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PROGRAMME PLANNING

Country programmes

FOURTH COUNTRY PROGRAMME FOR ROMANIA*

Programme period	Actual resources programmed	$
January 1987-	IPF for 1987-1991	4 125 000
December 1991	Third cycle IPF balance	536 000
	Other resources programmed	-

CONTENTS

* 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 resources by objective; (d) planned activities of operational funds and programmes under the authority of the Administrator; and (e) distribution of new country programmes by sector.

I. DEVELOPMENT TRENDS, STRATEGIES AND PRIORITIES

A. Current economic trends

1. Romania covers an area of 237,500 square kilometres, with a population (1986) of 22,895,000. The country has a diversified economy with strong industrial and agricultural sectors.

2. In spite of an unfavourable international economic environment, industrial output increased 21 per cent between 1981 and 1985 (the period of the previous Five-Year Development Plan) and agricultural output by more than 10 per cent. More than 69 per cent of national income was allocated to consumption and 31 per cent to economic growth. Substantial progress was made in improving Romania's foreign trade situation. Thanks to reduced production costs and higher productivity, the competitiveness of Romanian products on the world market was much enhanced, while greater efficiency in the use of local raw and subsidiary metals, fuels and energy resulted in a decline in imports, making possible a rapid and marked reduction in the level of external debt. Important progress was also made in developing and modernizing transport facilities, and sea and river transport increased significantly.

3. Particular attention has been paid to the development of science and technology: by 1985 there were 215 scientific research institutes and centres employing about 235,000 scientists and other specialists.

B. National development strategies

4. The twin aims of reduction and eventual elimination of foreign debt and expansion of national scientific and technological capabilities are likewise stressed in the present Five-Year Development Plan 1986-1990, which marks a new stage in the development of the country, namely a move from traditional extensive growth (based on expansion of capital and labour inputs) to intensive growth (based on improved productivity) in all sectors of the economy. The use of more sophisticated technologies is an integral part of this development.

5. The main objectives of the plan are:

(a) The further development of energy sources and raw material production;

(b) The development and application of high technology (electronics, robotics, fine synthesis and small tonnage chemistry, informatics, biotechnology and genetics among others), as part of the development of intensive production methods in industry;

(c) The implementation of existing plans for irrigation, soil reclamation, mechanization and the increased use of chemical fertilizers in agriculture.

6. Emphasis will be placed on using more sophisticated techniques by intensifying scientific research and technological development and by accelerating the application of the results in all areas of the national economy.

7. Under the present Five-Year Plan, it is projected that industrial production will increase at an annual rate of 7 to 8 per cent and agricultural output by an annual rate of 5 to 6 per cent. National income is to grow by about 8 per cent per year and labour productivity by 8 to 10 per cent per year. Emphasis will be placed on increasing economic efficiency.

8. About 70 per cent of national income will be utilized for consumption and 30 per cent for socio-economic development. More than 90 per cent of the increase in national income during the present Plan is to be achieved by increasing productivity.

C. Technical co-operation priorities

9. The areas for technical co-operation have been identified by the National Committee for Science and Technology on the basis of the development priorities established in the current Plan and after consultation with interested governmental institutions.

10. Although agricultural development has been assigned a high priority under the Plan, Romania has benefited in the past from assistance provided by both the United Nations Development Programme (UNDP) and the World Bank and now finds itself able to further develop and diversify agricultural output using national means and resources. Hence, agriculture has not been included among the areas for which external assistance is sought. Rather, the focus is upon the transfer of technology which would be an incentive in areas such as industry, energy, science and technology and natural resources. Environmental problems will be addressed by such projects as those concerning solar energy and remote sensing. All the projects proposed for the fourth cycle are directly related to national development objectives, and have been selected on the basis of an assessment exercise carried out by the Government, which identified those needs which could most effectively be met by UNDP assistance.

D. Aid co-ordination arrangements

11. In Romania, the Ministry of Foreign Affairs has overall responsibility for the co-ordination of external assistance with the various international organizations.

12. Apart from very small-scale assistance from the International Atomic Energy Agency (IAEA), in the form of scientific visits, participation in workshops, and fellowships and from the United Nations Industrial Development Organization (UNIDO) in the form of short-term projects to help solve technical problems in specific industries, UNDP will be virtually the only source of multilateral assistance for technical co-operation in Romania during the 1987-1991 period. The implementation of United Nations system projects is co-ordinated within the country by the National Committee for Science and Technology.

