office (ODEPLAN); the latter body is responsible for the co-ordination and evaluation of all the technical co-operation provided to Chile. The function of ODEPLAN and PROCHILE as the agencies co-ordinating technical assistance in Chile must be stressed. During the Fourth National Technical Co-operation Programme, their role will be important in ensuring that technical co-operation reaches the sectors which need it and that there is adequate co-ordination, both in respect of specific sectors and in respect of executing agencies and funding organizations.

37. The co-ordination of national technical assistance projects with regional and global projects is also important. There are in fact regional and global projects which offer solutions to problems identified as relevant to Chile. The document setting forth guidelines for the Regional Programme for Latin America and the Caribbean, 1987-1991, provides the Government with an overview of the areas to be covered by that Programme as from next year, and provides an opportunity to establish specific links with regional projects in the interest of the Fourth National Programme.

II. THE COUNTRY PROGRAMME

A. Assessment of the previous programme

Resources and orientation of the programme

38. Under the Third National Technical Co-operation Programme (1982-1986), there are 30 completed or ongoing projects with an allocation of \$10,821,905. The resources available for the third cycle amounted to \$11 million, which, added to \$1.9 million from the second cycle (1977-1981), totalled \$12.9 million for the period 1982-1986. The amount allocated by the Government under the cost-sharing arrangement was \$2,118,000 during the third cycle.

39. In general, the third country programme aimed, as part of the Government's overall development objectives, to achieve a high rate of economic growth and concomitant social development with a view to eliminating extreme inequalities, in order to decentralize the economy effectively and make full use of the natural and human resources and the geographical potentialities of the different regions of the country. For this purpose a series of long-term comprehensive policies was formulated, aimed at achieving various objectives. It was felt that two of those objectives, the improvement of human resources and the enhancement of national scientific and technological capacity, would receive the bulk of the support from the National Technical Co-operation Programme, since in those areas a greater development impact could be generated and more effective use could be made of the technical co-operation provided.

40. The country programme has certain special characteristics and has been implemented along the following lines:

(a) Channelling of resources, if possible, to activities which help create conditions conducive to the country's development, thereby dispensing with the participation of the private sector or the use of the co-operation as a simple budgetary device;

(b) Strong support for scientific and technological research, which became more prominent during the second half of the cycle (1984-1986);

(c) Growing use of existing national capacity for project implementation;

(d) Significant cost-sharing, on the part of the Government, in some projects.

Experience gained from the ongoing programme

41. In the course of the current cycle, some difficulties arose because of a failure to identify the problem areas of national development at the time when most of the projects were formulated; in several cases, no conceptual link was established between major national objectives and those of the National Technical Co-operation Programme itself, and that made it somewhat more difficult to design the projects since there was no descriptive framework for the specific results to be achieved. It is hoped that this problem will be overcome during the next five-year period (1987-1991), in order to ensure a proper allocation of resources, consistent with the objectives which are being sought.

42. With regard to the role of the executing agencies, the third country programme had made provision for the implementation of projects through national institutions, but that was not done. However, in several projects that were implemented by agencies, they functioned as associate agencies, and most of the operational responsibility for the projects was assumed by the Government of Chile, with the support of the Office of the UNDP Representative at Santiago.

43. It should be noted in this respect that steering committees were established consisting of representatives of UNDP, ODEPLAN and participating institutions. These committees have made it possible to impart a greater dynamism to the projects by detecting deviations early and correcting or adjusting course in accordance with the initial objectives, revising the projects so as to bring them more into line with the goal of solving the problems which have arisen.

44. With regard to long-term projects, the Government of Chile has noted with concern that some of them go on far too long. This situation should be corrected, in future, so that projects are not needlessly extended beyond what was expected, after the immediate objectives have been achieved.

45. The emphasis on scientific and technological research called for in the National Technical Co-operation Programme was not felt as fully as planned until 1984. Before then, second-cycle activities had tended to predominate.

