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Report No. 6967

PROJECT COMPLETION REPORT

ROMANIA

LIVESTOCK III (POULTRY) PROJECT

(LOAN 1764-RO)

October 14, 1987

Agriculture Operations
Country Department IV
Europe, Middle East and North Africa Region

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Currency Equivalent^{1/}

US\$1	=	Lei 17.4
Lei 1	=	US\$0.057
Lei 1,000,000	=	US\$57,471

Abbreviations and Acronyms

Avicola	=	Central for Poultry Production (a department of MAFI)
BAFI	=	Bank for Agriculture and Food Industry
CAP	=	Agriculture Production Cooperative
CMEA	=	Council for Mutual Economic Assistance
CP	=	Crude Protein
IAS	=	State Agriculture Enterprise
ICB	=	International Competitive Bidding
IPSCA ₁ A	=	Agriculture and Food Industry Design Institute
MAFI	=	Ministry of Agriculture and Food Industry

^{1/} Effective as of December 31, 1986.

Office of Director-General
Operations Evaluation

October 14, 1987

MEMORANDUM TO THE EXECUTIVE DIRECTORS AND THE PRESIDENT

SUBJECT: Project Completion Report on Romania Livestock
III (Poultry) Project (Loan 1764-RO)

Attached, for information, is a copy of a report entitled "Project Completion Report on Romania Livestock III (Poultry) Project (Loan 1764-RO)" prepared by the Europe, Middle East and North Africa Regional Office. Further evaluation of this project by the Operations Evaluation Department has not been made.

Attachment

A handwritten signature in black ink, appearing to be 'A. P. ...', is written on the right side of the page.

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(LOAN 1764-RO)PROJECT COMPLETION REPORTTable of Contents

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Map IBRD 14310

ROMANIA

LIVESTOCK III (POULTRY) PROJECT
(LOAN 1764-RO)

PROJECT COMPLETION REPORT

Preface

This is the Project Completion Report (PCR) of the Livestock III (Poultry) Project in Romania, for which Loan 1764-RO in the amount of US\$85.0 million was approved on October 30, 1979. The Loan was closed as scheduled on December 31, 1985. The Loan was fully disbursed, and the date of final disbursement was made on February 25, 1986.

This PCR was prepared by the Europe, Middle East and North Africa Regional Office and is based in part on a draft completion report prepared by the Borrower's Bank for Agriculture and Food Industry (BAFI), a review of the Staff Appraisal Report (No. 2602a-RO) dated September 24, 1979, the President's Report (No. P-2629-RO) dated October 11, 1979, the Loan and Guarantee Agreements of December 17, 1979, correspondence with the Borrower, internal Bank memoranda on project issues as contained in relevant Bank files, as well as interviews with officials both in the Bank and in Romania who have been associated with the Project.

A copy of the draft report was sent to the Borrower for comments, and a telex was received on September 22, 1987 from BAFI. These comments have been incorporated and are attached as Annex 2.

The project has not been subjected to an audit by OED.

PROJECT COMPLETION REPORT

ROMANIA - LIVESTOCK III (POULTRY) PROJECT
(LOAN 1764-RO)

Basic Data Sheet

	Appraisal Estimate	Actual or Estimated Actual	Actual as % of Appraisal Estimate
Key Project Data			
Total Project Cost (current Lei million)	5,604.6	5,869.1	104.7
Total Project Cost (current US\$)	311.4	320.7	103.0
Loan Amount (US\$ million)	85.0	85.0	100
Disbursed (US\$ million)	85.0	85.0	100
Date Board Approval		10/30/79	
Loan Agreement Date		12/17/79	
Date Effectiveness	04/15/80	04/15/80	100
Date Physical Components Completed	06/85	12/85	110 ^Δ
Proportion Then Completed (%)	100	100	
Closing Date	12/31/85	12/31/85	100 ^Δ
Economic Rate of Return (%)	12	4	33
Financial Rate of Return (%)	12	4	33
Breeding farms	5	-4	
Broiler complexes	17	0	
Slaughterhouses	11	33	300
Institutional Performance		Good	
Technical Performance		Good	
Number of Direct Beneficiaries: Jobs Created	9000	N.A.	

STAFF INPUT ^Δ	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	TOTAL
Preappraisal	7.9	--	--	--	--	--	--	--	7.9
Appraisal	48.9	11.4	--	--	--	--	--	--	60.3
Negotiations	--	2.6	--	--	--	--	--	--	2.6
Supervision	--	5.8	15.4	12.5	12.9	7.2	1.4	2.5	57.8
Other	0.1	--	--	--	--	--	--	--	0.1
TOTAL	56.9	19.8	15.4	12.5	12.9	7.2	1.4	2.5	128.7

CUMULATIVE DISBURSEMENTS

	FY80	FY81	FY82	FY83	FY84	FY85	FY86
Appraisal Estimate (US\$ million)	.9	20.5	50.2	68.6	79.8	85.0	85.0
Actual (US\$ million)	-	23.4	40.2	59.0	77.2	84.4	85.0
Actual as % of Appraisal Estimate	0	114.1	80.1	86.0	96.7	99.3	100.0
Date of Final Disbursement	February 25, 1986						

MISSION DATA

	Month /year	No. of Persons	Staff Days in Field	Specialization Represented ^Δ	Performance Rating Status ^Δ Trend ^Δ	Type of Problem ^Δ	Date of Report
Identification	3/76	3	12	a,b,d			
Appraisal	8/77	4	40	a,b,c,d			
Identification	9/78	3	21	e,c,d			
Appraisal	3/79	4	112	e,b,c,d			
Subtotal			185				
Supervision I	4/80	2	12	a,c	1	2	4/14/80
Supervision II	10/80	2	10	a,d	1	2	T 11/3/80
Supervision III	4/81	3	15	c,a,d	2	2	T,0 5/5/81
Supervision IV	12/81	4	16	b,a,c,d	2	1	0 1/27/82
Supervision V	10/82	1	4	a	2	2	0 1/14/83
Supervision VI	7/83	3	12	b,a,d	2	2	T 8/18/83
Supervision VII	5/84	2	12	a,b	2	2	T,0 5/30/84
Supervision VIII	11/84	1	6	a	2	2	T,0 12/6/84
Supervision IX	11/85	2	6	b,a	1	1	1/17/86
Subtotal			93				
Total			278				

Other Project Data

Borrower: Bank for Agriculture and Food Industry (BAFI)
 Guarantor: The Socialist Republic of Romania
 Executing Agency: Bank for Agriculture and Food Industry (BAFI)
 Fiscal Year of Borrower: January 1 to December 31

Name of Currency: Lei (Lei)
 Currency Exchange Rate:
 Appraisal Year Average: US\$1.00 = 18
 Intervening Years' Average: US\$1.00 = 18.3 Lei
 Completion Year Average: US\$1.00 = 17.4 Lei

Follow-on Project: None

- ^Δ Calculated in terms of months from date of Board approval.
^Δ Input as staff weeks. Source: World Bank Planning and Budgeting Department.
^Δ a = agriculturist; b = agricultural economist; c = financial analyst; d = technical specialist; e = general.
^Δ 1 = Problem-free or minor problems; 2 = Moderate problems; and 3 = Major problems.
^Δ 1 = Improving; 2 = Stationary; and 3 = Deteriorating.
^Δ F = Financial; M = Managerial; T = Technical; P = Political; and O = Other.

ROMANIA
LIVESTOCK III (POULTRY) PROJECT
(LOAN 1764-RO)

PROJECT COMPLETION REPORT

Evaluation Summary

Introduction

1. The project was the first poultry investment supported by the Bank in Romania with a loan of US\$85 million. It was administered by the Bank for Agriculture and Food Industry (BAFI) who made funds available and supervised the implementation of sub-projects carried out by cooperatives and state enterprises.

Objectives

2. The project supported the objectives of Romania's National Development Plan (1980-85) which included (a) breeding of high quality broiler parent stock; (b) expansion of broiler growing units; (c) provision of new and modernized slaughterhouses; and (d) support to research, quality and disease control.

Implementation Experience

3. Project costs amounted to Lei 5,869 million compared to an appraisal estimate of Lei 5,605 million, an increase of about 4.7%. In US Dollar terms, the actual cost was US\$320.7 million, compared to US\$311 estimated at appraisal. A smaller number of cooperatives were beneficiaries of the project than were envisaged at appraisal, and a larger number of State Agriculture Enterprises (IAS) participated. Under the project: 47 new broiler breeding farms were constructed with a capacity to produce 79 million chicks annually, 3 broiler farms were modernized and 49 new broiler farms were constructed producing about 177,000 hens annually; and 14 slaughterhouses were constructed capable of processing about 105,000 tons per year. The increased capacity of both broiler breeding farms and broiler production exceeded appraisal estimates. Physical implementation proceeded satisfactorily up to the completion of the project. Procurement and disbursement proceeded without any significant delays. Due to a reallocation of funds to construct more broiler breeding and IAS broiler farms, the project was completed with a delay of six months.

4. One of the main issues raised during the preparation of the project was the introduction of a mechanized cage system for broiler production. The project was appraised in 1979, based on the partial results of a pilot mechanized cage operation. After minor modifications in design, the system was deemed superior to the conventional deep litter floor design. Mid-way through the implementation of the project, it became clear that the investment and operating costs of the mechanized cage system were significantly higher than previously estimated, and BAFI requested that remaining funds be used for construction of the conventional system. However, this view was changed, some

important improvements were introduced into the cage system design, and the system was retained. However, the adequacy of the cage system has not been resolved unequivocally.