II. THE COUNTRY PROGRAMME

A. Assessment of the previous programme

13. The third country programme for Romania concentrated on projects in the energy, transportation and telecommunications sectors. The programme reflected the priorities of the national five-year development plan of Romania, 1981-1985.

14. UNDP assistance played a catalytic role, leading to better utilization of the material, technological and intellectual resources already available in the country. Specific projects included the setting up of computerized systems for monitoring traffic flow in surface and underground public transportation in Bucharest, the establishment of an applied research unit on the processing of agro-industrial waste and the establishment of a laboratory for offshore drilling activities. For all projects, the Government inputs far exceeded UNDP contributions.

15. UNDP assistance was also used to facilitate the intra- and inter-sectoral linkages between research and production. Examples are: (a) the close co-operation between the Research Institute for Nuclear Reactors and nuclear power production; and (b) the Research Institute for Computing Techniques assistance in developing the software and setting up of a computerized management system for the control of coal production in the Jiu Valley coal basin.

16. The existing reservoir of well trained and technically competent personnel ensured that the country could absorb UNDP assistance with almost no waste and that the greatest possible benefit was obtained from the services of international consultants, the training abroad of Romanian specialists and the equipment provided to the various projects.

17. Implementation of third cycle projects was generally satisfactory and significant changes or adjustments of the approved country programme were not necessary. The main problems encountered were in the implementation of training programmes and the procurement of equipment. Fellows were not always available to start their training programmes as scheduled and there were also some difficulties in placement. The difficulties in procurement of equipment related almost entirely to denials of export licences. As a result of these problems, one small-scale project, Microwave Technologies (ROM/82/013), has failed to achieve all its objectives because essential equipment could not be acquired, and the execution of several other projects was delayed. There was not a major impact on the implementation of the country programme as a whole, however, and most operational activities were completed by the end of 1986.

18. There were no resident long-term international project personnel in Romania and all projects were managed by national project co-ordinators. There was close co-operation between the UNDP office and the national co-ordinating bodies, the Ministry of Foreign Affairs and the National Committee for Science and Technology, and also with the project authorities.

19. In the light of the results obtained, the third country programme for Romania must be considered a success. If care is taken in project preparation, it should be possible to eliminate much of the difficulty encountered in implementing training programmes and the experience gained by both the national authorities and UNDP and the executing agencies should provide a sound base for the fourth cycle.

B. New programme proposal

20. Based on the national development strategy approved for the period of 1986-1990 and the results of the projects implemented during the third country programme, the following priority objectives requiring UNDP assistance during the fourth programming cycle have been selected:

(a) Energy and natural resources;

(b) Improvement of the technological level in industry.

21. Ten new projects have been proposed for inclusion in the fourth country programme, three of which aim at bringing to a successful conclusion activities begun in the third cycle. The Romanian contribution to these projects will be considerably higher than in the previous cycle. As indicated below, activities will also continue during 1987 on a few ongoing projects begun during the third country programme for Romania.

22. As a result of its development during the last two decades, when particular attention was paid to strengthening national scientific and technological potential and infrastructure, using both national and United Nations system resources, Romania has now the capacity to absorb and implement modern technologies. As a logical outcome, the projects proposed for the fourth cycle are of high technical level and their results will bring important benefits to the Romanian economy by accelerating the process of industrial and technological development.

23. Technologically sophisticated projects require similarly sophisticated equipment, which is expensive. This equipment will be acquired primarily for laboratory testing and demonstration purposes and will consist for the most part of technical and scientific instruments and devices and data-processing equipment.

24. For the UNDP contribution to the new programme, ratios of expenditure similar to those of the third country programme are foreseen, namely around 66 per cent for equipment, 17 per cent for training, and the balance for short-term consultancies and sub-contracts. Total inputs by the Government to the new programme are expected to amount, in dollar equivalents, to about 35 times the value of UNDP inputs, as a consequence of which the UNDP inputs for equipment are estimated to amount to under 2 per cent of total expenditures by the Government and UNDP combined. It should also be noted that 77 per cent of the Government's own contribution to the third country programme was in the form of equipment.

Energy and natural resources ($1,467,000; 31.5 per cent of total resources)

25. The changing structure of the Romanian economy requires the development of new energy sources. In this context, nuclear power and non-conventional sources of energy are considered of great importance, as is the application of remote sensing to identify and monitor the natural resources of the country.

