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Report No. 1316a-YU

Yugoslavia: Appraisal of
Agriculture and Agro-Industries Project Montenegro
Agriculture and Agro-Industries II Project Macedonia

January 26, 1977

Projects Department
Europe, Middle East and North Africa Regional Office

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CURRENCY EQUIVALENTS *

US$ 1	= Dinars (Din) 18.0
Din 1	= US$ 0.0556
Din 1,000,000	= US$ 55,555.56

WEIGHTS AND MEASURES

1 kilogram (kg)	= 2.20 pounds
1 quintal	= 100 kilograms
1 metric ton (m ton)	= 1,000 kilograms
1 metric ton (m ton)	= 0.98 long ton
1 centimeter (cm)	= 0.39 inch
1 meter (m)	= 1.09 yards
1 kilometer (km)	= 0.62 mile
1 hectare (ha)	= 2.47 acres
1 square meter (m^2)	= 10.76 square feet
1 square kilometer (km^2)	= 0.384 square mile
1 liter (l)	= 0.264 gallon
1 hektoliter (hl)	= 100 liters

ABBREVIATIONS

AK	= Agrokombinat July 13 (Montenegro)
FNP	= Federal Fund for the Accelerated Development of the Less Developed Regions
IBT	= Investiciona Banka Titograd
SDK	= Social Accounting Service
SBS	= Stopanska Banka Skopje
SFRY	= Socialist Federal Republic of Yugoslavia

FISCAL YEAR

January 1 - December 31

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* The Yugoslav Dinar has been floating since July 13, 1973. The currency equivalents given above are those effective in December, 1976.

APPRAISAL OF

AGRICULTURE AND AGRO-INDUSTRIES PROJECT - MONTENEGRO

AGRICULTURE AND AGRO-INDUSTRIES II PROJECT - MACEDONIA

YUGOSLAVIA

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This report is based on the findings of an appraisal mission to Yugoslavia in May/June 1976, consisting of Messrs. Heidhues, Bhargava, Wolffelt and Ms. Hashimoto (IBRD) and Messrs. Gioia and Weinschenck (Consultants).

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SUMMARY AND CONCLUSIONS

i. This report appraises two agriculture and agro-industries projects in two of Yugoslavia's less developed republics, Montenegro and Macedonia. The projects would help achieve the agricultural development objectives of the two Republics, namely: to increase agricultural production both for the growing domestic market and for exports, to raise productivity and income, particularly on private farms, to expand agro-industrial processing capacity, to improve product quality and to stabilize food supply. They address the major agricultural development constraints, i.e. the lack of capital for large investments in land development, irrigation and food processing in the social sector, and the lack of market outlets and credit for the purchase of on-farm investments in the private sector; they would also help strengthen the organization and appraisal/supervision capacity of the two borrowing banks, Investiciona Banka, Titograd (IBT) and Stopanska Banka, Skopje (SBS). The project investments have high priority in the 1976-80 Agricultural Development Plans of the two Republics. They are in line with the Bank's lending strategy for agriculture in aiming at production growth, expansion of processing capacities, support for private farmers and institution building.

ii. The projects would provide credit through IBT in Montenegro and SBS in Macedonia to eleven social sector enterprises and some 1,000 private farmers for investments in agricultural processing facilities and primary production. Processing investments would include wine and wine-by-product processing, cold storage, vegetable and fruit processing, vegetable collection, tobacco drying, dairying and slaughtering facilities; in primary production the project would finance irrigation facilities, vineyard and fruit tree establishments, livestock and vegetable production, and on-farm mechanization.

iii. The two borrowers would be IBT for the proposed loan to Montenegro and SBS for the loan to Macedonia. A project agreement would be concluded with the "Agrokombinat July 13" (AK) in Titograd, which would implement the Montenegrin project. SBS would be responsible for implementing the Macedonian project.

iv. The Montenegrin project would cost Din 1,001 million (US$55.6 million) of which 36% or Din 362 million (US$20.1 million) would be foreign exchange. The Bank loan of US$26 million to IBT would finance the foreign exchange cost and interest during construction on the Bank loan of US$5.9 million. The sub-borrower would contribute 5% of the project cost and IBT would finance the remaining 59% of project cost, of which 20% would be out of resources from the Federal Fund for the Less Developed Regions (FNP) and 39% from IBT's own funds. Interest during the grace period on the FNP funds would be capitalized.

v. The Macedonian project would cost Din 1,008 million (US$56 million) of which 37% or Din 378 million (US$21 million) would be the foreign exchange component. The Bank loan of US$24 million to SBS would finance the foreign exchange cost and interest during construction on the Bank loan of US$3 million. The sub-borrowers would contribute 20% of the project cost. SBS would finance the remaining 43% of project cost as well as interest during construction on its loans.

vi. The onlending interest rate to sub-borrowers on IBRD funds would be 11% p.a. in Macedonia. It would be 9% p.a. to the AK in Montenegro plus a fee of 2% p.a. for guarantee and other charges resulting in an effective rate of 11% p.a. The interest rate on local funds would be the local rate for similar investments prevailing at the time the subloan is made. The maturity for IBRD funds would be 15 years including a 3-year grace period. The repayment and grace periods on the local funds in Macedonia would be determined on the basis of each sub-project's cash flow projection to suit the requirements of the sub-project. In Montenegro the maturity would be 20 years including a grace period of 3 years for FNP funds and 8 years including a grace period of 3 years for IBT's own funds. The foreign exchange risk would be borne by the sub-borrowers for sub-loans to the social sector and by the Government of Macedonia for sub-loans made to private farmers.

vii. The processing facilities (US$18.7 million in Montenegro and US$43.7 million in Macedonia) would be procured by the respective sub-borrowers under international competitive bidding procedures according to IBRD Guidelines, under supervision of IBT and SBS, respectively. The civil works and equipment for the irrigation facilities, infrastructure investments and collection center (US$10.7 million) as well as investments for plantation establishment and on farm-development (US$38.5 million) would be phased over four years and, due to their relatively small individual size, are not likely to be attractive to foreign firms. These items if exceeding US$50,000 would be procured under local bidding procedures, which have proven to be satisfactory to the Bank; items costing less than US$50,000 would be procured through existing commercial channels.

viii. The projects would contribute to achieving the objectives outlined in the Agricultural Development Plans of Montenegro and Macedonia. They would increase production of mainly fruits and vegetables, wine, beef, lamb and milk and milk products, improve food product quality and help stabilize food supply. While the projects' incremental production would largely be marketed domestically, exports of meat, fruits and vegetables would increase foreign exchange earnings by about US$100 million over the projects' lifetime. Total net foreign exchange earnings and savings taking into account the projects' import components would be about US$60 million (at 1976 prices). The projects would generate about 1,800 permanent employment opportunities and reduce underemployment for an additional 23,600 farmers. Almost 55% of the proposed loans would directly or indirectly benefit an estimated 23,600 small farmers of which an estimated 12,000 farmers would belong to the target group with a per capita income of less than US$340 per year. The economic rates of return for the Montenegrin and Macedonian projects, including administrative and training expenses would be 17% and 26%, respectively. These rates do not reflect non-quantifiable benefits including those from improved resource allocation due to training and institution building.

ix. Having received satisfactory assurances as summarized in Chapter VII, the projects would be suitable for a Bank loan of US$26 million, equivalent, to IBT and US$24 million, equivalent, to SBS, both for a term of 15 years, including a grace period of 3 years.