46. In 15 of the 30 projects implemented during the third cycle, national consultants or experts were used, which means that the traditional format of international technical co-operation projects has been changed. This method is useful in cases where the necessary expertise is available in the country, and affords an opportunity to reduce the costs of implementation.

47. In 9 of the 30 projects, horizontal co-operation arrangements were used, which is a positive aspect and accords with the guidelines for the Third National Programme.

48. Ten of the 30 third-cycle projects appear to be linked in some way to regional, interregional or global projects. This represents the fulfilment of the objective - not made explicit in the National Programme - of co-ordinating efforts at the various levels and improving the allocation of resources.

Projects in the field of public administration

49. Ten projects are under way in this sector. They account for 44.7 per cent of the total resources for the National Technical Co-operation Programme, 1982-1986.

50. The high concentration of expenditure on projects relating to public administration is explained by the fact that two of these are very large-scale: Analysis and evaluation of investment and training at the regional level (CHI/79/004) and Strengthening of institutions for managing the public investment process (CHI/85/001). The first of these projects has led to significant progress in the formulation and evaluation of public investment projects, chiefly at the regional and municipal levels. Chile has established a public sector project bank covering 28,000 projects; of these 75 large-scale projects have been evaluated. The success of the project may be measured by the fact that it has given rise to the second project mentioned above, which is aimed at consolidating the ODEPLAN Integrated Project Bank and providing technical support for the IDB loan (approximately \$280 million). As a result of these two projects, an interregional project, based in Chile, has been devised and is in process of execution. It is being financed by the United Nations Department of Technical Co-operation for Development, which implies a clear recognition of the standard of project investment management attained in Chile.

51. Notwithstanding the success of both these projects, the lesson to be learned from an analysis of the third cycle is that one should avoid designing excessively large-scale or lengthy projects.

Projects in the field of science and technology

52. Nine projects are being executed in the science and technology sector with 27.1 per cent of total resources. Of these, four projects for strengthening the physical, chemical, biological and mathematical sciences deserve special mention. Their general purpose was to increase the complement of university teachers and researchers in the areas of these disciplines with the greatest shortages. They may be regarded as successful in so far as they were able to strengthen research and teaching capabilities, and improve academic co-ordination among Chilean

universities. Results include the organization of 207 study tours and support for 84 professorships, one symposium and 141 doctoral theses.

53. Another outstanding project was Bacterial leaching of copper (CHI/85/002). This is regarded as a well-formulated and well-executed project in a key area of national development. The project was well designed, with indicators defined at a very specific level. The executing agency is providing administrative support and participating actively in technical project evaluation missions. The lesson to be learned from this project and a further three executed in the field of science and technology is that there are specific sectors in which international technical co-operation can provide a valuable input, even in small projects. Nevertheless, if such an input is to be beneficial, the problem to be solved must be clearly identified, there must be a national counterpart with the capacity to absorb the technical assistance, and national capacity must be used to the full.

Projects in the field of sectoral development

54. Eight projects are under way in this sector with 32.2 per cent of total resources. The two projects in the area of civil aviation are worth mentioning: Implementation of the air navigation plan (CHI/79/002); and Development of aeronautical services (CHI/84/002). Both are being executed at a high level and both concern an area of vast technological change that is of great interest to the national counterpart. The indicators for both fields of activity have been well-defined and the objectives are being fulfilled most effectively. The collaboration of the executing agency has been very important in these projects because of the highly technical nature of the subject-matter.

55. Another significant project is Export promotion - Phase II (CHI/83/011), which has made it possible to provide the Government and the export sector with relevant information on available world markets. It has been very flexibly managed so as to permit its adaptation to the sector's priority needs.

56. It should be noted also that the Third National Technical Co-operation Programme had as one of its main objectives the improvement of the country's human capital. In this connection, in the period 1982-1986, 692 persons, mainly from the public sector, received training at the higher or post-graduate level in subjects related to the improvement of public administration, and in science and technology, through the various ongoing projects at a total cost of \$4,333,000.