Ongoing projects

Assistance in Computer Aided Management Information and Design (CAD) System in Valea Jiului Coal Mines (ROM/82/008)

26. The objective of this project, which began in 1983, is to develop a computer-based system for production management and control in the Valea Jiului coal basin and to modernize design facilities for the mining sector. The personnel and training components of the project were completed in 1986 and procurement of the final items of equipment is scheduled in 1987.

New projects

Assistance for Nuclear Power Stations (Phase II)

27. The first phase of the project (ROM/82/001) was concerned with the fabrication of nuclear fuel. The new project, also to be sited at the Institute for Nuclear Power Reactors near Pitesti, will provide assistance in the following areas: testing of reactivity control mechanisms; commissioning and safe operation of nuclear power stations; post-irradiation examination of spent fuel and in-service inspection of nuclear power stations.

Development of Non-Conventional Energy Sources Technologies (Phase II)

28. Under the first phase of the project (ROM/82/002), the Research Institute for Electrical Industry received assistance in establishing the technology for assembling photovoltaic modules using Romanian-made monosilicon solar cells and completing a demonstration facility with a production capacity of 30 kw/year. In addition, a water pumping system for use in isolated areas based on the manufactured photovoltaic modules was designed, built and field tested. The objective of the new project is to improve the quality and decrease the cost of fabricating photovoltaic solar cells and modules. The project will also develop field applications of photovoltaics; for example for data acquisition and control systems with autonomous power supply and hybrid solar-wind electric generating systems.

Application of Remote Sensing for Natural Resources Identification and Monitoring

29. Romania has some experience in using remote sensing systems but there has been little consultation with highly qualified experts from abroad. UNDP assistance will be utilized to introduce the latest techniques in the reproduction of images taken by earth satellites and aircraft, the preparation of photo mosaics and image enhancement and interpretation for applications in geology, agriculture, hydrology, cartography, forestry and oceanography.

Linkages

30. Two of the projects in the energy and natural resources sector have actual or potential linkages to projects in the UNDP regional programme for Europe, approved by the Governing Council in February 1987. These are the coal mining project, closely related to Computerized Coal Mining Systems (RER/87/005), and the project on the development of non-conventional energy sources technologies, which is relevant to Energy Planning Systems (RER/87/004), Integrated Farm Energy Systems (RER/80/001), and Environment Planning and Management (RER/87/010).

Industry ($2,491,000; 53.4 per cent of total resources)

31. The national development plan foresees the intensive development and upgrading of technologies to make the most productive use of raw materials and energy resources.

Ongoing projects

Technologies for Chemical Industries Based on Biomass (ROM/82/012)

32. The objective of this project, which began in 1984, is the development of biomass processing technologies and chemical technologies based on enzymatic catalysis for industrial use. Project activities are to be completed in 1988.

New projects

Technologies for Microwave Applications (Phase II)

33. Although considerable progress was made, the objective of the first phase of the project (ROM/82/013), which was to establish an experimental facility to allow the development in Romania of the production of equipment and components for microwave applications, could not be achieved because some essential items of equipment could not be obtained. The new project will pursue an alternative approach to the same objective, making use of the experience gained during the first phase.

Development of Non-conventional Technologies Based on Charged and Neutral Particle Beams

34. The Central Institute of Physics in Bucharest has been undertaking research on the industrial applications of particle beam technology, including, among others, cathodic and magnetic spraying, electron beam-welding and non-destructive analysis. The results obtained thus far are promising, but better control and testing systems are needed and more sophisticated design and simulation techniques must be developed. UNDP assistance is needed in computer-aided design, computer simulation and process control and vacuum control and cathodic sputtering techniques and in developing particle beam installations for:

(a) Design of particle injectors, accelerator sections (electron guns, etc.), beam transport, diagnosis and control;

(b) Simulation of beam interaction with matter;

(c) Design of printed circuits and electronic schemes; and

(d) Development of algorithms for beam control and operation of installation.

The Use of Composite Materials in Aeronautical Industry

35. The developing programme of the aviation industry in Romania foresees the development and improvement of specific technologies for manufacturing the constituent parts of aeroplanes made from composite materials. The Romanian Aviation Institute in Bucharest has undertaken studies on the use of Romanian-made composite materials in aircraft manufacture for panels, ribs, control surfaces and so on. The results are promising but the quality is below aircraft industry standards. The UNDP project will assist in upgrading the technology used for manufacturing aircraft components made of composite materials; establishing testing methods to examine the behaviour of composite materials under static and dynamic conditions and developing computing methods and programmes for static and dynamic modelling with special emphasis on calculations of aviation structures made of composite materials.