Results and Sustainability

5. Despite the improvement in the genetic quality of the broiler population by the importation of 40,000 broiler grandparents, the broilers' performance has been deteriorating in recent years as a result of low protein content in the feed. The supply of grain/protein feed was envisaged at appraisal as a critical factor in the success of the project. However, the Government insisted that supply of protein feed would be adequate and refused any suggestions by the Bank to include in the project provisions for supply of protein feed. A covenant was included in the loan agreement which required Romania to reach a feed conversion ratio of at most 2.3 kg of feed per kg of meat liveweight gain produced under the project. At the insistence of the Romanian negotiators, a more explicit covenant regarding protein feed importation was not included. The quality of feed did not improve over the project period, and conversion ratios remain at about 3.1. Assuming that the present practice of low quality feed continues, the rate of return for the broiler complexes falls to 0% (compared to 17% at appraisal), and the overall rate of return for the project is 4% (compared to 12% at appraisal).^{1/}

Findings and Lessons

6. The following points may be of particular interest:
- (a) The first Bank appraisal mission was critical of the project design, mainly the broiler farms in cages, and rightfully recommended to postpone the project by one year until more operational data could be obtained. On the basis of pilot operational results, the cage system was later recommended, however, the cage system has remained controversial. It might have been more prudent to finance the broiler farms based on the cage method in stages and monitor the results.
 - (b) Rather than addressing the issue of the importation of protein livestock feed head-on, it was decided to try to remedy the situation indirectly by covenanting a technical coefficient that required the borrower to reach a certain feed to meat ratio. This solution failed because:
 - (i) there was never agreement between the Bank and the Romanian authorities that the importation of protein feed deserved high priority in the allocation of Romania's scarce foreign exchange resources. The linkage between the protein feed requirement and the foreign exchange needed to supply it, given the lack of domestic production, and an assessment of the relative benefit to the economy from broiler production, were never clearly demonstrated; and
 - (ii) a covenant was devised which required the borrower to achieve a certain physical target, without dealing specifically with the constraints on the means to achieve that target.

^{1/} See borrower comments, Annex 2.

I. INTRODUCTION

1.01 The livestock subsector in Romania is dualistic with about two-thirds of livestock numbers being in the social sector (the state farms and CAPs) and one-third in the individual sector. The social sector is generally characterized by large scale production units. The individual sector includes both individual farmers and cooperative members, who operate, in addition to their regular work in the cooperative, a small herd or flock size, typically one to three animals, or one to two hundred birds, in backyard production systems. The table below summarizes the distribution of livestock between the two sectors as of February 1985 and the breakdown of meat sales in 1984:

	<u>Cattle</u>	<u>Pigs</u>	<u>Sheep and Goats</u>	<u>Poultry</u>
	----- millions of head -----			
<u>Livestock Numbers</u>				
Social Sector	4.22	10.50	9.27	76.65
Individual Sector	<u>2.82</u>	<u>4.28</u>	<u>10.12</u>	<u>47.31</u>
Totals	7.04	14.78	19.39	123.96
<u>Meat Sold</u> ¹				
	----- '000 tons liveweight -----			
Social Sector	294	694	87	305
Individual Sector	<u>275</u>	<u>452</u>	<u>156</u>	<u>300</u>
Totals	569	1,146	243	605

¹ Based on weight of livestock sold for meat and the retained weight of increased herd numbers. Figures do not allow for substantial intersectoral transfers.

From the above table it is evident that poultry is the second most important source of meat supply after the pig industry. Within the poultry subsector, the share of the social and individual sectors in supply of meat is about the same. However, this is despite the fact that about 77% of the broilers are produced in the Social Sector and that 62% of the layers are in the individual sector. The relative lower contribution of meat per bird in the social sector reflects lower slaughterweights compared to the individual sector despite the fact that the social sector is more capital intensive and receives more support from the state for research, marketing, feed supply and financing. The main reason for the lower slaughterweights of the social sector has been the deficient protein feed supply, which is related to the Government shortage of foreign exchange to purchase protein feed. The individual sector production, on the other hand, is not dependent on intensive feed supplies, and, therefore, it has not been affected significantly by protein feed shortages.

1.02 In 1962 the first intensive broiler complex was built in Romania which established the basis for the expansion of an integrated breeding broiler production and slaughterhouse system. Between 1970 and 1975 State Breeding Enterprises first introduced egg layer cages and increased production of layer stocks by 2.4 times and egg numbers by 2.5 times. During the same period both the state and cooperative sectors increased their broiler production five-fold. Between 1976 and 1985 the growth moderated significantly. The number of layers increased by about 20%, all attributed to the social sector growth, and the number of broilers about doubled, also with most of the growth coming from the social sector. Meat production, however, during the same period increased only by about 47%, indicating that it was lagging significantly behind the growth in the total number of birds or number of broilers and reflecting decreased efficiency of the subsector.

1.03 The project represented a four-year time slice of Romania's National Development Plan for 1980-1985 for the poultry production and processing program. The project was fully in compliance with the Plan objectives to modernize and expand poultry production and included: (a) 37 broiler breeding farms; (b) modernization of 20 existing broiler production farms; (c) 28 new, mechanized broiler production farms; (d) 15 new poultry slaughterhouses; and (e) provision for specialized equipment, including training for its use, to be used in quality control, applied research, disease isolation, identification and control, and performance standards improvements, which included provision for infusion of pure line breeding stock with imported pedigree stock (for details, see Project Description, para 2.12). During implementation the project remained consistent with the initial objectives. However, investment in some components was more, and in others was less than originally planned.

1.05 The project was the first poultry investment program supported by the Bank in Romania. It also received cofinancing, and altogether foreign financing covered about 55% of the project cost. The project was administered by the Bank for Agriculture and Food Industry (BAFI), which had been the Borrower for seven previous Bank loans for agricultural projects. BAFI's branch offices were responsible for direct supervision of subproject implementation to be carried out by cooperatives and state enterprises. Technical assistance was provided by the Ministry of Agriculture and Food Industry (MAFI), through the Center for Poultry Production (Avicola). Avicola has been coordinating subsector planning, feed distribution, breeding programs, hatcheries, production, slaughter and processing, investment and distribution of final products.

1.06 Project risks were considered to be minimal. Levels of performance and efficiency observed at appraisal were acceptable and the Government had well coordinated plans to supply the necessary manpower, materials, technical expertise, and a satisfactory grain/protein feed base to implement the project successfully. The supply of grain/protein feed was one of the critical factors, envisaged at appraisal, for the success of the project, and a covenant was included in the Loan Agreement which prescribed the maximum feed/meat conversion ratio to be reached under the project. However, lack of foreign exchange to import protein feed, namely soybeans, and Romania's inability to significantly increase domestic protein feed production to

satisfy the needs of a rapidly increasing poultry and pig industry, have seriously affected the economic viability of an otherwise physically well implemented and adequately managed project.^{1/}

1.07 The PCR is based upon the findings of the various supervision missions during the course of the project implementation. Project related Bank files dating back to 1977 were reviewed and a draft project completion report, prepared by BAFI, provided the borrower's assessment of the project's implementation and impact.

II. PROJECT IDENTIFICATION, PREPARATION AND APPRAISAL

A. Origin

2.01 The project was first discussed with the Government in December 1975. In February 1976, the proposed project was considered by the Bank to be included as one of three components (greenhouses, poultry and cattle production) in an Agricultural Credit Project. During a Bank identification mission in March/April 1976, the Government provided investment details for the Poultry and Egg production component and a project brief was prepared in April 1976. Government agreed to submit a preparation report to the Bank by the end of 1976, but did not. During a supervision mission of other projects in the spring of 1977, Government indicated that one component (greenhouses) of the proposed credit project would be dropped, leaving the poultry and cattle components. In May 1977, the Government provided preliminary studies to the Bank for these two components. The Bank reviewed the summaries and requested that a detailed preparation report be prepared and submitted to the Bank. The dairy cattle component preparation was received in early July 1977 and appraisal of a cattle/poultry project was planned for August 1977.

B. Preparation and Appraisal

2.02 The main issue raised during the August 1977 appraisal regarding the poultry component was the decision by the Romanian Government that investments in broiler production during the five year plan (1976-80) would be primarily in a mechanized cage system, reportedly developed in Hungary, rather than in a conventional deep litter system. The main arguments in favor of the cage system were that it would increase efficiency in the use of housing space (about 3 times more broilers per m² of floor space), and thereby save agricultural land for production purposes. The disadvantages mentioned by the appraisal mission included: (a) higher capital costs; (b) greater managerial skills required; (c) increased number of downgraded broiler carcasses; and (d) feed wastage. In addition, the appraisal mission found that the new mechanized cage technology proposed by the Romanians had only recently been introduced in the country and the first pilot facility was only then being put into operation at Giarmata, Timisoara. A conventional deep litter floor type house was being modified so that the mechanized rows of cages could be installed. Experimental cage rearing of broilers had been conducted at other facilities (30 Decembrie and Arad) using standard layer type cages, but only part of the technical and financial results were relevant to mechanized

^{1/} See borrower comments, Annex 2.

cages. As a result, the appraisal mission recommended, and the Bank concurred, to postpone for one year any involvement in financing of this component until more operational data could be obtained. Following the appraisal the Bank decided to separate the cattle component of the project from the poultry component and eventually the cattle component was appraised in 1980 as the Livestock IV (Cattle) Project (Loan 1993-R0).

2.03 A new identification mission visited Romania during September 1978 to review the project concept and results from the pilot operation at Giarmata. Since the mechanized cage equipment being produced in Timisoara was not delivered on time, only eight lots of broilers were grown between September 1977 and September 1978 instead of 36.4 lots (as planned). Nevertheless, in the opinion of the September 1978 identification mission, sufficient data were collected from this station to provide a basis for evaluating the system. The main finding indicated that the investment cost to produce 218 tons of broilers liveweight per annum was about Lei 3.3 million (about US\$140,700) for the new mechanized cage system and about Lei 3.6 million (about US\$153,500) for the existing conventional floor type houses. The net income was projected to be about Lei 2,400 (about US\$102) per ton, liveweight, for the cage system, and about Lei 1,530 (about US\$65) per ton for the existing floor houses.