APPRAISAL OF

AGRICULTURE AND AGRO-INDUSTRIES PROJECT - MONTENEGRO*

AGRICULTURE AND AGRO-INDUSTRIES II PROJECT - MACEDONIA*

YUGOSLAVIA

I. INTRODUCTION

1.01 The Government of the Socialist Federal Republic of Yugoslavia and the Governments of the Socialist Republics of Montenegro and Macedonia have requested Bank loans for two Agriculture and Agro-Industries projects. They would provide credit for agricultural processing facilities, including wine and wine-by-product processing, cold storage, vegetable and fruit processing, vegetable collection, tobacco drying, dairying and slaughtering facilities; they would also finance irrigation facilities for the establishment of vineyard and fruit plantations, as well as investments in livestock, fruit and vegetable production, and on-farm mechanization. The projects cover both private farms and social sector enterprises in the less developed Republics of Montenegro and Macedonia. They aim at expanding agricultural production and processing capacities in the two Republics; at improving the marketing of agricultural products, particularly of private farmers' production; at enhancing through credit and extension the productivity and income of the rural population, particularly of private farmers, and at strengthening the appraisal capacity of the borrowing banks. The projects' investments are of highest priority in the 1976-80 Agricultural Development Plans for Montenegro and Macedonia (Annex 1).

1.02 The projects would represent the fourth and fifth Bank loan for agriculture and agroindustries in Yugoslavia, following the first Agroindustries Project in Macedonia (894-YU) in 1973, the first Agricultural Credit Project (1129-YU) in 1975 and the Metohija Multipurpose Project (1360-YU) in 1977. Other IBRD loans for multipurpose projects included small agricultural components. The Montenegrin project was prepared by the FAO/IBRD Cooperative Programme and the Macedonian by Stopanska Banka Skopje.

1.03 This report is based on the findings of an appraisal mission in May/June 1976, consisting of Messrs. Heidhues, Bhargava, Wolffelt and Ms. Hashimoto (Bank) and Messrs. Gioia and Weinschenck (Consultants).

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* In the Annexes of this Report the two projects together are also referred to as AGRICULTURE AND AGROINDUSTRIES II PROJECT YUGOSLAVIA.

II. THE AGRICULTURAL SECTOR

Geography and Climate

2.01 Montenegro and Macedonia are both characterized by extremely mountainous terrain covering 93% of the total area of Montenegro and 75% of Macedonia. These areas are unsuitable for field crop production, but extensive upland pastures make possible sheep and some cattle grazing. The plains and valleys suitable for cultivation allow intensive grain, vegetable and fruit farming. Two basic climatic zones common to both Republics largely coincide with the area delineation between mountains and plains - (i) the Mediterranean (or modified Mediterranean) in the eastern and central parts of Macedonia and the coastal belt in Montenegro, and (ii) the continental climate zone prevailing in the mountainous regions of the two Republics.

Agriculture in the Economy

2.02 Agriculture contributes 15% to the total GMP 1/ of Montenegro and 23% to that of Macedonia, and absorbs 40% and 32% of the active working population of the two Republics respectively. Though agriculture's role has been declining relative to the rest of the economy with the rapid progress of industrialisation, it still remains an important sector in the overall development of the two Republics.

2.03 Agricultural production expanded at an average annual growth rate of 2.8% in Montenegro and 3.6% in Macedonia between 1966 and 1975. In both Republics, fruit and vegetable production grew most rapidly, encouraged by the rising relative prices and increased availability of irrigation facilities. The increase in vegetable production was achieved largely by area extension rather than by yield improvements. On the other hand, the active agricultural population declined by 1.5% annually in Macedonia and by 1.7% in Montenegro between 1961 and 1971. The net result of production growth and labor input decrease was the growth of labor productivity by an average annual rate of about 4.5%.

Organization of the Agricultural Sector

2.04 Agriculture of Montenegro and Macedonia, like that of the rest of Yugoslavia, is characterized by the parallel existence of two sectors - social and private.

2.05 The social sector consists of agricultural kombinats, state farms and agricultural cooperatives (Zadruga) and other organizations such as veterinary and research stations. These organizations operate under the principles of social ownership of the means of production and workers'

1/ The GMP concept differs from the GNP concept, as the former excludes certain services, such as public administration, defense, education, health and social insurance.

self management. In 1973, the social sector held 5% (Montenegro) and 2[illegible]% (Macedonia) of the cultivated land; employed 1.9% (Montenegro) and 8.8% (Macedonia) of the agricultural labor force; produced 8% (Montenegro) and 30% (Macedonia) of the agricultural product; and contributed 35% (Montenegro) and 45% (Macedonia) to the market production in the Republics.

2.06 The social sector has been the dynamic force in the development of modern agriculture in Yugoslavia and, in both Republics, its performance has been remarkable. In Montenegro production in the social sector rose at a trend rate of 5.4% between 1962 and 1975, while in Macedonia, the social sector recorded an average rate above 9% between 1965 and 1975. The main explanations for the rapid growth of the social sector in agriculture are: (i) heavy concentration of investments in this sector, absorbing more than two-thirds of the gross fixed investment in agriculture in the post war period; (ii) a much greater "intellectual input" of university trained workers in the social sector; and (iii) much greater emphasis on research in the social sector.

2.07 The private sector in both Montenegro and Macedonia occupies by far the larger part of the cultivated land and employs more than 95% of the total agricultural labor force. It consists of 62,000 holdings with an average size of 4.9 ha in Montenegro and of about 160,000 farms with an average size of 3.1 ha of cultivated land in Macedonia.

2.08 The production in the private sector increased by 3.2% in Macedonia and by 2.5%-3% in Montenegro, falling far below the performance of the social sector. The major causes for the low productivity and yields in the private sector and the increasing productivity gap between the two sectors are: (a) a generally lower quality of land; (b) lower share in the irrigated area; (c) inferior varieties of seeds, plants and animals; (d) low degree of mechanization; (e) low fertilizer input; and (f) small farm size and scattered holdings.

Cooperation between the Private and Social Sectors

2.09 The private and social sectors are for the most part complementary rather than competitive. Labor-intensive crops, such as vegetables and tobacco, are almost exclusively produced in the private sector, which also has 95%-98% of the cattle and 92%-99% of the sheep. Cooperation between the social and private sectors takes the form of trade in inputs and output, provision of services by the social sector such as supply of fertilizers, harvesting, cultivations, marketing and credit and the contracting of joint-production. While such cooperation brings considerable benefits to the private farmers, it is fairly limited and declining - limited because of the concentration of social sector organizations in the valleys and high plains and consequent lack of cooperation possibilities in the mountains; declining because of the increasing importance of off-farm income of private farmers and the dissemination of new production techniques in the private sector, both factors that make contract cooperation far less attractive to private farmers.

Marketing

2.10 As elsewhere in Yugoslavia, Montenegro and Macedonia have "organized" markets with "authorized purchases" by social sector enterprises existing side by side with "informal" markets where the peasants sell directly to consumers.

2.11 The importance of the organized markets is relatively high in Macedonia because of the orientation of large parts of the private sector's production for delivery to other parts of Yugoslavia or to exports. In 1974, 42% of wheat, 27% of tomatoes, 63% of grapes, 58% of eggs and 73% of mutton were sold in the organized market. Private farmers also form groups to ship significant quantities (especially of early vegetables) directly to local markets of larger cities in the northern Republics. In Montenegro the role of the "organized market" has been less significant, accounting for less than 10% of total production going through the "organized market", reflecting the predominantly subsistence nature of agriculture in Montenegro.