Projects executed in other fields

57. The third cycle saw the development of two projects specifically designed to promote the technical co-operation among developing countries (TCDC) approach. One, Support for international technical co-operation activities (CHI/79/009), has as its main objective strengthening the country's capacity to receive and provide international technical co-operation. Under the other, Support for technical co-operation activities among developing countries (CHI/84/001), the Chilean Government has been providing technical assistance to other developing countries through the implementation of a programme of post-graduate academic fellowships and a programme of technological exchanges with the outside world, publicizing the

Chilean experience in some areas of national development. These projects form part of the horizontal co-operation activities called for in the 1978 Buenos Aires Plan of Action.

58. As regards third-cycle projects relating to the promotion of women's participation in development, July 1986 saw the start of a project, Generation of employment through the creation of small businesses for female heads of household in the metropolitan region (CHI/85/W01), which is to last for two years and which is an extension of a similar project carried out in the commune of Quinta Normal. This project is being financed by the United Nations Development Fund for Women (UNIFEM) and its main objective is to reduce sharply the surplus of women in the labour market in the communes of Quinta Normal, Lo Prado and Maipú, and to remedy situations of extreme poverty through the establishment of small businesses. In addition, the following projects were submitted to UNIFEM during 1986: Organization and involvement of rural women in the household production effort of the ninth region of Chile, and Organization for agricultural production of female heads of household living in extreme poverty. Another project, Improving the standard of living in rural areas through the involvement of women in small-scale wool production, was submitted to UNDP by the Fundación Superación Campesina (Foundation for Rural Improvement) (SUCAMP) and is currently being studied by UNIFEM.

59. These activities alone show how very interested the Chilean Government is in carrying out specific activities leading to tangible results in an area that it regards as highly important. It should, however, be noted that Chile has traditionally given special emphasis to the participation of women in national development activities, and that it possesses a number of highly trained women professionals.

B. New programme proposal

60. Chile drew up the National Technical Co-operation Programme for the five-year period 1987-1991 according to the criteria, policies and economic projections mentioned earlier, taking into account also the requisite co-ordination with other sources of technical co-operation, while maintaining administrative autonomy and drawing upon the lessons of the previous programme.

61. The criteria which determined the objectives of the present programme and will serve as a framework for assessing both the programme and the projects are that they must further the country's social and economic growth, and help to increase employment, eradicate extreme poverty, promote exports and strengthen the regionalization process in the country. Chile has set two main objectives for the fourth cycle:

(a) To support the nation's scientific and technological development; and

(b) To support the Government's initiatives aimed at decentralizing capital resources, the population and the economy through a regional development policy.

Support for the nation's scientific and technological development

62. The 1981-1989 Social and Economic Programme and the updated version of the 1983-1989 Chilean Development Programme bring out the importance of scientific and technological advances as a starting-point for economic and social progress. They also identify a set of objectives consistent with national development policies aimed at improving the allocation of resources, motivating private participation in research, and promoting - through State action - only those technologies that are appropriate to the country's particular conditions. In addition, given the need to expand the export base in the next few years, there must be a serious effort to develop, inter alia, new technologies to improve the competitiveness of Chile's products.

63. Scientific research and above all technological research and development, the latter meaning all activities aimed at putting existing resources to the most efficient use (in the economic sense) in order to apply them to clearly productive ends, must tend in that same direction, and require a joint effort by the Government, the private sector and the scientific and technological communities associated with universities and other technological research centres.