2.04 Rearing broilers in a mechanized cage system was recognized by the identification mission to require increased management skills. However, the mission believed that with training of workers and proper supervision by managerial staff, this potential disadvantage would not be a problem. The mission also concluded that changes in the design of the cages as a result of experience gained in pilot operations, and which had already been incorporated into the standard design, had reduced the feed wastage noted by the August 1977 appraisal mission. Concerning the issue of cages causing downgraded broiler carcasses, the mission reported that in practice there was no significant difference in the incidence of blisters and other defects in broilers coming from cages or deep litter. The mission did observe that bone abnormalities and leg weakness can be a problem in broilers raised in cages. However, such problems more than likely could be reduced or eliminated by nutritional changes. The mission also reported that labor costs for conventional floor houses were slightly higher than in cage-reared broilers.

2.05 The identification mission raised one more important issue, namely the quality of feed. The mission reported that feed conversion rates were higher than those being achieved in other countries and this contributed to longer feed out periods and smaller broilers at slaughter. The major constraint was reported to be the low protein content of poultry feed in Romania. However, the mission concluded that although removal of the protein feed constraint could have a significant efficiency impact, future expansion and modernization of the poultry subsector would remain an economically viable industry even with this constraint. Also, the mission suggested that the Government's commitment to increase domestic meat supplies testified to its strong motivation to correct the deficiency in availability of protein feeds.

2.06 The project was finally appraised in March 1979. Government insisted the supply of protein feed would be adequate and refused any suggestions by

the Bank to include in the project provisions for supply of protein feed. The appraisal mission reported in the Issues Paper that there were no significant issues, except that the US\$65 million of Bank funds which were allocated to the project were insufficient, and that an additional US\$25 to US\$50 million were necessary to cover the project's foreign exchange needs.

2.07 The draft Yellow Cover report was issued in July 1979 and in August 1979 the Loan Committee cleared the loan package with a provision to increase the loan to US\$80 million. The estimated cost of the project was US\$311.4 million with a foreign exchange component of US\$109.2 million. The proposed Bank loan of US\$80 million was to finance 73% of the foreign exchange cost, with the balance to be financed by cofinanciers. Subborrowers' contribution was to be 8.7% of the project cost and the remaining 59% was to be financed by the Government (BAFI). The project had an estimated economic rate of return of 12% (based on a conversion ratio of about 2.3, which was expected to be achieved during implementation).

C. Negotiations

2.08 Negotiations were held from September 5 to 12, 1979. There were no changes of substance in project design or operation from the draft Loan Documents. However, the following additional matters were agreed: (a) an increase in the Loan amount to US\$85 million, by transferring US\$5 million from the proposed loan for the Covurlui Irrigation Project (Loan 1795-RO, approved in 04/08/1980), and (b) inclusion of a covenant which required Romania to reach a feed conversion ratio of at most 2.3 kg of feed per kg of liveweight gain produced under the project. The implication of this covenant was that import or domestic production of protein feed would have to increase in order to improve the feed quality. However, at the insistence of the Romanian negotiators, the Bank agreed not to include an explicit covenant regarding protein feed imports.

D. Board Presentation

2.09 The project was approved by the Executive Directors on October 30, 1979. The main issues raised during the Board discussion were:

- (a) whether the Bank was justified to lend for a project which would increase the per capita consumption of poultry meat in Romania from 11 kg p.a., which was already considered relatively high by developing country standards, to 18 kg, which was a level typical in many industrialized countries. The Bank staff response was that the project was important mainly due to its contribution to increase the productivity of the agricultural sector and the poultry subsector in particular;
- (b) whether the project could be financed by other sources rather than the Bank. The staff response was that, though cofinancing had been sought, it was unlikely that commercial banks would participate in financing the foreign exchange cost of the project without the Bank;
- (c) the significance of using the financial rate of return in a centrally planned system. The staff response was that the Romanians were

becoming more sensitive to signals from the market, and that appreciation of the usefulness of rate of return evaluation is a slow process, but eventually the Romanians are likely to recognize its usefulness; and

- (d) how is it acceptable that the interest rates for Bank funds onlent under the project would be between 2 and 4 percent while the Bank is charging 7.95% for the Loan. The staff response was that because of controlled prices the annual inflation rate in Romania was only about 1%, and therefore the onlending rate represented a positive real interest rate. The staff also pointed out that interest rate does not play a role in allocation of funds by the Government.

There were no special conditions attached for effectiveness and the loan was signed on December 17, 1979.

E. Targets and Goals

2.10 The main objective of the project was to increase production of poultry meat primarily for the domestic market through the improvement of breed quality, improvement of feed conversion ratios, production efficiency in new units and improvement of existing units, and hygiene and disease control. The project was to develop an annual incremental production capacity of about 162,800 tons liveweight of broilers utilizing about 524,990 tons of feed per annum, of which about 182,000 tons would be for breeding farms and about 342,990 for broiler farms.

2.11 The main flaws of the project design were twofold. First, the development of the poultry program was not sufficiently integrated with the feed supply program. The need for incremental protein supply was clearly recognized by the Bank staff appraising the project, but the resolution of the issue relied on a legal covenant that required Romania to reach a low feed conversion ratio rather than a detailed program to ensure adequate feed supply. Secondly, the development of broiler supply was based exclusively on the social sector increase in production capacity. No attempt was made to evaluate whether it would have been more efficient to increase the production capacity of the individual sector, or a combination of the two sectors.

F. Project Description

2.12 The project was to consist of four major components:

- (a) the breeding of high quality broiler parent stock for production of day-old broilers for stocking State Agriculture Enterprise (IAS), Agriculture Production Cooperatives (CAPs) and individual sector growing units. The investment was to include 37 broiler breeding farms, each with an average annual capacity to produce 6,550,000 day-old chicks. Each farm would consist of 18 two-story masonry houses, a hatchery and supporting utility facilities;
- (b) the continued expansion of broiler growing units utilizing a mechanized cage system which included: (i) modernization of 20

existing broiler production farms which would increase the capacity of each unit by an average incremental output of about 2,400 tons of liveweight broilers per year; and (ii) 28 new mechanized broiler production farms, each with an average capacity of 4,100 tons per year;

- (c) the provision of new and modernized poultry slaughterhouses as part of the integrated poultry production system. The investment was to include 15 new poultry slaughterhouses, with an average annual throughput of about 3,750 tons liveweight poultry on the basis of a single shift operation; and
- (d) the provision of specialized laboratory equipment, including training in its use, and pure line infusion with imported pedigree stock essential to support the expanded, national poultry investment program. The equipment and pedigree stock would also be used in supporting the improvement of poultry health and performance standards.

2.13 Total project cost at appraisal was estimated at Lei 5,605 million (US\$311.4 million) of which the foreign exchange component was Lei 1,965 million (US\$109.2 million) or about 35%. These estimates included US\$0.4 million taxes and import duties on items expected to be directly imported under the project.

2.14 The cost estimates were based on prices projected to prevail at the end of 1979. An allowance of 5% was included for physical contingencies. Price contingency allowances were 1% per annum for 1980 through 1984 on all domestic components and 6.0% annually on foreign exchange components for 1980 through 1984. The exchange rate used in estimating project costs was the official trading rate of Lei 18 to US\$1. The Bank loan of US\$85 million was for a term of 15 years, including 3 years' grace at an interest rate of 7.95% per annum. The balance of the foreign exchange needs of about US\$25 million was envisaged to come from a cofinancing arrangement to be assisted by the Bank. CAPs and State Enterprises were to carry out project investments under agricultural credit subprojects administered by BAFI. BAFI's branch officers were to be responsible for direct supervision of subproject implementation. Technical assistance was to be provided by Avicola, which is affiliated with MAFI and has the ultimate responsibility for integrated poultry and egg production throughout the country.

III. PROJECT IMPLEMENTATION

A. Start-up

3.01 The loan became effective on April 15, 1980 and the project start-up was immediate. By the end of September 1980, BAFI had already committed 53% of the loan-financed project costs and BAFI disbursements were ahead of the appraisal projections. Bank loan disbursements were about 1.7 times ahead of appraisal disbursement schedule, and procurement was proceeding

satisfactorily. The implementation of IAS and CAP mechanized broiler production farms and poultry slaughterhouses was in line with appraisal forecasts. The main issue, however, identified by the Bank supervision in October 1980, was that the shortage of protein in the feed supply had not improved compared to the situation before the project and was likely to undermine the expected benefits from the project.

B. Implementation

3.02 Generally, physical implementation continued to proceed satisfactorily up to the completion of the project. However, demand was low for modernization of existing broiler complexes in CAPs, which included conversion from a conventional deep litter system to a mechanized caging system. The lack of interest by CAPs to convert to the cage system was due primarily to their reluctance to borrow for expansion of poultry production under the precarious poultry feed supply situation in Romania and their skepticism in regard to the advantages of the cage system over the conventional deep litter system. As a result the Bank agreed in June 1983 to a reallocation of funds to construct an additional 21 IAS broiler farms and 14 broiler breeding farms. On the other hand, 17 CAP broiler farms have not been modernized and one poultry slaughterhouse not implemented (Annex 1, Table 1).

3.03 The main issue which persisted during the entire period of project implementation was that the quality of feed did not improve. The results were that, after seven to eight weeks of feeding, the broiler carcasses were observed to weigh about 1.0 to 1.1 kg instead of 1.4 to 1.6 kg, and the countrywide conversion ratios have been about 3.0. The target of reaching a conversion ratio of 2.3 kg of feed per kg of meat, which was covenanted, was not likely to be achieved.