The Agroindustries Sector

2.12 In Montenegro, due to its mountainous topography, agricultural production is low and communications are difficult for effective collection of produce to feed industry. The main agricultural production area is the Cemovsko Polje plain, which will be developed under the Project. Macedonia, on the other hand, is a major producing region within Yugoslavia. Nevertheless, the share of Macedonia in Yugoslavia's total processed vegetable production has declined from about 25% in 1960 to 15-16% in recent years. This is largely due to the fact that the expansion and replacement in the processing industry has not kept pace with the expansion of fresh vegetable production. Both Republics have an undeveloped agro-industrial base.

Development Strategy and Priorities

2.13 Basic Principles. The basic objective of the Agricultural Development Plans for the two Republics is to raise agricultural production to meet expected domestic needs and to allow for some exports by emphasizing (a) the further development of the social sector through modernization of production techniques, expansion of processing facilities, better utilization of available resources and the adjustment of production to changes in demand; and (b) the development of private farms primarily through cooperation with the social sector to ensure further progress in the socialization of agriculture and rural areas.

2.14 Measures. To achieve its objectives, the Plans focus on three areas: (a) price policies, (b) investment policies and (c) support for cooperation between the social and private sectors.

2.15 Investments. Annual investments are expected to reach Din 1.5 billion in Macedonia, more than a 50% increase against the previous plan period, of which 13% would be in the private sector. In Montenegro, the plan calls

for Din 1.5 billion investments for the entire period, of which about one-third is planned in the private sector. Special incentives are foreseen for encouraging mobilization of enterprises' own resources - income tax rebates for agricultural investments, turnover tax exemptions, interest rate subsidies for investment credits, reduction of import duties on imports of agricultural machinery and increase in the foreign exchange retention quota from depreciation charges.

2.16 Production Growth. The Macedonia draft development plan projects for the period 1976-80 an annual production growth rate of 4.5% for the agricultural sector as a whole (8.5% in the social sector and 4% in the private sector). For Montenegro, the growth target is 4.0% for the agricultural sector (7.5% in the social sector and 3.8% in the private sector).

2.17 Evaluation. The Agricultural Development Plans represent the first instance in which Yugoslavia's development policy addresses itself specifically to the problems of private farmers. On the other hand, they recognize the large investment needs in the social sector for irrigation, land development and processing facilities and therefore continue to place the major emphasis on the social sector. The measures outlined for the promotion of the private sector are: (a) increased cooperation between the two sectors and establishment or improvement of the extension service in order to achieve a more rapid transfer of modern technology to the private sector; (b) provision of credit for on-farm investments.

2.18 These measures address the most serious bottlenecks in the development of the social and private sectors. However, the support measures for the private sector are practically limited to farmers that either form an association or cooperate with the social sector on a contractual basis. In this way they will not reach the farmers in the remote mountainous regions, where the social sector is not represented and where the scope for cooperation is limited. Rural development investments with emphasis on infrastructure components would be a pre-condition for improving productivity and marketing of these farms. In addition, socially oriented programs would have to complement production supporting measures, particularly where the natural conditions are most unfavorable for agricultural production. The five year plan apparently realizes these difficulties and hence projects low and realistic growth rates for the private sector. The consequent widening gap in incomes between the two sectors will reinforce the emerging trend for private farmers to seek additional sources of income outside the agricultural sector. But this would present problems for farmers in the mountainous regions who lack alternative economic activities. To reach these farmers specific measures would be necessary including improvement of infrastructure facilities and Government supported credit schemes. The projected growth rates for the social sector seem realistic considering the relatively large proportion of investments in irrigation and the corresponding follow-up investments at the farm level.

III. FINANCIAL AND INSTITUTIONAL ASPECTS

A. Banks: The Proposed Lending Channels

Organization and Management

3.01 The two banks involved in the projects are: Investiciona Banka Titograd (IBT), Republic of Montenegro, and Stopanska Banka, Skopje (SBS), Republic of Macedonia. 1/ SBS was the borrower under the Agroindustries Project - Macedonia (Loan 894 YU). Both banks are participating banks in the First Agricultural Credit Project (Loan 1129 YU) and are borrowers under the First and Second Industrial Credit Projects. 2/ In each case the Founders' Assembly, the apex governing body, establishes the banks' business policy annually. It also appoints the chief executive, i.e. General Manager, and guides the banks' operations. Changes in management are infrequent, and professional competence is the main criterion for selection and appointment at all levels. The staff of the banks appears generally experienced and capable.

Financial Structure

3.02 Most short-term resources consist of deposits and borrowings from the National Bank of Yugoslavia through rediscount facilities. The long-term resources comprise loans from Federal and Republic funds, foreign borrowings, founders' funds and long-term deposits. The short-term commitments generally match the short-term resources. The long-term commitments of both SBS and IBT exceed the long-term resources. However, each bank limits its over-commitments to the amount of resources it is fairly certain to receive as per the Development Plan from the Fund for the Accelerated Development of the Less Developed Regions (FNP) during the period in which it has to meet these commitments. Also the banks' level of liquidity is monitored by the National Bank under its liquidity rules.

3.03 The total assets of IBT and SBS as of December 31, 1975 were Din 10.4 and Din 34.5 billion respectively, representing a growth of 21.5% and 22.4% over the previous year. The long-term loan portfolio accounted for 63.3% (IBT) and 55.8% (SBS) of the total assets. Each bank also manages, at no risk to itself, substantial funds on behalf of Federal and Republic Governments and socio-political organizations. The current ratios of the banks are near 1.1:1 and are satisfactory. The long-term debt/equity ratios are high; 13.7:1 and 6.7:1 respectively for IBT and SBS. The high debt/equity

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1/ The "13 July" Agrokombinat, which is implementing the Montenegrin project, is discussed in para 3.12 below.

2/ Both the SBS and IBT as recent borrowers under the Second Industrial Credit Project (Loan 1277 YU) are described in more detail in the Appraisal Report No. 1058YU.

ratios do not pose a danger to the banks' solvency as most of the long-term debt is loans from Federal or Republic authorities, repayments of which are tied to the corresponding repayments by the enterprises to the banks. Financial structure and performance of the banks is satisfactory, keeping in view that the banks have close ties with their respective regional economies, both in funding and lending operations and they merely seek to earn sufficient revenues to cover all their expenses and financial obligations.

Lending Operations

3.04 Both banks operate as mixed commercial/investment banks and their loan accounts are fairly evenly distributed among enterprises in all sectors of the economy, indicative of a reasonably diversified loan portfolio. An important part of SBS's current loan operations deals with the agricultural sector (of short-term loans 12.4% to agriculture and of long-term loans 8.5%). In IBT, lending to agriculture comprised only 7% of total short-term loans and 3% of total long-term loans. Both banks are the major source of credit to the agricultural sector in their respective Republics.

Portfolio Evaluation

3.05 As agreed under the Second Industrial Credit Project full audits of both banks will be available in two or three years from now (see also para 5.12). Until the full audit reports including an analysis of the banks' portfolios are available, the assessment of the quality of their portfolios is incomplete. However, according to the banks' unaudited balance sheets the arrears as percentages of loan portfolio have been small (1% and 1.9% for IBT and SBS respectively) and are fully covered by each bank's provisions against bad debts (Reserve Fund). An assessment of the banks' exposure to large borrowers and borrowers in default could not be made since the banks' records do not show aggregate loans to an enterprise. This is not a problem for SBS and IBT since they have access to the borrower's financial statement and the list of its debt whenever a request for grant or renewal of a loan is made. However, this information is required by the Bank to evaluate the SBS and IBT's loan portfolio and would be provided under the financial reporting.