64. In order to complement what the Government is doing in this field, and will do increasingly in the coming years, it is considered necessary to allocate part of the funds of the National Technical Co-operation Programme for the fourth cycle (1987-1991) to the national science and technology sector. Here one should mention certain obstacles to national scientific and technological development that could be overcome with technical assistance from UNDP and other sources of international co-operation:

(a) In certain fields and regions, shortage of skilled personnel capable of directing or collaborating in high-level research;

(b) Failure to give the Chilean scientific and technological community access to the international flow of information and to scientific experiences. Although certain potential links have gradually been emerging, financial constraints continue to bar quick access to the flow of information;

(c) Inadequate, obsolete or poorly equipped laboratories and libraries, which makes the work of researchers, teachers and students difficult. This deficiency extends not only to the requirements for pace-setting research, but also to standard support equipment for undergraduate and post-graduate education;

(d) The relative inexperience of most Chilean enterprises in managing technological inputs. This limits their demand for services and weakens the whole process of transfer of technology and technological innovation in the productive sector.

65. The following activities and areas of activity are proposed as a way of eliminating these obstacles:

(a) Support for technological research in the productive sector, both the export sector and the import-substitution sector;

(b) Combined scientific and technological research programmes - jointly selected and directed by commissions made up of scientists, technological experts and businessmen - in the areas of biotechnology, genetic engineering and computer science, with a view to solving problems which have a serious social and economic impact, primarily in the agricultural and health sectors;

(c) Vocational training programmes in technological management in productive enterprises.

66. The projects will be carried out jointly by universities, State and private technological institutes and businesses, which will form a specific group for each activity. The purpose is thereby to bring together the best people and material resources available in the country, with the support of the external assistance UNDP will provide.

Ongoing projects

Research and development in arid and semi-arid zones (CHI/83/017)

67. The project aims to establish the boundary between arid, semi-arid and sub-humid zones so as to lose no productive areas, and to make optimum use of the existing resources in such areas, both in terms of renewable resources and in terms of the development of non-traditional genetic resources and the use of the most efficient techniques for each environment. (1987-1988 IPF: \$297,509)

Development of aeronautical services (CHI/84/002)

68. This project is aimed at improving air navigation services, airport infrastructures and supervisory procedures, in order to increase the safety and efficiency of air transport in Chile. This project falls within the science and technology sector, since many of its activities involve acquiring new technology and new technological procedures and applying them to the field of civil aviation. (1987-1989 IPF: \$482,837)

Development of chemical sciences (CHI/84/006)

69. The objective of the project is to strengthen the basic sciences in Chile. Project activities will terminate in December 1986, but \$12,000 must be raised to finance ongoing fellowships. (IPF: \$12,000)

Development of biological processes and their industrial application in the bacterial leaching of Chilean copper ore (CHI/85/002)

70. The main objective of the project is to develop in Chile the bacterial leaching of low-grade Chilean copper ore on an industrial scale, in order to promote the continuous production of copper, with less capital investment and lower operating costs, and to strengthen the nation's scientific and technological capacity in biotechnology and related areas, such as processing technology and metallurgy. (1987 IPF: \$116,635)

Proposed projects

Technological improvement of processing and packaging of fruit and vegetable products for export

71. This project, estimated to last three years, will try to develop and improve post-harvest technologies for fruit and vegetable products in order to satisfy the plant-health norms and packaging standards of the countries consuming those products. (IPF: \$250,000; cost-sharing: \$100,000)

Technologies for the production of timber

72. The project seeks to develop and adapt wood-drying and wood-sawing technologies in order to obtain a better-quality final product that will serve both for export and for a greater number of uses in Chile. (Estimated duration: three years; IPF: \$500,000; cost-sharing: \$600,000)

Research, technological development and training in the small-scale fisheries sector

73. The aim is to develop simple technologies that will allow the small-scale fisherman to come to market with a better-quality product, among them product-handling methods at both embarkation and disembarkation points. (Duration: two years; IPF: \$350,000; cost-sharing: \$100,000)

Research on technologies for electronic medical instruments

74. The project is aimed at designing simple electronic medical instruments, such as cardiac monitors, and at developing repair and maintenance techniques for more complex instruments. (Duration: two years; IPF: \$250,000; cost-sharing: \$20,000)