3.04 The project was implemented between 1980 and 1985. The annual investment implementation proceeded along the appraisal estimated schedule for 1980, 1981, 1982 and 1983. Due to the reallocation of funds to construct more broiler breeding and IAS broiler farms (para 3.02), the last 24 broiler complexes were started in 1984. The project was therefore completed with a delay of six months, in December instead of June 1985.

C. Procurement

3.04 In accordance with the provisions of the Loan Agreement (Supplemental Letter No. 1) about US\$83 million worth of goods for the project were to be procured under International Competitive Bidding (ICB) in accordance with procedures consistent with those set forth in the "Guidelines for Procurement Under World Bank Loans and IDA Credits" published in 1977. The balance of US\$2 million worth of goods were to be procured through international shopping by soliciting bids from at least three countries. These items included laboratory equipment, biological products and specialized slaughterhouse equipment. All the bidding was organized by ROMAGRIMEX, an organization affiliated with MAFI which is in charge of foreign trade transactions. The table below gives a comparison of the list of goods to be procured as stipulated under the Loan Agreement (Supplemental Letter No. 1), and the actual procurement results:

	<u>Appraisal</u> ----- US\$ million -----	<u>Actual</u> -----
Asbestos sheets	2.200	4.187
Electric cables	9.900	.986
Structural steel)		
Steel pipes)	20.640	21.317
Steel sheets)		
Equipment for poultry slaughterhouse, complexes and breeding farms	<u>50.260</u>	<u>48.828</u>
Total	83.000	83.000

3.05 Procurement under the project was handled efficiently. The bidding documents were approved by the Bank on July 31, 1980. Foreign suppliers did not show interest in bidding for asbestos sheets, electric cables and structural steel, and, in fact, only domestic manufacturers participated in the bidding. Consequently, all the contracts for these materials were awarded to Romanian suppliers. By contrast, bidding interest for slaughterhouse and poultry farm equipment was robust. Ten bids were submitted for slaughterhouse equipment, nine of which were from foreign firms, and nine bids were submitted for poultry farm equipment, eight of which were from foreign firms. Eventually all contracts were awarded to Romanian firms. For the laboratory equipment, biological products and specialized slaughterhouse equipment, Romagrimex carried out the international shopping effectively and all the contracts were awarded to foreign suppliers. There were no significant delays in the bidding process, review by the Bank, or in the delivery of the machinery and equipment procured.

D. Project Cost

3.06 The total project cost amounted to Lei 5,869 million compared with an appraisal estimate of Lei 5,605 million, an increase of 4.7% (see Annex 1, Table 2). In US Dollar terms, the actual cost was US\$320.7 million (current terms), compared to about US\$311 estimated at appraisal, an increase of 3%.

3.07 In terms of cost per unit, there was no significant increase in the cost of broiler breeding farm construction compared to the appraisal estimate. However, the cost of slaughterhouse construction was about 8 percent higher than the appraisal estimate and the cost of broiler production units was about 22% above the appraisal estimate. The main reason for the relatively high deviation between the actual and appraised cost of broiler complexes were the changes in design during implementation. The Bank approved the changes that were expected to result in improved insulation; increased use of prefabs in the construction; and improvement of the ventilation and heating system. All these improvements have contributed to savings in energy costs and to some extent in reduction of other operating costs.

E. Financing

3.08 The project financing compared to the appraisal estimate as follows:

	----- Project Financing -----				Percent Change	
	Appraisal Estimate		Actual		Lei M	US\$ M
	Lei M	US\$ M	Lei M	US\$ M		
BAFI and Cofinancing ^{/1}	3,587.7	199.3	3,910.7	218.9	9.0	9.8
IBRD	1,530.0	85.0	1,670.2	85.0	9.2	0.0
Beneficiaries	<u>470.9</u>	<u>27.1</u>	<u>288.2</u>	<u>16.8</u>	<u>-38.8</u>	<u>-38.0</u>
	5,604.6	311.4	5,869.1	320.7	4.7	3.0

/1 See para 3.10.

The increase in the project cost was financed from BAFI's own resources. The share of the beneficiaries was lower than the appraisal estimate mainly due to the smaller share of CAPs participating in the project. The IASs which replaced them as beneficiaries are obliged, according to statutory laws, to contribute a smaller share to their investments.

3.09 According to Supplemental Letter No. 6 to the Loan Agreement, financing for subprojects, including both the BAFI and the Bank contributions, were to be onlent to CAPs at 3% and to IASs at 2% during construction and at 4% thereafter. In early 1983, however, interest rates were raised in Romania, and the interest rate on all loans is now 5% per annum. Since under the controlled price system in Romania the inflation has remained below 2% per annum throughout the duration of the project, the onlending rates represented a positive real rate of interest.

3.10 Cofinancing. The need for cofinancing was envisaged at appraisal because the Bank was to finance only US\$85 million of the US\$109.2 million estimated foreign exchange cost of the project. Negotiations to arrange cofinancing, therefore, started immediately following the negotiations of the Bank loan. In May 1980 a cofinancing loan, amounting to US\$100 million, was syndicated by a group of 43 commercial banks led by Centrale Rabobank-Utrecht, Holland, and Caisse Nationale de Credit Agricole-France. The Bank was instrumental in arranging the cofinancing, of which the terms included eight years maturity, five years grace period and interest of 3/4% per annum over the arithmetic mean of the six-month London Interbank Offered Rate (Libor) for Eurodollar deposits. Consequently, foreign financing covered about 58% of the project cost.

F. Disbursements

3.11 Disbursements were ahead of the appraisal estimate for the first five quarters of the project implementation period (Annex 1, Table 4). They fell behind the appraisal estimate between 1982 and 1985 Bank fiscal years, but never below 80% of the appraisal estimate. The final disbursement was made in the third quarter of the 1986 Bank fiscal year. Generally, actual disbursements were relatively close throughout the implementation period to the appraisal estimate. The final disbursement was made and the loan was closed on February 25, 1986.

IV. OPERATING RESULTS

A. Number, Kind and Size of Subprojects

4.01 Broiler Breeding Farms. Under the project 47 broiler breeding farms have been constructed, each with 18 houses which include 36,000 young stock and 72,000 adults. Parents of young stock are grown on deep litter. The feeding and drinking systems are mechanical. The houses provide heat with electricity until chickens have grown their feathers. After 20 weeks the chickens reach the maturity stage when they are moved to houses that are properly equipped for the egg-laying stage. The Romanian authorities have accepted the Bank's proposal to keep the birds in the same unit from the first day until the culling, which has resulted in the following advantages: (a) labor cost to move birds was eliminated; (b) moving stress for the birds was eliminated; (c) risk of infections during moving was reduced; (d) need for new litter after movement was eliminated; and (e) energy was saved by bringing bacterial development in the litter to optimum condition (see para 4.06).

4.02 The appraisal estimated that 240 million chicks would be produced per annum, however, the actual capacity increased to 279 million chicks per annum.

4.03 Broiler production. The appraisal plan was to modernize 20 existing broiler farms and convert them to mechanized cage farms. However, only three broiler farms have been modernized, creating a total increase in annual capacity of about 7,200 tons of broilers, less than the 48,000 tons estimated at appraisal. On the other hand, 49 new broiler farms have been constructed with production capacity of about 170,000 tons of broilers, an increase over the estimate of 28 farms with production capacity of 110,000 tons at appraisal. Altogether, the project increased the production capacity of broilers by about 177,000 tons compared to about 158,000 tons estimated at appraisal.

4.04 Poultry slaughterhouses. The appraisal envisaged implementation of 15 new poultry slaughterhouses with a production capacity of about 112,000 tons in two shifts. Only 14 poultry slaughterhouses were actually implemented with total production capacity of about 105,000 tons.

4.05 Under the project, the breeding capacity increased beyond the incremental production capacity of the poultry farms. This has not caused significant difficulties because the individual sector and existing cooperative farms have been able to absorb the excess chicks produced.

B. Adequacy of Project Facilities

4.06 Breeding units. After some experimentation with two-story buildings, all breeding units were built as single-story, conventional brick buildings with prefab concrete roofs. The width of the houses was reduced from 20 m to 12 m to improve the ventilation within each house. There is a central work area; each half of the house is subdivided into six pens with a center aisle.

Standard equipment includes chain feeders and round drinkers. The feed going into each unit is controlled by a scale. Initially, each unit had three age groups, with an approximately 24-week age difference. Usually, the parents are started in specially equipped rearing houses and move to the laying houses at approximately 20 weeks of age. The growing houses (six per age group) usually start with approximately 7,200 chicks (6,000-6,600 pullets plus 15% cockerels), which are reduced by mortality, culling and selection to 5,500-6,000 female breeders plus 10% males at the time when they are moved to the laying houses (at approximately 20 weeks of age).

4.07 Broiler production. The adequacy of the cage system to rear broilers has not been resolved unequivocally. During 1982 it became clear that the investment and operating costs were significantly higher than previously estimated and, in addition, there was a relatively large requirement for supervision and maintenance by qualified staff. All this raised doubts within MAFI whether it was justified to continue to implement the construction of the cage system or revert back to the deep litter system. In fact, in July 1982 the president of BAFI sought the Bank's agreement to use the remaining project funds for construction of deep litter broiler production only. However, by August 1982 the view that the cage system was more advantageous was upheld in Romania and they continued to construct the cages. The consultant hired by the Bank for supervision of the project concurred with the Romanian view that the cage system is more advantageous than the deep litter system for the following reasons: (a) higher labor productivity; (b) lower energy cost; (c) elimination of the litter problem and the ability to use the straw which is thereby saved to feed ruminants instead; (d) less land needed to build broiler production units; (e) better performance in weight gain and feed efficiency; and (f) large complexes are easier to manage and supervise. However, revised financial analysis of the two alternatives was not carried out.