Creditworthiness

3.06 Pending full audits, the creditworthiness of SBS and IBT cannot be fully established along conventional lines. However, for the following reasons they are suitable borrowers for the proposed IBRD loan: 1/

(a) The founders have unlimited liability towards the banks' obligations. Creditors of the banks thus have legal recourse to all assets of founders, many of which are large industrial enterprises with substantial assets;

1/ Both banks were accepted as borrowers under the First and Second Industrial Credit Projects (Loans 1012 YU, 1013 YU and 1277 YU).

(b) The banks are closely integrated with the economy of the Republics and their liquidation in case of financial crisis is inconceivable;

(c) The banks have generally qualified and experienced management and staff. Experience shows that both SBS and IBT's financial management has been adequate with no significant losses; arrears have been manageable, and obligations have been met satisfactorily.

(d) The bulk of each bank's long-term debt consists of Federal and Republic funds, which are generally allocated as per regional development plans with repayments by the bank tied to the corresponding repayments by the enterprises. 1/ Thus the high debt/equity ratio is not considered dangerous to the banks' solvency.

Lending Policies and Procedures

3.07 Investment proposals that enterprises submit to SBS and IBT for financing are appraised and approved in a branch office or in the head office, depending on the financing plan and/or complexity of the project. Under IBRD financed projects both banks have considerably improved their appraisal methods. However, several weaknesses remain, particularly insufficient technical appraisal of data and specifications furnished by the loan applicants; inadequate economic and market analysis, and scanty attention to contingency allowances on cost estimates. Strengthening of the technical and financial appraisal capability of both banks for agroindustrial lending would be an institution building objective under the project. Both banks, with some strengthening in staff, are considered capable of submitting adequately appraised projects for financing under the project.

3.08 Systematic supervision is directed by both banks only to problem projects or projects under construction. Supervision is done mostly by the branches of the banks. Both banks need to supervise projects more regularly during and after construction to monitor and analyze the actual results against appraisal estimates, and to take appropriate action where needed. The supervision work needs to be centrally coordinated at the head office to cover various facets of the borrower's dealings with the bank and for effective feed-back to investment and other operational departments. The procurement and disbursement methods are sound.

On-lending Interest Rates

3.09 Interest rates on loans and deposits are fixed each year by each individual bank's Assembly of Founders. The banking structure, where the borrowers are at the same time the bank's major founders (shareholders), has

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1/ In case of genuine difficulty in repayment by enterprises in the past, such loans were converted into grant reducing liability of the bank.

led to relatively low interest rates. Furthermore, Federal, Republic and Communal funds are provided to the banks at low cost with predescribed margins for on-lending or are used to subsidize interest rates. While the Yugoslavs consider low interest rates on investment credits important for encouraging investments and use subsidized rates to channel resources into priority areas, low interest rates, inter alia, may have contributed to excess demand for investments with in the past inflationary effects, to the choice of highly capital-intensive production techniques, and to overdesign of investment projects. They may have also negatively influenced resource mobilization. These issues are addressed in an Interest Rate Study recently completed by Vojvodjanska Banka under the First Agricultural Credit Project (1129-YU). The Study will be the basis for a discussion with the Yugoslav Authorities on the impact of the existing interest rate regime on resource allocation and mobilization in the agricultural sector and on appropriate measures to improve resource allocation and mobilization in the sector.

3.10 Interest rates for long-term loans to agriculture in the two Republics vary from 5%-5.5% on loans made out of Federal funds up to 11.5% on loans from the banks' own resources, with most of the lending done at 7%-8%. Interest rates for investments in priority subsectors may be subsidized to even lower levels such as 3% for irrigation in Macedonia. These interest rates are reviewed and could be revised every year. The present interest rates imply negative real rates given the high rate of inflation (25% in 1974, 18% in 1975 and 11%-12% estimated for 1976).

Forecasts

3.11 The investment planning in SBS and IBT is limited to one year within the framework of their annual business policy. Both banks prepared five-year projections of their operations and resources based primarily on the Plan (1976-80) for their regions. However, these projections are tentative and have high margins of error. For the Plan period 1976-80 the projected resource gaps of 30% and 35% of the total long-term resource requirements of IBT and SBS respectively are high but expected to be filled largely with unidentified foreign borrowings. However, considering the caution exercised in use of long-term resources (para 3.02) no difficulty is anticipated in both banks being able to discharge their financial obligations under their respective projects. The funds they need for the projects will come mainly from Federal funds, which are assured under existing agreements. Also the amount involved is small relative to overall operations of the banks. The projected income statements and balance sheets (Annex 3, Tables 9 through 12) indicate satisfactory debt-service coverage through 1980 and the current ratio of a little above 1:1. Both banks are also expected to remain creditworthy in future years.

B. "Agrokombinat July 13"

3.12 The "Agrokombinat July 13" (AK) is, as the sole sub-borrower under the Montenegrin project, responsible for the physical execution of the project. It was created in 1963 by amalgamation of small agricultural production

and processing units. With its 2,800 employees it is the largest of four agrokombinats in Montenegro. It is an autonomous body structured along the lines of social sector enterprises and managed by its workers, with the status of legal person with mortgage and sale rights for the assets. Its workers' council is the apex body which decides the basic policy of AK and is composed of members elected from amongst the employees. The General Manager is the chief executive of AK and apointed by the workers' council. He is elected for four years with the possibility of re-election. The management of the AK appears competent. The operations of the AK are carried out by 26 basic economic units (WB Chart 16334). The AK is engaged in a broad spectrum of activities covering primary agricultural production (crop production, milk and livestock production, and plantations), agro-processing industries (slaughterhouses, bakeries, fisheries, flour mills, winery, dairy and feed mills), and marketing services (cooperative marketing, supermarkets, retail and wholesale sales centers). It has substantial experience in irrigation, fruit tree and vineyard operations and wine production; it has also conducted for about six years pilot operations in the project area in vine yard and fruit tree production, focussing on experiments with grape and tree varieties, water and fertilizer applications and cultivation methods. The financial position of AK, although small, is sound and its financial performance has been satisfactory. In the context of the self management system prevailing in Yugoslavia, the financial objective of the AK is to maximize the average net income per worker. Net income increased from Din 38 million in 1973 to Din 110 million in 1975. The average net income per worker was Din 35,500 in 1974 and increased to Din 39,500 in 1975.

C. Performance Under the Macedonia Agroindustries and the First Agricultural Credit Projects

3.13 The objective of the Macedonia Agroindustries Project, to assist in financing part of Macedonia's Agricultural Development Program relating to investments in the social sector (livestock, agroindustry, storage and fish ponds) and the private sector (farm mechanization, plantations, livestock and vegetable production) was generally achieved up to the Bank's expectations and appraisal report estimates. Three studies were undertaken under the project to provide a clearer understanding of private farm operations and productivity improvement opportunities, marketing prospects for agricultural products and further needs and benefits of various irrigation schemes. All loan funds (US$31 million) under the Project have been committed and the implementation of sub-projects is progressing satisfactorily. Disbursements have reached US$22.80 million, or 74%. Delays in the implementation of some sub-projects occurred because of procurement problems, which, for the most part, have been successfully resolved, and heavy cost overruns (63% over appraisal estimates) accompanied by difficulties in obtaining additional financing. However, the rate of disbursements has significantly improved recently and the actual disbursements as percentage of appraisal estimated disbursements have improved from a low of 38.8% in early 1975 to 90% in mid-1976. The loan is expected to be fully disbursed by June 1978 as per appraisal estimate.