Use of algae as fertilizers

75. The aim of the project is to determine the potential for the use of algae as fertilizers, adopting technologies developed by Japan and the United Kingdom, among others, or developing indigenous technologies. (Duration: three years; IPF: \$170,000; cost-sharing: \$80,000)

Low-cost irrigation technologies

76. The aim of this project is to develop irrigation technologies for small landowners who are not covered by the large irrigation programmes but who have small supplies of water (waterwheels, drainage systems, and so on) which, used effectively, can considerably increase their production. (Duration: three years; IPF: \$230,000; cost-sharing: \$100,000)

Development and improvement of agro-industrial technology

77. The aim of the project is to generate technologies for expanding and improving the market - essentially the export market - for agricultural products and by-products, both processed and semi-processed. (Duration: three years; IPF: \$400,000; cost-sharing: \$150,000)

Programme for the improvement of livestock production on small farms

78. The basic aim is to increase substantially, in the medium term, the production levels of milk, meat, wool and other by-products, and the return on the investment in livestock feed, minimizing costs and improving product quality. (Duration: three years; IPF: \$400,000; cost-sharing: \$120,000)

Development of energy-efficient technologies in the rural sector

79. The goals of the project are to design, test, adapt, select and employ energy-efficient agricultural technology (machine design), suitable for each separate activity and agricultural region of the country. (Duration: two years; IPF: \$350,000; cost-sharing: \$185,000)

Development of food-industry technology

80. The aim of the project is to design and adapt new technologies in the food industry, particularly in the area of biotechnology: production of enzymes for food technology, and production of additives and flavourings. (Duration: three years; IPF: \$450,000; cost-sharing: \$300,000)

Technological support for small-scale mining

81. The objectives of the project are to design and adapt new technologies for detecting and extracting minerals in the small-scale mining sectors, and to provide training in the use of such technologies. (Duration: three years; IPF: \$350,000; cost-sharing: \$200,000)

Remote-sensing of natural resources

82. The aim of the project is to recruit and train personnel in natural-resource detection techniques through remote-sensing systems, particularly in the northern and southern tips of the country. (Duration: three years; IPF: \$450,000; cost-sharing: \$350,000)

Management of catchment areas and rehabilitation of arable land

83. The project seeks to improve the management of catchment areas in the Norte Grande region of the country. (Duration: two years; IPF: \$500,000; cost-sharing: \$550,000)

Development of industrial-waste technologies

84. The objectives of the project are to design, test and apply new technologies for managing industrial wastes and treating contaminated watercourses. (Duration: two years; IPF: \$400,000; cost-sharing: \$250,000)

Eradication and control of the golden nematode

85. The aim of the project is to detect the various pathogenic species of nematodes, make available an appropriate full-scale system of control and establish a system of health education and information. (IPF: \$41,145)

Links

86. The main link between the projects is that they have a common denominator, namely, the objective of involving science and technology in the country's efforts to boost exports and promote import substitution, and improving the quality of investments in these areas. It is estimated that some of the activities developed in science and technology will benefit the manufacturing sector, which may have access to loans recently approved by the World Bank and IDB.

87. The High-level Science and Technology Board, in considering areas of specific activity, will ensure that there is no duplication of effort and, when appropriate, that activities are complementary. The science and technology component of the regional programme will play an important role in supporting certain areas that have already been identified, such as biotechnology, computer science and vocational training in technological management in productive enterprises. Consideration is also being given to carrying out activities within the framework of the United Nations Financing System for Science and Technology for Development.

88. To that end, a programmed reserve of \$1,649,674 has been allocated.

Support for the Government's initiatives aimed at decentralizing capital resources, the population and the economy through a regional development policy

89. The Government has directed the country's regionalization process with a view to achieving a decentralized development of economic, social, administrative and public-participation activities in the regions, taking advantage of their comparative advantages and adjusting to the population's distinctive characteristics.