4.08 During the course of implementation some important improvements were introduced into the cage system design: (a) the basic design was changed from one of 4-tier compact batteries with manure belts to one of semi-compact stair step (California type) cages with a dropping pit and manure scraper; and (b) there was a shift from cross ventilation to longitudinal ventilation. One of the main advantages was that stair step cages had more uniform light intensity in all tiers and therefore helped to reduce the problem of early mortality.

C. Bio-economic and Production Efficiency Parameters

4.10 Altogether about 40,000 broiler grandparents were imported under the project in quarter-yearly batches of 4033 birds. The first batch arrived in December 1983 and the last delivery was at the end of 1985. Each batch was composed of 645 roosters and 2240 hens of White Rock and 242 roosters and 726 Cornish hens. The import of broiler grandparents under the project has significantly improved the genetic potential of Romania's broiler population to the point where the genetic material in Romania is considered to possess the same potential as the best genetic material in the world and is now an important exporter of breeding stock itself.

4.10 Despite the improved genetic material, the broilers' performance in Romania has been deteriorating in recent years as a result of low protein content in the feed. An analysis of the annual statistics shows that the key indicators for poultry production have slumped since the early 1980s. For instance, average slaughter weight per head in Romania is reported by BAFI to have fallen from 1.22 kg in 1981 to 0.94 kg in 1984. In addition, presently the estimated feed/meat conversion coefficient is reported to be 3.1, with average crude protein content of about 17%. In other countries, where similar genetic material is used but proper feed is provided, the conversion rate is about 2 kg of feed per kg of weight gain. Under the project, the prescribed objective, covenanted in the Loan Agreement, is 2.3 kg of feed per kg of weight gain (para 2.08). Covenanting such an objective was predicated on the assumption that the broilers would be provided with proper nutrition, as the Loan agreement states "the feed formula for growing broilers in the said facilities will be adjusted and applied as and when the broiler growing facilities included in the Project will start or resume their operation in order to provide sufficient nutrition under economically efficient conditions to obtain at least 1 kg of body weight gain per 2.3 kg of feed intake" (Article IV, Section 4.01(a)(ii)). Unfortunately, the feed provided to the broilers was deficient in protein because of a shortage of foreign exchange in the country to import feed, and slower than expected increases in domestic protein sources.

4.11 The average cost of feed under the poor protein diet presently provided in Romania is about US\$131 per ton (Annex 1, Table 5). With a proper protein diet in the feed, the estimated cost would be about US\$145. Hence, at the present conversion ratio, the cost of feed is about US\$406 to produce 1 ton of liveweight broiler, whereas with an improved protein diet the cost would be only about US\$333.^{1/} In fact, under the target conversion ratio, the proper protein diet would produce about 35% more broiler meat than the poor protein diet, with an additional cost of only 11%.^{2/} This implies that with the given budget constraint on foreign exchange it is still more profitable to provide the proper protein diet, because with the same expenditure on feed about 21% more broiler meat could be produced.^{3/} The break-even point of the conversion rate, given the cost of the two diets, is 2.54^{4/}, which implies that at any higher conversion rate it is more profitable to use the proper protein diet. In addition, increased protein content reduces mortality, increases disease resistance, and allows for more hatches per year.

D. Environmental Effects

4.12 The project has not caused any significant impact on prevailing environmental conditions. Facilities financed under the project were

1/ Deficient protein diet: $US\$131 \times 3.1 = US\406.1 ; proper diet: $US\$145 \times 2.3 = 333.5$.

2/ The conversion ratio of proper protein diet is 1:2.3, or about 0.435 kg of meat per kg of feed. The poor protein diet produces about 0.322 kg of meat per kg of feed, or ratio of $0.435/0.322 = 1.348$, which means 35% more meat with the proper protein diet.

3/ $US\$131/US\$145 \times 1.348 = 1.21$.

4/ $US\$333.1/US\$131 = 2.54$.

constructed and operated in conformity with the environmental protection code of the country. All the poultry complexes have complied with the law which requires installation of separate water supply facilities. In the manure disposal system, solid materials from the mechanized broiler production units are collected and sold to livestock fattening farms as feed or to local farms to use as fertilizer. Manure collected in the deep litter of breeding units is also sold either for livestock feed or to local farms for use as soil conditioner/fertilizer. Slaughterhouse waste is collected and processed at rendering plants into meat- and feather-meal. Waste water is pretreated prior to discharge into municipal sewerage systems.

V. ECONOMIC ANALYSIS

A. Input Supply and Prices

5.01 Presently, the main constraint on the feed quality in Romania is the shortage of protein, notably, fish meal and soybeans. In 1984, the feed mills in the country produced about 7.3 million tons of concentrate feed, of which about 2.2 million tons were used by the poultry subsector. However, crude protein (CP) levels in the feed are about four percentage points below optimum. With improvement of the protein content in the feed, the conversion efficiency for broilers could increase from about 3 to about 2.3. Such improvement would result in a reduction of about 25% in the consumption of feed, mainly grains, while the consumption of protein feed would increase only marginally, by about 4 percent.^{1/} Other benefits include an increase in weight gain per broiler over a shorter period of feeding which would allow an increase in the production intensity from about five cycles to about 5.5 cycles per year.

5.02 Generally, the present prices of the main feed components in Romania are close to the border prices at the official exchange rate (Annex 1, Table 5), and the average feed price with about 17% CP is only about 3% higher than the economic price in dollar terms (the domestic price is about 130.8 \$/ton compared to an economic price of about 126.5 \$/ton). With an adequate protein content of about 21.4% CP the present price of feed would be higher than the economic price by about 4% (the domestic price would be about 145.1 \$/ton compared to an economic price of about 139.5 \$/ton). Practically, these differences between the financial and economic prices are insignificant in relation to price fluctuations in the world market. Though prices are fixed in Romania, they were set in close relation to international prices.

B. Output Demand and Prices

5.03 Per capita consumption of broiler meat in Romania is already higher than in most CMEA countries, except Hungary. In West Germany, Benelux, Denmark and Austria the broiler consumption per capita is below the level in Romania, but in the United States and Canada, it is significantly higher.

^{1/} The supply of protein feed for broilers would have to increase by 25%, which constitutes about 4% of the feed components.

However, total meat consumption per capita in Romania, which includes also pork and beef, is significantly below the level of all CMEA and Western European countries, and the United States and Canada. Broiler meat is a substitute for beef and pork, and for the given level of meat consumption which exists in Romania it is likely to have a relatively high income elasticity. For that reason all the broiler meat produced could be completely consumed in Romania, though some small amount is being exported (about 20,000 tons per annum), partly on a barter basis and partly for convertible foreign exchange earnings. The value of Romania's poultry exports in 1984 amounted to about US\$24 million, but it was not exclusively broilers.

5.04 The price of broilers in Romania reflects basically the border price. It is a fixed price which does not fluctuate, but the 3-year moving average price of poultry is within about 3 percent of the border price equivalent.

C. Benefits

5.05 The project has generated the following annual outputs:

	<u>Appraisal</u>	<u>Present Estimated</u> ^{/1}	<u>Increase/ Decrease</u>
Day old chicks (million)	243	273	+30
Broilers (million)			
State units:	(34	61	(+27
New type	(27	(
Old type	(34	(
Cooperative:	68	40	-28
Old type	39	34	-5
Modernization	29	6	-23
<u>Slaughterhouse Capacity</u>			
Chicken frozen and fresh (tons)	78,690	78,640	-50
Head, legs and feet (tons)	810	810	-
Meat, blood and bone meal (tons)	9,600	9,600	-
Inedible fat (tons)	495	495	-
Manure ('000 tons)	564	570	+6

/1 BAFI's estimate.

The breeding farms and the slaughterhouse investments have been achieving about the expected production projected at appraisal. The broiler

investments, on the other hand, have fallen short in terms of expected incremental meat production, which is about 30% below the projected amount due to the low quality feed provided, which causes the slaughter weight of broilers to be about 1 to 1.1 kg compared to about 1.5 kg per head expected at appraisal.

D. Economic and Financial Rates of Return

5.06 The economic rate of return for the breeding farms component of the project has been estimated at 4% compared to the appraisal estimate of 5%. It is assumed that the required protein content in the feed for breeding is about 70% of that required for broilers, and that breeding farms are provided feed which is relatively less deficient in protein than the feed for broiler production. The main reason, therefore, for the low rate of return is the low price of chicks. A higher price for chicks would result, on the other hand, in lower profitability for the broiler production.

5.07 The economic rate of return for the broiler farms component is estimated under the three following assumptions:

Continuing the present practice of low quality feed	0%
Improving the feed quality by 1990	14%
Improving the feed quality by 1988	17%

5.08 The economic rate of return for the slaughterhouse component is estimated at 33% compared to about 11% under the appraisal estimate. The main reason for the higher rate of return compared to the appraisal estimate is that the fixed price for dressed broilers has gone up.

5.09 The economic rate of return for the project has been estimated at about 4% compared to the appraisal estimate of 12% (Annex 1, Table 6). There is no significant difference between the financial and economic rates of return on the basis of the domestic and border prices of the inputs and output. The economic rate of return calculations are based on the following assumptions: (a) all investments and benefits are based on constant 1986 prices. Domestic and foreign costs have been adjusted by the inflation index in Romania and the exchange rate movements (Annex 1, Table 7); (b) the present feed quality, which has been deficient since commencement of the project implementation, would remain the same during the remaining project lifetime; (c) the life of the project was assumed to be 20 years, with a salvage value of about 30% of the original investment in year 20; (d) economic prices of feed and broiler meat are derived from estimates of border prices and Bank projections, adjusted to farmgate level, which were obtained by a Bank mission to Romania in February/March 1985; (e) the estimates of the present conversion ratio for feed and the average weight of broilers were determined on the basis of the findings of the appraisal of the Fifth Livestock Project in February/March 1986; (f) the operating cost structures for breeding farms and broilers were determined on the basis of models prepared by the Agriculture and Food Industry Design Institute (IPSCAIA) in Romania and Bank supervision reports, but adjusted for the feed and broiler prices and the feed conversion ratio resulted from the findings of the Bank mission to Romania in

February/March 1985; and (g) investment costs and benefits from slaughterhouse operations have been derived from the project completion report prepared by BAFI.