3.14 The physical execution of the project has basically conformed to the number and purposes envisaged in the Appraisal Report. Of the 43 sub-projects envisaged and actually approved in the social sector, 21 are completed, 16 are nearing completion by the end of 1976 and 6 have not started yet. The funds for sub-loans to the private sector through kombinats and cooperatives are also fully committed and there is a carry over of loan applications which will be covered under this project and the Agricultural Credit Project (Loan 1129-YU). The three studies under the project are completed and are being reviewed. The marketing and small farm credit studies have contributed significantly to the development and appraisal of this project. SBS has fulfilled all loan covenants satisfactorily.

3.15 Under the project the Agriculture and Forestry Loan Department of SBS was reorganized and strengthened to more effectively handle its lending operations. The appraisal procedures of SBS were streamlined to overcome the major weaknesses and the appraisal reports have shown consistent improvement, although some weaknesses still remain. The accounting and disbursement procedures followed under the project were satisfactory. The progress in developing appropriate management information systems and regular supervision has been less than satisfactory. Greater attention will be focused on management information systems, regular supervision and adequate review and provision for effects of inflation on costs. SBS's borrowing relationship with the Bank has been helpful in gaining entry into foreign capital markets; and arranging foreign co-financing for sub-projects.

3.16 The First Agricultural Credit Project included SBS and IBT as participating banks. They were responsible for implementing the project in Macedonia and Montenegro, respectively. Of the amount allocated to Macedonia (US$5.1 million) and Montenegro (US$0.7 million) 49% and 40% respectively were committed as of December 1976. Commitments for social sector subprojects are running ahead of those for the private sector, due largely to institutional arrangements in Yugoslavia, but a substantial pipeline of private sector subprojects should ensure the desired balance.

IV. THE PROJECTS

A. Summary Description and Objectives

4.01 The projects would provide credit to support Montenegro's and Macedonia's long-term objectives of self-sufficiency in and increased exports of agricultural production. They would make funds available through IBT and SBS for credits to eleven social sector enterprises and some 1,000 private farmers for investments in agricultural processing facilities and primary production. Processing investments would include wine and wine-by-product processing, cold storage, vegetable and fruit processing, vegetable collection, tobacco drying, dairying and slaughtering facilities; in primary production

the project would finance irrigation facilities for and the establishment of vineyard and fruit plantations, as well as investments in livestock, fruits and vegetable production, and on-farm mechanization. Detailed project descriptions and investment models are given in Annexes 4-7.

4.02 The projects would help achieve the Republics' agricultural development objectives to increase agricultural production for the domestic market and exports, to expand agroindustrial processing capacity, to improve product quality, to stabilize food supply and to raise productivity and income, particularly on private farms. The investments have priority in the 1976-80 Agricultural Development Plans of Montenegro and Macedonia. Major constraints to the further development of agriculture in the two Republics would be alleviated, i.e. for the social sector, the lack of capital for large investments in land development, irrigation and processing facilities and, for the private sector, the lack of market outlets and credit for the purchase of on-farm investments including better quality breeds, seeds, fertilizers and agricultural machinery. The investments in processing facilities and in fruit production, livestock and mechanization are expected to result in increased production of mainly wine, table grapes, peaches, sour cherries, potatoes, tomatoes, peppers, cucumbers, milk and meat. The investments in wine processing, fruit and vegetable production and processing and livestock production and slaughtering facilities would also enhance export possibilities. Expansion of the social sector's processing and marketing facilities would create improved marketing outlets for private farmers' production and promote cooperation between the social and private sectors. The projects would also aim at strengthening the organization and appraisal and supervision capacity of IBT and SBS.

B. Detailed Features

Montenegro

4.03 Project Components. This project would provide for (i) the establishment of a 2,000 ha sprinkler irrigation system in Zone C of the Cemovsko Polje plain, owned by AK and located south of Titograd, using both groundwater and Lake Skadar water; (ii) land preparation for and planting of 1,300 ha of vineyards with wine and 200 ha of vineyards with table grapes, 200 ha of peach and 300 ha of sour cherry plantations, and 60 ha of windbreaks; (iii) 14 km farm roads, equipment sheds and supporting facilities and experimental research on new fruit tree varieties (30 ha); (iv) a winery with an annual capacity of 10 million liters including byproduct processing facilities; (v) a 3,000 m ton cold store with blast freezing, grading and packing facilities for fruits and vegetables; and (iv) a collecting center with a total of 500 m2 collecting and storage space in the neighboring area. Preliminary design work on the irrigation system, plantations and winery and cold stores has been completed. However, on the appraisal mission's suggestion the irrigation system would be modified to a simpler and less capital-intensive design: the Lake Skadar water would be pumped into a reservoir from where it would serve the distribution system by gravity, instead of being pumped directly to the sprinkler

network; and the distribution equipment would consist of portable aluminum pipes and sprinklers, instead of a heavy "boom o rain" equipment. A detailed description of the individual components is given in Annex 4, para 17.

Macedonia

4.04 Project Components. This project would include (i) processing facilities in the social sector including a dairy plant, slaughterhouse, potato cold store and fruit and vegetable processing facilities; and (ii) investments for the private sector in grape and fruit production, plastic greenhouses and mechanization for vegetable production, livestock and tobacco drying facilities. Subloans would be provided for buildings and related infrastructure, processing equipment, agricultural machinery, plantation establishment and high quality livestock. Investments would be phased over a four year implementation period. US$100,000 would be provided to finance a feasibility study for a wholesale marketing center in Macedonia, proposed in the marketing study conducted under the Macedonia Agroindustries I Project (894-YU). A detailed description of individual components is given in Annex 6, Chapter A.

C. Cost Estimates

4.05 Total project cost for the Montenegrin project is estimated at Din 1,001 million (US$55.6 million) of which Din 361.6 million (US$20.1 million) would be the foreign exchange component. Total project cost for the Macedonian project is estimated at Din 1,008 million (US$ 56 million) of which Din 378.4 million (US$21 million) would be the foreign exchange component. Details of investment costs are shown in Annex 5 for Montenegro and in Annex 7 for Macedonia and are summarized on page 14.

4.06 Cost estimates are based on May 1976 costs. A physical contingency of 15% for the irrigation and 5% for the other components (averaging 5.4%) and a 49.2% price contingency have been added to the Montenegrin project; and an average 5% physical contingency and an average 30.4% price contingency have been included in the Macedonian project costs to meet expected inflation in foreign and local costs during the implementation period.