90. The smooth and balanced development of all the regions with a view to creating living conditions conducive to stable human settlements is one of the Government's imperatives. These conditions are being achieved in two major ways:

(a) By taking direct action through social programmes to wipe out abject poverty and, at the same time, by establishing an infrastructure consistent with the specific characteristics of each region; and

(b) By promoting economic growth through the establishment, as a follow-up measure, of suitable conditions for the independent and competitive development of the local private sector.

91. In the first case, State action generally takes the form of social programmes and projects implemented from year to year depending on the financial resources available to the State for that purpose under the respective regional development

plans. It should be pointed out that approximately 60 per cent of total public expenditure is devoted to social development.

92. The second case covers a host of legal, tax-related, economic and technological factors, the aim being to strengthen the local private sector and lay the foundations of self-sustained growth. This is where international technological co-operation plays a role, in particular with regard to training in technological management and innovation and in the development of research projects, in conjunction with regional universities and the private sector or business associations, all of which is designed to raise the standard of living of the population by generating new wealth. Of special importance are the execution of training programmes and the transfer of technology for the benefit of small and medium-sized businesses.

93. As additional background information, the Government of Chile has prepared a report containing a description of the most important sectors in each region and the constraints on their development.

Ongoing projects

Institution-building for public investment management (CHI/85/001)

94. The purpose of this project is to strengthen managerial skills in the area of public investment by developing a series of methodological components, teaching civil servants how to use them and strengthening the system of the Integrated Public-Sector Project Bank. The project has an important regional-development dimension in that it is supplementing IDB financing for the implementation of numerous local and municipal development activities, and is enhancing the ability of the regions to manage their projects. (IPF: \$242,758)

Identification of opportunities for co-operation and integration between Chile and Argentina (CHI/86/001)

95. The purpose of this project, as its title suggests, is to identify in broad terms opportunities for co-operation and integration between Chile and Argentina, and, at the same time, to carry out a selective analysis of potential priority areas. This project is also intended to include, as a support activity, a feasibility study on the enhancement and consolidation of relations between Chile and Argentina in the southern macrozone: regions VII to X, provinces of Río Negro and Neuquén. (IPF: \$135,000)

Proposed projects

Control of in-patient infections

96. This project is aimed at improving the diagnosis of in-patient infections with a view to reducing the resulting mortality rate by 30 per cent. Funds for this project were allocated from UNDP Special Programme Resources as a contribution towards the Chilean Government's technical co-operation activities aimed at promoting rehabilitation and reconstruction in the aftermath of natural disasters.

It is hoped that metropolitan regions V and VI will benefit. (Special Programme Resources: \$500,000)

Study on new sources of drinking water and water for industrial uses in regions I and II

97. The aim of the proposed project is to study all the various sources of water, both conventional and non-conventional, for the cities in those regions, and to define a programme for the optimal implementation, in technical and economic terms, of activities aimed at developing new sources of water to meet current and future needs. (IPF: \$1 million; cost-sharing: \$2.4 million)

Taxonomic study of coastal Cactaceae in region II

98. The purpose of this project is to conduct a botanical study to obtain detailed information on the number and location of existing species, and simultaneously, a study on the potential use of plant species for industrial, energy and medicinal purposes. (IPF: \$60,000; Government cash counterpart contribution (GCCC): 3.2 million Chilean pesos)

Multiple use of the resources generated by the Colbún-Machicura-Pehuenche complex

99. This project will involve a soil management and conservation study in the catchment area on the basis of forest management plans. Efforts will be made to use household and agricultural wastes as inputs for specific but as yet undetermined productive activities, and to identify areas with a shortage of trained local personnel, with a view to encouraging specialization of the labour force at the productive level. (IPF: \$140,000; cost-sharing: \$109,050)

Training and transfer of technology in mariculture for the small-scale fisheries sector in region VIII

100. Attempts will be made to identify geographical areas and hydrobiological resources whose small-scale exploitation would be technologically and economically feasible, to implement a mariculture programme in a specific number of small-scale fishing communities which have potential and offer a high rate of return on social investment, and to train small-scale fishermen in the inlets where the project will be carried out in the cultivation, management, technological aspects and preservation of the products identified. (IPF: \$148,500; cost-sharing: \$109,800)