5.10 The economic rate of return for the project would improve if the feed quality issue would be resolved--if by 1990 - 10%, and if by 1988 - 11%.^{1/}

VI. INSTITUTIONAL PERFORMANCE

A. Institutional Design

6.01 BAFI was the borrower for the Bank's loan under guarantee of the Socialist Republic of Romania. In that capacity BAFI was responsible for project administration, while individual subprojects were implemented by IASs and CAPs, after thorough appraisal by MAFI and BAFI. BAFI headquarters was in charge of: (a) appraising all the subprojects; (b) approving all subproject investments below Lei 70 million (about US\$3.9 million)^{2/}; (c) coordinating project-related activities with the different Ministries and agencies (primarily with Avicola, the Poultry Department of MAFI), IPSCAIA, the Feed Mill Trust, Romagrimex and research stations; (d) centralizing disbursement requests; and (e) project monitoring, including the collection of information and reporting to the Bank. BAFI's branches had the responsibility to supervise the financial and administrative execution of subprojects and were, either together with specialized engineers from IPSCAIA or with the help of their own engineers, responsible for supervising the physical progress of project implementation. BAFI's performance in coordinating project implementation was fully satisfactory.

6.02 Actual project implementation and work supervision was the responsibility of Avicola. Avicola prepared the work plans and financing for the investments and presented them to MAFI and then to the State Planning Commission and to the Ministry of Finance for final approval. Avicola has proven to be professionally competent and skilled in its tasks to supervise and coordinate the project implementation.

B. Support Services

6.03 The main support services to the project have been provided by: (a) the Pasteur Institute in Bucharest, which manufactures most vaccines for poultry and other animals; (b) the Central Laboratory Diagnosis Institute in Clinceni; (c) the Central Laboratory for Food and Feed in Obor; (d) the Laboratory for Mixed Feed in Bucharest; (e) the various labs for sanitary and veterinary inspection in most districts; and (f) the labs for feed quality control and nutrition, which operate in most districts. The performance of some of these labs and institutes, such as the Pasteur Institute, has been upgraded significantly because the project enabled them to procure needed

^{1/} See borrower comments, Annex 2.

^{2/} Investments exceeding Lei 70 million had to be submitted to the Bank for approval.

modern instruments and material for their production technologies. As a result there has been significant improvement in the vaccination programs in Romania, which in some cases have become completely self-sufficient, and the incidence of various poultry epidemics has been minimized and controlled effectively. Other support services which had significant impact on the project are the Research Institute for Poultry and Small Animals, the Poultry Research Institute, and the Nutrition Institute in Balotesti. The work of these research institutes covers both genetics and improvement of poultry nutrition which have resulted in successfully applying modifications of various technologies.

C. Credit, Extension, Supervision and Recovery

6.04 BAFI supervision of project investments was satisfactory. Each subproject was controlled from the branch or sub-branch level, and BAFI loan officers, often supported by BAFI engineers, carried out field visits at least once in a quarter and prepared supervision reports. In specialized projects, e.g. slaughterhouses, appropriately qualified engineers were used to supervise ongoing work. The financial situation of subborrowers was examined monthly and reported to BAFI headquarters. Disbursements were made against documentary evidence and physical progress was reconciled with payments claimed.

6.05 Normally BAFI subbranches have authority to approve subloans up to Lei 10 million. However, all the subloans under this project were larger than the Lei 10 million limit and were therefore approved by the headquarters. The processing of subloan applications, approval and disbursements were carried out efficiently and without delays.

6.06 Avicola has been providing the necessary extension services to the enterprises involved in all the areas of veterinary assistance, management and coordinating the technical assistance from the specialized support services.

6.07 Subloan repayment under this project has not been an issue. Repayments of subloans for the slaughterhouses are likely to be ahead of schedule because when profits exceed 6% per annum the subborrower is usually requested to accelerate the repayment. However, in view of the estimated poor financial performance of broiler complexes and breeding farms, recovery may, in some cases, become problematic since under the existing circumstances their cash flow would not generate sufficient funds for debt servicing.

D. Staffing and Training

6.08 BAFI staff who were involved in implementation of the project are well qualified and effective, and Avicola staff are highly skilled and competent professionals. Staff operating the project components were well trained, and there are sufficient skilled staff with academic degrees and training in animal and veterinary science. BAFI organizes seminars in the various districts for staff of the production units, and some staff have received training abroad financed under bilateral arrangements.

E. Accounting and Auditing

6.09 BAFI branches maintain well controlled financial accounts for each enterprise. All the accounting is mechanized and the headquarters receive coded and categorized accounts from the branches. The accounts are all reconciled and synchronized between headquarters and the branches.

6.10 Auditing is cursory and of little value. It is carried out by inspectors from the Ministry of Finance and the Court of Superior Control. The audit reports on BAFI provided very little meaningful information, except that they confirmed that Bank funds have been used for the purposes for which they were provided. The audited financial statements of BAFI did not include detailed information of BAFI's performance such as arrears and collection rate, amounts which are falling due, and other relevant information, such as internal control, status of foreign debts and the quality of the loan portfolio.

F. Reporting

6.11 Reporting on project implementation was timely but very limited in scope. Quarterly progress reports, for instance, only included information on BAFI commitments and disbursements per subproject and have not really met the intent described in Supplemental Letter No. 3 to provide the borrower and the Bank with necessary information for identifying existing and foreseeable problems in advance and for formulating appropriate solutions.

VII. BANK PERFORMANCE

7.01 Project formulation and objectives. The Bank had a secondary role in formulating the project objectives and scope, which were predetermined by the planning authorities as part of the 1980-85 Five Year Plan. The Bank's role was merely to review the project concept and its feasibility on the basis of the assumption that it represented the highest priority to the economy. However, there was no substantive study which established empirically or theoretically that Romania had a comparative advantage in poultry production, or that investment in the poultry subsector was economically preferable to investment in other subsectors.

7.02 The first Bank appraisal mission in August 1977 was critical of the project design, mainly the broiler farms in cages, and rightfully recommended to postpone the project by one year until more operational data could be obtained. The second mission in September 1978 recommended on the basis of the pilot operational results of rearing broilers in cages, that the Bank participate in financing such mode of production. However, the cage system of rearing broilers has remained controversial.^{1/} In retrospect it might have

^{1/} The results from farms operating cages have not shown conclusive evidence that the cage system is superior to the deep litter system.

been prudent to finance the broiler farms based on cage mode in stages and to monitor the results of the first stage before the second stage was developed.

7.03 Project processing and conditionality. The Bank realized that the feed quality was an important issue which was constrained by the foreign exchange shortage in Romania. However, Government insisted the supply of protein feed would be adequate and refused any suggestions by the Bank to include in the project provisions for supply of protein feed. Rather than addressing the foreign exchange allocation issue head-on, it was decided to try to remedy the situation indirectly by covenanting a technical coefficient in the Loan Agreement which required the borrower to achieve a conversion ratio of 2.3 kg of feed per kg of meat produced. This solution has failed mainly because there was never agreement between the Bank and the Romanian authorities that the importation of protein livestock feed deserved high priority in the allocation of Romania's scarce foreign exchange resources. Indeed, while it is clear from a sectoral point of view that the import of protein feed would be highly beneficial economically, it has never been demonstrated conclusively that this would be the best use of Romania's foreign exchange from a macroeconomic perspective, given the country's overall economic needs and priorities.

7.04 Implementation and supervision. Supervision of the project was adequate. Between 1980 and 1986, ten supervision missions were made. Since 1984, supervision intensity of the project was reduced mainly because the physical implementation of the project was progressing well, and the Bank's insistence on improving feed quality was clearly having little impact on the foreign exchange allocation issue. Most of the missions also supervised the other livestock projects, mainly Livestock II (Pigs) and IV (Cattle) (Loans 1669 and 1937-RO). While there was continuity of staff, the inclusion of new Bank staff and several consultants proved effective and was appreciated by the Romanians, mainly because various technical aspects were reviewed, such as the rearing system on the breeding farms which resulted in significant improvements (para 4.07), and genetic and nutritional issues which had significant impact on practices and procedures implemented in the poultry subsector.

VIII. CONCLUSIONS

8.01 The Livestock III Project has been satisfactorily completed. The facilities constructed under the project are all in operation and from a technical point of view, quite successful. The rate of return, however, is unsatisfactory at 4% because of the present practice of providing broilers with deficient protein feed. If supply of adequate feed would begin within a year, the project rate of return could be reasonably acceptable at about 11%.

8.02 The project was not well conceived in terms of assessing the linkage between the supply of raw material (protein feed), the need for foreign exchange to provide it, and the assessment of the relative benefit to the economy from broiler production. The Bank accepted without sufficient scrutiny the Government's decision to go ahead with the project as a priority investment without making the commitment to allocate sufficient foreign exchange and/or sufficient agronomic measures to increase domestic production of protein feed to ensure that the project achieved its economic objectives.

8.03 The project was planned, designed and implemented with speed and efficiency and the actual project cost has been practically the same as the appraisal estimate (about a 3% increase in dollar terms). Control and coordination between numerous implementing agencies was efficiently carried out.