Investment Items	Project Cost: Local	Foreign	Total	Local	Foreign	Total	Foreign Exchange %
	-------Din Million-----			--------US$'000--------			
A. MONTENEGRO							
Plantation Establishment	189.4	79.2	268.6	10,523	4,401	14,924	29
Irrigation Facilities	48.7	47.6	96.3	2,706	2,646	5,352	49
Agri. Mach. & Equipment	11.4	9.6	20.9	631	533	1,164	46
Infrastructure	17.9	2.6	20.6	997	145	1,142	13
Winery	98.0	75.4	173.3	5,441	4,186	9,628	43
Cold Store & Collection Ctr.	40.1	20.2	60.4	2,228	1,125	3,353	34
Total(at 1976 prices)	405.5	234.6	640.1	22,526	13,036	35,562	37
Contingencies: Physical(5.4%)	19.4	15.0	34.4	1,075	831	1,906	43
Price(49.2%)/1	214.8	112.0	326.8	11,935	6,220	18,155	34
Total Project Cost Montenegro	639.7	361.6	1,001.3	35,536	20,087	55,623	36
B. MACEDONIA							
Social Sector							
Dairy Plant	25.6	17.0	42.6	1,424	947	2,371	39
Cattle/Sheep Slaughterhouse	46.7	33.0	79.7	2,595	1,834	4,429	41
Potato Cold Store	35.3	19.3	54.6	1,961	1,073	3,034	35
Veg. Processing Plant	51.3	36.8	88.1	2,849	2,045	4,894	41
Veg. Drying Plant	100.8	69.4	170.2	5,598	3,855	9,453	40
Apple Processing Plant	76.2	68.1	144.3	4,236	3,782	8,018	47
Sub-Total	335.9	243.6	579.5	18,663	13,536	32,199	42
Private Sector							
Fruits & Vegetables	24.6	8.2	32.8	1,368	455	1,823	25
Mechanization	33.4	9.1	42.5	1,856	504	2,360	21
Livestock	35.1	8.0	43.1	1,950	443	2,393	19
Tobacco Drying Facilities	32.0	7.2	39.2	1,780	402	2,182	18
Sub-Total	125.1	32.5	157.6	6,954	1,804	8,758	21
Market Center Study	--	1.8	1.8	--	100	100	100
Total(at 1976 prices)	461.0	277.9	739.0	25,617	15,440	41,057	37
Contingencies: Physical(5%)	20.7	13.3	34.0	1,152	739	1,891	39
Price(30.4%)/1	147.7	87.2	234.9	8,203	4,845	13,048	37
Total Project Cost Macedonia	629.5	387.4	1,007.9	34,972	21,024	55,996	37

1/ Calculation of price contingencies is based on applying the following estimated inflation rates:

Year	Foreign Exchange Component: Equipment	Civil Works	Local Component
1976	9	13	12
1977-79	8	12	12
1980-85	7	10	10

D. Financing

4.07 The financing plan for the projects is shown below.

	Sub-borrowers	Local Bank	IBRD	Total
		Din million		
A. Montenegrin Project				
Project Cost	54.0	585.7	361.6	1001.3
		US$ million		
	3.0	32.5	20.1	55.6
(Percent of total)	(5.4)	(58.5)	(36.1)	(100.0)
Interest During Construction	-	1.8	5.9	7.7
Total Financing Required	3.0	34.3	26.0	63.3
		Din million		
B. Macedonian Project				
Social Sector	157.5	334.4	295.7	787.6
Private Sector	43.7	93.9	82.7	220.3
Total Project Costs	201.2	428.3	378.4	1,007.9
		US$ million		
Total Project Cost-Macedonia	11.2	23.8	21.0	56.0
(Percent of Total)	(20)	(43)	(37)	(100)
Interest During Construction	-	3.2	3.0	6.2
Total Financing Required	11.2	27.0	24.0	62.2

The Bank loans would be in amounts of US$26 million for the Montenegrin project and US$24 million for the Macedonian project (in each instance the loan is expected to finance 100% of foreign exchange cost and interest during construction on the Bank loan). The loan for Montenegro would be made to IBT, which is familiar with administrative and disbursement procedures for IBRD loans, for 15 years including three years of grace for on-lending to AK. The loan for Macedonia would be made to SBS also for 15 years including three years of grace for on-lending to sub-borrowers. The local financing for the Montenegrin project would be provided by IBT (US$34.3 million, equivalent) and AK (US$3 million, equivalent). IBT's loan would be funded from the FNP fund (US$12.9) and from its own resources (US$21.4). The FNP funds would be onlent

to AK with a 20 year maturity including a three year grace period on a "staggered basis", i.e. counting the full grace and maturity period from the time of disbursement; interest during the "staggered" grace period would be capitalized. IBT's own funds would have an eight year maturity with three years of grace, again applying the "staggered" system; interest on these funds would not be capitalized. The Government of Montenegro would cover any deficit that may occur in AK's cash flow during the lifetime of the loan. 1/ The local financing for the Macedonian project amounting to 43% of individual sub-project cost would be provided by SBS; the grace and maturity periods would be adjusted to the needs of individual subprojects. Subborrowers would contribute a minimum of 20% of subproject costs. IBT and SBS would also finance any cost overruns that may occur in their respective projects. Assurances on these financing terms were obtained during negotiations.

4.08 Both projects require financing of interest during construction. The Montenegrin project investments in vineyards and fruit tree production have a long gestation period and, therefore, a slow build up of cash flow as shown in the project's cash flow projections (Annex 5, Table 4). The individual processing investments in Macedonia also will not produce revenues for the first three years and, taking into account their phasing over the project's implementation period, would require financing of interest during construction for four years. The subproject cash flows are given in Annex 7, Tables 4, 7, 10, 13, 16 and 19, and Annex 10, Table 2 for the total project. Without the inclusion of interest during construction financing of US$5.9 million and US$3 million in the Bank's loans to IBT and SBS respectively, the cash flow position of the beneficiaries and of the borrowers would be imprudently stretched in meeting their obligations including the servicing of the proposed Bank loans. With the inclusion of interest during construction on the proposed Bank loans and the financing arrangements discussed in para 4.07, the subborrowers' repayments under the two projects would be sufficient to enable IBT and SBS to repay the respective IBRD loans within 15 years with three years of grace and level payments of principal.

E. Disbursements

4.09 Bank disbursements would extend over about 6 years in Montenegro and 5 years in Macedonia. An estimated disbursement schedule is given in Annex 9. Disbursement of the IBRD loan in Montenegro would be made against 100% of foreign expenditures or 36% of local expenditures, up to a maximum of 36% of total project cost. In Macedonia the IBRD loan would be disbursed against 100% of foreign expenditures or 37% of local expenditures, up to a maximum of 37% of the total cost of subprojects, as well as 100% of foreign expenditures for the market center study. Disbursement requests would be supported by full documentation including procurement contracts in both

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1/ Such deficit is projected to amount to about US$18 million, equivalent, during 1982 to 1987 and would require terms similar to those on which the FNP funds are lent to AK.

Montenegro and Macedonia except for SBS subloans to private farmers for which IBRD would disburse against certificates of expenditure. For the latter, documents and contracts would be available for review by IBRD during supervision. Assurances on these disbursement procedures were obtained during negotiations.

F. Procurement

Processing Facilities

4.10 The winery and cold store in Montenegro (US$18.7 million) would be procured by AK and the processing facilities in Macedonia (US$43.7 million) by the respective sub-borrowers under international competitive bidding procedures according to IBRD Guidelines, under the supervision of IBT and SBS, respectively. These facilities, except the tobacco drying sheds, would be procured under a turnkey contract since the civil works need to be closely integrated with the electrical-mechanical equipment. Domestic manufacturers would receive a 15% margin of preference or the actual level of import duty, whichever is less, in bid comparisons.

Irrigation Facilities, Collection Centers and Infrastructure in Montenegro

4.11 The civil works and equipment for the irrigation facilities (US$8.7 million) would be grouped into five contracts. The contracts would be phased over four years and too small to attract foreign firms. The infrastructure investments and collection center (US$2.0 million) are simple structures mainly of civil works which due to their relatively small size are not likely to be attractive to foreign contractors. These items would be procured, by AK under IBT supervision, under local bidding procedures, which apply nationwide and which have proven to be satisfactory to the Bank under ongoing projects. The Bank would receive copies of draft designs for review and all contracts as well as the bid evaluation reports.