Study on the potential of exportable medicinal herbs in region VIII

101. The purpose of the project is to investigate and publicize the use of herbs as a natural resource and the method of cultivation (categorized as non-traditional) of those species which, in their natural form, do not meet existing demand as determined by market research. (IPF: \$85,000; cost-sharing: \$8,500)

Biotechnological applications in the treatment of process water and decontamination of the Calle-Calle and Valdivia Rivers

102. Efforts will be made to diagnose the nature, extent and seasonal fluctuations of pollution in the Valdivia River, to detect the presence of organisms indicating pollution and others which may have a cleansing effect, to formulate and develop a decontamination plan for the Valdivia River and to draw up a plan for the biological decontamination of the River on the basis of the findings.
(IPF: \$105,310; cost-sharing: \$545,057)

Multipurpose cadastral survey in the Melipilla commune

103. This project is aimed at obtaining all the technical, economic and administrative parameters and information from a cadastral survey as a pilot experiment which may subsequently be conducted nation-wide. (IPF: \$125,000; GCCC: 65,930,600 Chilean pesos)

104. The projects proposed for the fourth cycle are interrelated in that they are aimed at overcoming obstacles to full national development, determined on the basis of regional needs and priorities. Since there is a great diversity of resources and problems in Chile, good use can be made of regional projects.

105. To that end, a programmed reserve of \$1,679,782 has been allocated.

Projects to be executed in other areas

106. As mentioned in section II.A., the third cycle saw the initiation of two projects relating to the Chilean Government's activities in the field of horizontal technical co-operation. This form of co-operation will be used in the various projects receiving international technical assistance, both in the regional development sector and in the science and technology sector. However, it is felt that in order to facilitate implementation of specific horizontal-co-operation activities which are not part of a specific project, it would be appropriate, during the fourth cycle, to continue the two ongoing projects in that area:

Support for international technical co-operation activities (CHI/79/009)

(1987 IPF: \$20,000); and Support for technical co-operation activities among developing countries (CHI/84/001) (1987 IPF: \$113,500).

C. Unprogrammed reserve

107. An unprogrammed reserve of \$1,290,000 will be maintained in order to cover any contingencies during the implementation of the National Technical Co-operation Programme.

Annex

FINANCIAL SUMMARY

I. ACTUAL RESOURCES TAKEN INTO ACCOUNT FOR PROGRAMMING

<u>A. UNDP-administered sources</u>	<u>(US dollars)</u>	
Third cycle IPF balance	1 900 000	
Fourth cycle IPF	1 000 000	
Subtotal IPF		12 900 000
Special Measures Fund for Least Developed Countries	-	
Special Programme Resources	500 000	
Government cost-sharing <u>a/</u>	7 271 665	
Third-party cost-sharing	-	
Operational funds under the authority of the Administrator	-	
UNDP special trust funds	-	
Subtotal, UNDP non-IPF funds		7 771 665
<u>B. Other sources</u>		
Funds from other United Nations agencies or organizations firmly committed as a result of the country programme exercise	-	
Parallel financing from non-United Nations sources	-	
Subtotal, other sources		-
TOTAL ACTUAL RESOURCES TAKEN INTO ACCOUNT FOR PROGRAMMING		<u><u>20 671 665</u></u>

II. USE OF RESOURCES

Ongoing projects	2 153 777	
New project proposals	13 898 432	
Programmed reserve	3 329 456	
Subtotal, programmed resources		19 381 665
Unprogrammed reserve		<u>1 290 000</u>
TOTAL USE OF RESOURCES		<u><u>20 671 665</u></u>

a/ In cases where the projects were budgeted in Chilean pesos, the cost-sharing figures were converted into United States dollars at an exchange rate of 189 Chilean pesos to the dollar.