8.04 The project created conditions for modernizing the poultry industry in Romania, which is now on a par with the most advanced countries in every respect, including research, extension, production of high quality breeding material, and the management and operation of the aspects of broiler production and processing.

8.05 Although the broiler production facilities financed under the project have a higher production capacity than the appraisal estimate, the actual production is about 30% less than the appraisal estimate. The facilities to that extent are underutilized. But the underutilization is related to the issue of deficient protein feed provided to the broilers. If this issue is resolved, the capacity utilization is likely to be acceptable.

8.06 There seems to be a significant imbalance between output and input prices which result in remunerative operations of poultry slaughterhouses, indicated by high rate of return, and nonremunerative operations of breeding farms and broiler complexes indicated by unsatisfactory economic rates of return. Prices have a limited role in allocations in Romania. Therefore, breeding farms and broiler complexes which are subsidized by the Treasury also bear the cost of its foreign exchange risk and debt servicing. Hence, despite the high economic rate of return of slaughterhouses, the project as a whole, under the present conditions, is deemed uneconomic.

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ROMANIA

PROJECT COMPLETION REPORT

LIVESTOCK III (POULTRY) PROJECT
(LOAN 1764-RO)

Physical Implementation by Components
(units)

	<u>Appraisal</u>	<u>Actual</u>	<u>Change</u>
Broiler breeding farms	37	43	+14
Broiler complexes			
IASs	16	37	+21
CAPs	12	12	-
Modernization (in CAPs)	20	3	-17
Poultry slaughterhouses	15	14	-1

Source: PCR prepared by BAFI

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ROMANIA
PROJECT COMPLETION REPORT
LIVESTOCK III (POULTRY) PROJECT
(LOAN 1764-RO)

Project Cost Comparison Between Appraisal and Actual
(million of Lei)

<u>Item</u>	<u>Appraisal</u>		<u>Actual</u>		<u>Actual As % of Appraisal Estimate</u>
	<u>Amount</u>	<u>%</u>	<u>Amount</u>	<u>%</u>	
Broiler breeding farms	2,305.2	41.1	2,657.7	45.1	115.3
Broiler complexes					
IASs	869.5	15.5	1,802.5	31.6	207.3
CAPs	799.5	14.3	639.8	10.8	80.0
Modernization in CAPs	823.2	14.7	25.6	1.3	9.2
Poultry slaughterhouses	762.3	13.6	661.1	11.2	86.7
Technical Assistance	44.9	0.8	32.4	0.5	62.5
Total	5,604.6	100.0	5,869.1	100.0	104.7

Source: PCR prepared by BAFI.

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ROMANIA
PROJECT COMPLETION REPORT
LIVESTOCK III (POULTRY) PROJECT
(LOAN 1764-RO)

Project Cost by Years

<u>Item</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>Total</u>
	----- million of Lei -----						
Broiler breeding farms	463.5	362.2	639.3	964.1	226.1	2.5	2,657.7
Broiler complexes							
IASs	238.8	236.1	58.4	7.3	744.6	517.3	1,802.5
CAPs	175.8	193.7	150.9	57.1	17.1	45.2	639.8
Modernization in CAPs	12.6	6.9	39.4	5.5	11.2		75.6
Poultry slaughterhouses	172.0	175.2	167.5	100.3	46.1		661.1
Technical Assistance	5.4	5.4	5.4	5.4	5.4	5.4	32.4
Total	1,068.1	979.5	1,060.9	1,139.7	1,050.5	570.4	5,869.1
Exchange rate (Lei/US\$)	22.3	17.5	16.5	19.2	17.4	17.4	
	----- million of US\$ -----						
Cost in current US\$	47.9	56.0	64.3	59.3	60.4	32.8	320.7
Appraisal estimate	81.2	118.5	62.5	40.7	8.5	-	311.4

Source: PCR prepared by BAFI.
IMP - International financial statistics (for the exchange rate).

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ROMANIA
PROJECT COMPLETION REPORT
LIVESTOCK III (POULTRY) PROJECT
(LOAN 1764-RO)

Schedule of Disbursements
(US\$ '000)

<u>Fiscal Year and Quarter</u>	<u>Appraisal Estimate</u>	<u>Actual</u>	<u>Actual As % of Appraisal Estimate</u>
<u>1980</u>			
June 30, 1980	900		
<u>1981</u>			
September 30, 1980	4,200	6,941	165
December 31, 1980	8,100	12,857	159
March 31, 1981	14,000	19,010	135
June 30, 1981	20,500	23,367	113
<u>1982</u>			
September 30, 1980	27,700	28,083	101
December 31, 1980	35,300	33,339	94
March 31, 1981	42,900	36,427	84
June 30, 1981	50,200	40,172	80
<u>1983</u>			
September 30, 1980	56,200	45,220	80
December 31, 1980	61,400	51,138	83
March 31, 1981	65,300	56,208	86
June 30, 1981	68,600	59,053	86
<u>1984</u>			
September 30, 1980	71,900	67,470	94
December 31, 1980	75,200	71,659	95
March 31, 1981	77,800	72,429	93
June 30, 1981	79,800	77,170	96
<u>1985</u>			
September 30, 1980	81,400	82,398	101
December 31, 1980	82,700	83,768	101
March 31, 1981	84,000	84,020	100
June 30, 1981	85,000	84,370	99
<u>1986</u>			
September 30, 1980		84,405	
December 31, 1980		84,497	
March 31, 1981		85,000	
June 30, 1981			

ROMANIA

PROJECT COMPLETION REPORT

LIVESTOCK III (POULTRY) PROJECT
(LOAN 1764-RO)

Financial Cost of Concentrates for Poultry

<u>Ingredient</u>	<u>Crude Protein %</u>	<u>Financial Price \$/ton</u>	<u>With 21.4% CP Feed %</u>	<u>With 17% CP Feed %</u>	<u>Cost at 21.4% CP Financial Price \$/ton</u>	<u>Cost at 17% CP Financial Price \$/ton</u>
Maize	7.8	93.8	40.0	50.0	37.5	46.9
Feed wheat	10.0	101.2	19.0	20.0	19.2	20.2
Wheat bran	14.0	31.3	2.5	4.0	0.8	1.2
Sunflower meal	37.0	41.2	5.0	5.0	2.1	2.1
Fish meal	65.0	255.1	2.5	2.5	6.4	6.4
Soy meal	44.0	200.7	28.5	16.0	57.2	32.1
Premix/salt	0.0	375.0	2.5	2.5	9.4	9.4
Total			100.0	100.0	132.6	118.3
		AVERAGE CP %	21.4	17.0		
		Mixing costs			10.0	10.0
		Transport Mill-Farm			2.5	2.5
		TOTAL FINANCIAL COST			145.1	130.8

Economic Cost of Concentrates for Poultry

<u>Ingredient</u>	<u>Crude Protein %</u>	<u>Economic Price \$/ton</u>	<u>With 21.4% CP Feed %</u>	<u>With 17% CP Feed %</u>	<u>Cost at 21.4% CP Economic Price \$/ton</u>	<u>Cost at 17% CP Economic Price \$/ton</u>
Maize	7.8	82.8	40.0	50.0	33.1	41.3
Feed wheat	10.0	94.9	19.0	20.0	18.0	19.0
Wheat bran	14.0	31.3	2.5	4.0	0.8	1.3
Sunflower meal	37.0	121.8	5.0	5.0	6.1	6.1
Fish meal	65.0	321.8	2.5	2.5	8.0	8.0
Soy meal	44.0	181.0	28.5	16.0	51.6	29.0
Premix/salt	0.0	375.0	2.5	2.5	9.4	9.4
Total			100.0	100.0	127.0	114.0
		AVERAGE CP %	21.4	17.0		
		Mixing costs			10.0	10.0
		Transport Mill-Farm			2.5	2.5
		TOTAL ECONOMIC COST			139.5	126.5

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996-1998	1999
INVESTMENTS																		
BREEDING FARMS	40.0	440.9	914.4	923.2	409.7	-	-	-	-	-	3.0	39.8	84.2	92.9	44.3	-	-	-
BROILER COMPLEXES	104.7	340.3	303.6	243.7	411.1	644.3	189.0	-	-	8.0	31.3	47.3	24.3	49.7	63.3	10.0	-	-
SLAUGHTERHOUSES	-	-	212.0	354.5	109.3	-	-	-	-	-	-	-	20.0	25.1	10.0	-	-	-
TOTAL INVESTMENTS	144.7	829.4	1633.0	1580.4	976.3	644.3	189.0	-	-	8.0	34.3	87.1	132.5	168.7	129.6	10.0	-	-
NET INCOME																		
BREEDING FARMS	-	-	-	3.8	49.9	194.2	43.4	43.4	43.4	43.4	43.4	43.4	43.4	43.4	43.4	43.4	43.4	43.4
BROILER COMPLEXES	-	-	12.0	20.6	17.2	39.6	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
OLD TYPE	-	-	-	5.4	16.0	18.0	29.9	42.2	42.2	42.2	42.2	42.2	42.2	42.2	42.2	42.2	42.2	42.2
NEW TYPE	-	2.2	6.0	5.7	5.7	5.7	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
MODERNIZATION	-	-	-	33.3	133.3	229.4	273.0	273.0	273.0	273.0	273.0	273.0	273.0	273.0	273.0	273.0	273.0	273.0
SLAUGHTERHOUSE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SALVAGE VALUE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1879.7
NET INCOME	-	2.2	18.9	74.8	242.0	434.9	444.7	457.0	457.0	457.0	457.0	457.0	457.0	457.0	457.0	457.0	457.0	457.0
NET BENEFITS	-144.7	-827.2	-1615.0	-1481.6	-728.3	-231.4	255.7	457.0	457.0	449.0	422.7	349.9	324.5	268.3	134.4	433.1	457.0	2134.7
IMPROVED PRACTICE																		
OLD TYPE	-	-	12.0	20.6	17.2	39.6	70.0	70.0	70.0	70.0	400.9	400.9	400.9	400.9	400.9	400.9	400.9	400.9
NEW TYPE	-	-	-	5.4	16.0	18.0	29.9	42.2	42.2	42.2	333.6	333.6	333.6	333.6	333.6	333.6	333.6	333.6
MODERNIZATION	-	2.2	6.0	5.7	5.7	5.7	5.6	5.6	5.6	5.6	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1
INCOME WITH BENEFITS	-	2.2	18.9	74.8	242.0	434.9	444.7	457.0	457.0	1191.0								
NET BENEFITS WITH IMPROVEMENTS	-144.7	-827.2	-1615.0	-1481.6	-728.3	-231.4	255.7	457.0	457.0	449.0	1154.7	1103.9	1050.3	1022.3	1070.4	1172.1	1191.0	2070.7
IMPROVED PRACTICE TWO YEARS EARLIER																		
OLD TYPE	-	-	12.0	20.6	17.2	39.6	70.0	70.0	400.9	400.9	400.9	400.9	400.9	400.9	400.9	400.9	400.9	400.9
NEW TYPE	-	-	-	5.4	16.0	18.0	29.9	42.2	42.2	333.6	333.6	333.6	333.6	333.6	333.6	333.6	333.6	333.6
MODERNIZATION	-	2.2	6.0	5.7	5.7	5.7	5.6	5.6	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1
INCOME WITH BENEFITS	-	2.2	18.9	74.8	242.0	434.9	444.7	457.0	899.6	1191.0								
NET BENEFITS WITH IMPROVEMENTS	-144.7	-827.2	-1615.0	-1481.6	-728.3	-231.4	255.7	457.0	899.6	1103.0	1154.7	1103.9	1050.3	1022.3	1070.4	1172.1	1191.0	2070.7