Technologies for Special Electrical Ceramics

36. The Research Institute for Electrical Industry in Bucharest has the responsibility of providing manufacturers of electrical devices with modern technologies for manufacturing oxide ceramic bodies (constructive and active parts) for use in circuit breakers, capacitors, arrestors, microwave devices and vacuum-tight components. UNDP assistance is sought to support the Institute in applied research to improve the technologies for the large-scale production of electrical oxide ceramics by using modern techniques for the preparation of highly dispersed powders (coprecipitation sol-gel, criogenics), by implementing more reliable manufacturing procedures for ceramic bodies (isostatic pressing, hot pressing), and by developing appropriate in-process quality control and final product testing methods.

Improvement of Aerial Navigation System

37. The Aviation Institute in Bucharest has developed programmes used in navigational computers as well as a number of electronic components used in navigation systems designed for Romanian-made aircraft. Some problems regarding the software and the gyroscopic and radio-electronic equipment are still unsolved because of a lack of expertise and proper material base. UNDP technical assistance is requested to support further development of on-line software, to improve the gyro- and electronic devices of navigation systems (inertial platforms, distance measuring equipment, heads-up display and other displays and indicators) and to establish the related testing procedures.

Development of Laser Applications in Materials Processing

38. High-power lasers are already in use in Romania for micromachining, drilling, cutting and so on, based on the high-power lasers and laser technologies developed in the Laser Department of the Central Institute of Physics. The interaction of high-power laser pulses with matter has applications in the electronics, machine-building and chemical industries. UNDP assistance will support development of the following industrial applications of high-power laser radiation: laser hardening, micromachining, anti-corrosive protection, laser substance separation and enrichment and laser synthesis of chemical compounds.

Applications of Nuclear Magnetic Resonance Methods

39. Nuclear magnetic resonance techniques are already in use in Romania in the chemical, pharmaceutical and mining industries, in agriculture, in environmental protection and in medicine. The Institute of Isotopic and Molecular Technology in Cluj-Napoca has been undertaking nuclear magnetic resonance methods research and requires assistance from UNDP to examine the following applications: quality control of raw materials and industrial products; development of specific techniques to obtain the magnetic image of the human body for medical diagnosis purposes.

Linkages

40. Of the projects in the industrial sector, several have potential links to projects in the European regional programme. Examples of such linkages are the project on technologies for chemical industries based on biomass with Microbial Biotechnology and Bio-engineering Applications (RER/87/019), and the project on technologies for microwave applications with European Telecommunications (RER/87/025). Industrial Robotics Applications (RER/87/018) is also relevant to several projects in the Romanian programme.

C. Residual activities from the third programme

41. Residual activities continue which account for $272,000 or 5.8 per cent of total resources on a few projects begun during the third country programme for Romania. As indicated above, two of these fall within the energy and natural resources and industry sectors. The others, which are all scheduled to be completed in 1987, fall almost entirely within the transport and communications sector, which was a major recipient of UNDP assistance under the third country programme.

D. Unprogrammed reserve

42. An amount of $US 431,000 (9.3 per cent of total resources) is being reserved for projects in areas as yet unspecified, and for unforseen contingencies. It is anticipated that some of this amount will be used for activities related to Technical Co-operation among Developing Countries (TCDC).

Annex

FINANCIAL SUMMARY

I. ACTUAL RESOURCES TAKEN INTO ACCOUNT FOR PROGRAMMING

	$	$
A. UNDP-administered sources		
Third cycle IPF balance	536 000	
Fourth cycle IPF	4 125 000	
Subtotal, IPF		4 661 000
Special Measures Fund for the Least Developed Countries	-	
Special Programme Resources	-	
Government cost-sharing	-	
Third-party cost-sharing	-	
Operational funds under the authority of the Administrator	-	
UNDP special trust funds	-	
Subtotal, UNDP non-IPF funds		-
B. Other sources		
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		4 661 000

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II. USE OF RESOURCES

	$	$
Ongoing projects	530 000	
New project proposals	3 700 000	
Programmed reserve	-	
Subtotal, programmed resources		4 230 000
Unprogrammed reserve		431 000
TOTAL USE OF RESOURCES		4 661 000