Items for Plantation Establishment and On-Farm Development

4.12 Items for plantation establishment and on-farm development (US$38.5 million) would not be suitable for bulk procurement and international competitive bidding because investments would be phased over 4 years and, in Macedonia, dispersed throughout the Republic. Subborrowers would, under the supervision of IBT and SBS, purchase equipment, fertilizer, seeds, planting material, livestock and construction materials costing less than US$50,000 directly through existing commercial channels, which include both domestic and international suppliers. The total of such direct procurement would be about US$8.5 million. Such items exceeding US$50,000 (totalling about US$30 million) would be procured by the sub-borrowers under IBT's and SBS's supervision through local bidding procedures. The Bank would receive contracts and bid evaluation reports on all items except those for on-farm investments in the private sector (see para 4.09). Machinery and equipment dealers maintain adequate supplies of spare parts, provide services and repair facilities

and are suitably competitive. During negotiations assurances were obtained that the procurement procedures outlined in paras 4.10 through 4.12 would be followed.

G. Environmental Impact

4.13 The project is not expected to have significant adverse environmental impact on the project area. All processing facilities would have adequate effluent treatment facilities.

V. PROJECT IMPLEMENTATION

A. Organization

5.01 The proposed loans would be channelled through IBT for the Montenegrin and SBS for the Macedonian project. The IBT loan would finance investments of AK, which would be responsible for the implementation of the Montenegrin project. A project agreement with AK would detail its responsibilities. Accordingly IBT's role would be limited, apart form providing part of the financing, to loan administration and financial coordination and supervision. On the other hand, the loan to SBS would finance investments of numerous social and private sector subborrowers and, therefore, SBS would be responsible for implementing the Macedonian project.

5.02 IBT's organization (with some staff strengthening as discussed below), financial condition and operating policies are adequate for its role under the project. IBT's IBRD Operations Unit, which handles all work relating to lending under IBRD financed projects, would also be responsible for this project. The unit consists of five experienced economists and, for agricultural work, it draws on the expertise of an agroindustries engineer and an expert in agronomy/forestry from its Technical Group. Short-term consultants are hired when needed. To handle the increased work load under this project, the Unit's staff would need to be increased, to administer efficiently the proposed loan. Assurances were obtained during negotiations from IBT that it would appoint to the Unit a qualified and experienced agriculturist/agro-industries expert and a senior credit officer by September 1, 1977.

5.03 The Agricultural Operations Department in SBS is responsible for implementing the first Agroindustries Project. It has sufficient expertise in agriculture, livestock, irrigation and economic and financial analysis areas. However, experience under the first Agroindustries Project indicates continued weaknesses in appraising agroindustry subprojects, particularly their technical and marketing aspects and in international procurement. The SBS needs to strengthen the staff in its Agricultural Department by appointing an agroindustries specialist and a marketing specialist both

to improve the appraisal analysis and to handle the increased volume of business under the project. It also needs outside technical assistance in international procurement. Furthermore, the coordination between different departments of SBS under IBRD financed projects needs to be improved to avoid delays in project implementation. To carry out effectively the supervisory and administrative functions with respect to the project, the SBS would form and maintain a unit staffed by five senior staff members. The unit, to be headed by an Assistant General Manager of the SBS, would also include the Director and Assistant Director of the Agriculture Loan Department and a representative each from the Disbursement and Collection and the Foreign Exchange Department. During negotiations, assurances were obtained from SBS that it would by September 1, 1977, appoint a qualified and experienced agroindustries and a marketing specialist, employ consultants acceptable to the Bank to assist in international procurement and form a coordination unit as described above. With these proposed additions in staff and organization, together with its satisfactory financial condition and operating policies (Chapter III), SBS would be adequately equipped to implement the project efficiently.

5.04 A Project Unit, organized as a Basic Organization of Associated Labor (BOAL), would be created within AK for the implementation of the project in Montenegro. The Unit would include the Project Unit Director and qualified irrigation engineers, agronomists and procurement specialists and employ consultants for specific technical and international procurement matters. The Unit would have an executive committee consisting of: General Manager of the Agrokombinat, who will also be the President of the executive committee; Director and Division Chiefs of the Project Unit; Director of the internal bank of AK; and the Director of the Agro-Economic Institute of AK. The executive committee would be responsible for the Unit's operating policies and procedures and supervise the project implementation. It would also play a coordinating role between AK, the Secretariat of Agriculture and IBT. The detailed organization of the Unit is described in Annex 3. Assurances were obtained that AK would establish the Project Unit as described above prior to effectiveness of the proposed loan, and continue to maintain it until completion of the project. The Director of the Project Unit has been designated and participated in the negotiations. Assurances were obtained at the time of negotiations that by September 1, 1977, the AK (i) would appoint other key staff, appropriately qualified and experienced, and (ii) would hire consultants, acceptable to the Bank, for irrigation work and procurement matters. After the project's implementation, its facilities would be transferred to the Agrokombinat's respective operating units. These units are adequately organized and staffed, and follow satisfactory policies to warrant efficient operation of the project facilities.

Training and Technical Assistance

5.05 A course in appraisal criteria and techniques used in Agro-industries and Agriculture credit projects would be organized by SBS. IBT would be invited among other banks to participate in the seminar. SBS would also organize a procurement course with participants including staff of the AK and other social sector enterprises likely to be sub-borrowers under the project as well as IBT and other interested banks. The courses would be

held prior to March 1, 1978, and their contents would be acceptable to the Bank. Assurances to this effect were obtained during negotiations. Efforts would also be made to train SBS and IBT staff in agro-industrial lending through participation in EDI courses.

B. Policies and Procedures of Projects Sub-lending

Appraisal Criteria

5.06 The IBT and the SBS would appraise the sub-projects and make the sub-loans following the on-lending policies, procedures, terms and conditions described in Annex 12. In summary, IBT would review AK's loan applications taking into account particularly possible changes in the economic and market environment, and the project's and AK's financial situation. SBS would appraise each subproject paying particular attention to their technical, financial and economic viability, to the marketing and supply aspects, the inclusion of adequate contingency allowances and the creditworthiness of the subborrowers. Assurances to this effect were obtained during negotiations.

5.07 Assurances were obtained that IBT and SBS would ensure that the seasonal credit requirements of each sub-borrower during the implementation of the sub-project would be met.

On-lending Interest Rates

5.08 The interest rate for on-lending the IBRD funds under the Montenegrin project would be 9% p.a. plus a fee of 2% p.a. for guarantee and other charges resulting in an effective rate of 11% p.a. It would be 11% p.a. in Macedonia. The interest rate on local funds would be the local rate for similar investments prevailing at the time the subloan is made. The foreign exchange risk would be borne by the sub-borrowers in the social sector and by the Government of Macedonia for sub-loans made to private farmers. The banks would take adequate steps to protect themselves against the exchange risk of the foreign exchange surplus accruing to them from sub-loan repayments occurring earlier than amortization payments of the Bank loan. Assurances on these arrangements were obtained during negotiations.

Free Limit

5.09 The IBT would grant the sub-loans to AK after reviewing the updated loan applications. The sub-project has been fully appraised by IBRD and normal control on implementation and design will be exercised through Bank approval of tender documents and in terms of the Project Agreement with AK. On these premises no prior approval by the Bank for the granting of sub-loans to AK by IBT would be necessary, unless a major change in project design would occur.

5.10 In view of SBS's continued weaknesses in sub-project appraisal (para. 5.03), it would forward to IBRD its appraisal reports for social sector sub-projects whose project costs exceed US$1.5 million, for review

and approval. In addition, the SBS would forward to IBRD for approval also subprojects in the private sector having an aggregated investment cost above US$1.5 million. This would result in the Bank reviewing about 6-7 subprojects for a total amount of US$ 45.0 million, or about 80% of the Macedonian project. Assurances to this effect were obtained during negotiations.

C. Project Monitoring

Audit

5.11 The IBT and SBS each would maintain an account for its respective project. This would include disbursements made under the projects for all sub-loans.