January 14, 1987 13:30

Internal Rates of Return for the project: 11.4%, if the protein feed provided to broilers would be improved by 1988;
3.5%, if the present feed quality would not be improved;
10% (predicated on improving the protein feed for broilers by 1990).

The internal rate of return for: (a) the breeding farm component - 3.8%;
(b1) the broiler component predicated on the present feed supply - 0.5%;
(b2) the broiler component predicated on improving the protein feed supply by 1990 - 14%;
(b3) the broiler component predicated on improving the protein feed supply by 1988 - 16.7%;
(c) the slaughterhouses component - 33%.

ROMANIA
PROJECT COMPLETION REPORT
LIVESTOCK III (POULTRY) PROJECT
(LOAN 1764-RO)

Domestic and International Inflation and Exchange Rate M

<u>Year</u>	<u>Domestic Inflation Index</u>	<u>Domestic Inflation (%)</u>	<u>Exchange Rate</u>	<u>International Inflation</u>
1980	75.5	0.1	22.9	92.6
1981	85.3	12.9	17.5	93.1
1982	94.0	10.2	16.5	91.8
1983	99.0	5.4	19.2	89.4
1984	99.0	0.0	17.4	87.9
1985	98.0	-1.0	17.4	88.4
1986	100.0	2.0	17.4	100.0

/1 Adjusted to reflect international inflation.

Source: PCR prepared by BAFI.

Source: The World Bank
IMF - International Financial Statistics

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ATT MR. GRAHAM DONALDSON
CHIEF AGRICULTURE, INFRASTRUCTURE
AND HUMAN RESOURCES DIVISION
OPERATIONS EVALUATION DEPARTMENT

RE: PROJECT COMPLETION REPORT
LIVESTOCK III (POULTRY) PROJECT
LOAN 1764-R0

1. WE CONSIDER THE PROJECT WAS SUCCESSFULLY IMPLEMENTED AND HAS AN IMPORTANT CONTRIBUTION IN MEETING THE REQUIREMENTS FOR POULTRY CONSUMPTION OF OUR POPULATION. THE TECHNOLOGY USED FOR BROILER PRODUCTION BASED ON CAGES, WAS PROVED TO BE VIABLE, ALTHOUGH THE BANK WAS RELUCTANT TO AGREE WITH DURING PROJECT APPRAISAL.

2. IN OUR OPINION SOME OF THE REPORT CONCLUSIONS SHOULD BE REVIEWED TAKING INTO CONSIDERATION THE FOLLOWING REASONS:

A) THE RELATIVELY LOW ECONOMIC RATE OF RETURN OF THE PROJECT IS INFLUENCED BY THE DETERIORATION OF TERMS OF TRADE ON INTERNATIONAL MARKET, AMONG THE POULTRY MEAT AND CEREALS AND PROTEIN FEED PRICES, HAVING IN VIEW THAT THE PROJECT WAS JUSTIFIED MAINLY FOR THE DOMESTIC CONSUMPTION OF POULTRY MEAT. THE ISSUE OF ECONOMIC RATE OF RETURN, WHICH IS DISCUSSED EXTENSIVELY IN THE REPORT IS ONLY A THEORETICAL EXERCISE, BECAUSE THE DOMESTIC PRICING SYSTEM IS DECISIVE FOR FINANCIAL RATE OF RETURN.

B) THE 11-0% FINANCIAL RATE OF RETURN PROVIDING THE REQUIRED LEVEL OF PROTEIN IN THE FEEDS, IS REASONABLE.

THE LOW PROTEIN CONTENT IN THE FEEDS ALTERNATIVE IS ONLY A HYPOTHESIS, BASED ON EXTRAPOLATION OF THE TEMPORARY SITUATION IN 1985 WHICH WAS GREATLY IMPROVED IN 1986 AND 1987, AS A RESULT IT COULD NOT BE REACHED A CONCLUSION ON THE WHOLE PROJECT LIFE FROM THIS POINT OF VIEW.

C) WE DO AGREE THAT THE MOST CRITICAL FACTOR FOR PROJECT EFFICIENCY IS FEED CONVERSION RATE, DETERMINED BY THE LEVEL AND QUALITY OF PROTEIN IN THE FEEDS.

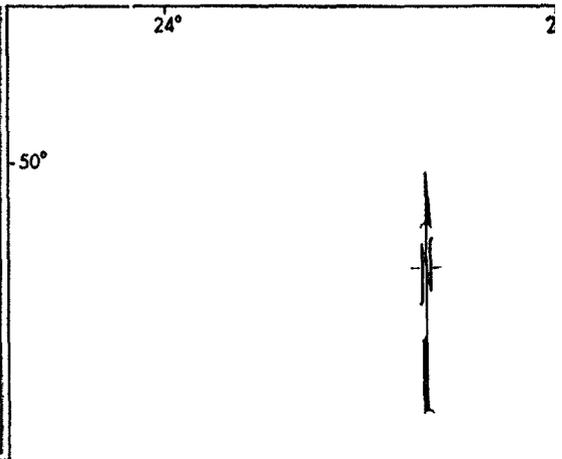
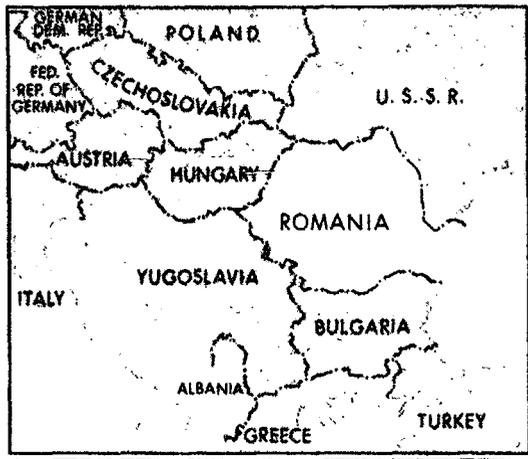
WE WOULD LIKE TO INFORM YOU THAT IN 1986 THE PROTEIN FEEDS PRODUCTION INCREASED SUBSTANTIALLY COMPARED WITH 1985, WHEN ALL THE PROJECT FARMS STARTED OPERATION. IN 1987 IS ESTIMATED A FURTHER INCREASE IN PROTEIN FEED PRODUCTION COMPARED WITH 1986, WHICH IS GOING TO IMPROVE ALSO THE FEED CONVERSION RATE AND THE TECHNICO-ECONOMIC RESULTS OF THE PROJECT.

D) THE MINISTRY OF AGRICULTURE PAYS A GREAT IMPORTANCE TO THE PROVIDING OF HIGH QUALITY FEEDS, THE HEALTH CONDITION AND PREVENTING DISEASES, THE GENETICAL IMPROVEMENT OF BREEDING FLOCK, THE MAIN CONDITIONS FOR REACHING FULL PRODUCTION, AIMING TO ACHIEVE THE ECONOMIC RESULTS ENVISAGED.

3. FINALLY, WE BELIEVE THAT SUCH A PROJECT OF NATIONAL LEVEL AND IMPORTANCE, WHICH HAS BEEN COMPLETED IN THE PRESUMED PERIOD AND WITH THE ESTIMATED COMPONENTS, APPLYING THE TECHNOLOGY AGREED UPON, WITH IMPROVING PRODUCTION AND FINANCIAL RESULTS, WITH ALL THE CONDITIONS TO ATTAIN THE PROJECTED PARAMETERS, IS A SUCCESS BOTH FOR US AND THE BANK.

NICOLAE TREMIA
PRESIDENT

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SOCIALIST REPUBLIC OF ROMANIA LIVESTOCK III (POULTRY) PROJECT

- ▲ Poultry slaughterhouses:
IAS (State)
- Broiler production units (New):
ICA (Cooperative)
- IAS
- Broiler production units (Modernization):
ICA
- Poultry breeding (Broiler):
IAS
- District (Judet) boundaries
- International boundaries



46°

46°

44°

26° 28°

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