5.12 As required by Yugoslav law all banks and enterprises are audited annually by the Social Accounting Service (SDK). Normal audit by SDK, which is limited to verification of cash balances and checking of financial statements for mathematical accuracy and comparisons with previous years, does not conform to internationally accepted standards. SDK has implemented a training program for its staff, with the Bank's support, to undertake internationally accepted audits of Yugoslav banks including SBS and IBT. A reclassification of the accounts of SBS and IBT was done by SDK for the year 1974 to eliminate double counting. Interim audits of the 1975 accounts of SBS and IBT have been done. Full audits with audit opinion on both banks are expected in about 2 to 3 years as per schedule agreed under the Second Industrial Line of Credit (Loan 1277-YU). Assurances were obtained from both SBS and IBT that they would submit audit reports satisfactoty to the Bank, within four months from the end of each fiscal year. Assurances were also obtained that the banks will compile and furnish information on their loan portfolios in such a fashion as to enable analysis of the quality of the loan portfolio.

5.13 The AK would maintain separate accounts for transactions under the project and submit annual audit reports acceptable to the Bank within four months of the end of each fiscal year. Assurances to this effect were obtained during negotiations.

Supervision

5.14 SBS and IBT need to strengthen their supervision system to ensure adequate technical and financial supervision of sub-projects during and after construction. SBS would also require the social sector sub-borrowers and the social sector enterprises borrowing on behalf of private farmers, to submit SDK certified financial statements within six months of the end of each fiscal year. Assurances to this effect were obtained during negotiations.

Reporting Requirements

5.15 The SBS and the IBT would provide the Bank within 3 months after the end of each quarter and year, respectively, with quarterly and annual reports covering the progress of the projects, sublending operations under the projects, the financial statement, including all necessary information required to assess the quality of their loan portfolio and general data on agricultural and economic policy and market and financial environment affecting the implementation of the projects. AK would submit through the IBT to the Bank quarterly progress report on the physical execution of the project. The SBS, IBT and the AK would set up project monitoring systems by March 1, 1978, to be designed on the basis of the study on project impact undertaken under the First Agroindutries Project Macedonia and acceptable to the Bank and would, on completion of the projects, evaluate the project benefits and assess the economic impact thereof. Assurances to these effects were obtained.

D. Retroactive Financing

5.16 To start implementation expeditiously and to avoid delays AK intends to appoint consultants for the detailed irrigation design work, order rootstocks for the first 200 ha of vineyards and purchase machinery for land development prior to the expected signature date of the proposed loan to IBT. The appointment of the consultants and procurement of the goods would be done in accordance with Bank guidelines. Retroactive financing for these expenditures up to an amount of US$300,000 is recommended under the IBT loan.

VI. BENEFITS AND JUSTIFICATION

A. Production, Markets and Prices

6.01 Production. The incremental annual production generated by the projects would be:

Primary Production	Macedonia	Montenegro
	m-tons	
Vegetables	8,000	-
Grapes, Peaches, Apricots and Cherries	3,800	28,500
Beef and Mutton /1	930	-
Milk	2,700	-
Wool	90	-
Tobacco	800	-
Frozen and Processed Products		
Wine (Tsd. Lit)	-	9,560
Cold stored and packed table grapes, peaches and vegetables	-	3,600
Frozen and packed sour cherries and vegetables	-	4,800
Processed apples and vegetables	64,000	-
Cold stored and packed potato	5,500	-
Milk and dairy products	12,800	-
Beef, mutton and lamb	4,195	-

/1 About 50% of the beef and mutton would be slaughtered in the project-financed slaughterhouse.

The total value of annual incremental production at full development is estimated at Din 650 million (US$36 million) at 1976 prices. The incremental primary production in the private sector would result from expanded area, increased number of animals and increased yields ranging from 21% for beef to 59% for milk (Annex 7).

6.02 Raw Material. The winery and cold store in Montenegro would depend for their raw material supplies on AK's production of wine grapes, table grapes, peaches and sour cherries; and on the private farmers' vegetable production from the neighboring areas. At full development, 14,700 m tons of wine grapes would be converted into 9.56 million litres of wine; and 100 m tons of table grapes, 2,000 m tons of peaches; and 200 m tons of sour cherries would pass through the cold store. In addition, 3,400 m tons of vegetables from private farmers would be collected and stored in the cold store.

6.03 The social sector processing units in Macedonia would receive their raw material from social sector enterprises and private farmers, including those financed under the project. Processing facilities have been a major constraint on increased production and marketing, particularly for the private sector; adequate supplies for the processing plants would be secured.

6.04 Markets. Most of the incremental production of commodities financed under the projects would be marketed domestically. With Yugoslavia's GNP expected to rise substantially and further increases in tourism, the market prospects for the projects' production are good. Some early vegetables and fruits, particularly peppers, tomatoes, table grapes, peaches and cherries

as well as a substantial amount of the processed products, notably apple juice concentrate, apple puree, frozen cherries and processed tomatoes, would be exported, both to Western European and COMECON markets. The incremental sheep production and the slaughterhouse investments in Macedonia would assure continuity and expansion of exports to Italy and Greece and enable Macedonia to exploit more fully new export markets in Arab countries in North Africa and the Middle East. Expanded tobacco production would largely supply the domestic market. A detailed discussion of market aspects of the projects' commodities is given in Annex 2.

6.05 Wine to be produced under the Montenegrin project, equivalent to about 2% of Yugoslavia's present production, would be marketed mainly domestically. Demand for wine is projected to increase at about 6% p.a. 1/ and somewhat higher for the project's high quality "Vranac" wine. The strong demand for Vranac, as indicated by prices considerably above those for other wines, is expected to continue. While export markets for ordinary wines are stagnating or even decreasing, about 15% of the project's wine production, which would qualify for the "appellation controlee" label of the Yugoslav Wine Fund 2/, would have good market prospects in Western Europe and the United States.

6.06 Prices. Farmgate prices as well as farm input prices with few exceptions have, in practice, been determined by demand and supply. The Government's efforts to contain increasing prices have failed, largely because of the inadequate price control mechanisms (Annex 1, paras 32 and 33). The incremental production from the projects, which would result in substituting for or reducing the growth of imports, or supplying otherwise not satisfied needs, would not induce a reduction in producer prices since the expected demand increase is likely to exceed the additional production. Thus rising farmgate prices due to excess demand are expected, but they would increase less than without the projects.

B. Financial Benefits

6.07 Under the Montenegrin project, the winery sub-component is projected to generate a financial rate of return of 13% and the fruit orchards and cold store component 17.7%. The sensitivity analysis shows that the financial rates of return would range from 10.1% to 16.2% if the investment, or operating costs were to increase or the benefits to decrease by 10% (Annex 5). In Macedonia the financial rates of return of the investments vary between 13%

1/ Demand on organized markets, which are supplied by social sector enterprises.

2/ The Yugoslav Wine Fund awards the appellation controlee grade in accordance with the methodology prescribed by the Office International du Vin, of which Yugoslavia is a member.

and 28% (Annex 7). The sensitivity analysis yields the following: if investment costs would increase by 10% the financial rates of return would vary between 11% and 24%; an increase in operating expenses by 10% would result in financial rates of return between 11% and 25%; and if revenues were to drop by 10% the rates would range from 8% to 21%. All calculations are based on April 1976 Yugoslav prices for both inputs and outputs.

6.08 In Macedonia about 10 social sector enterprises and 960 private farmers would receive credit under the project. The annual incremental income of social sector enterprises at full development would be US$28 million, raising the income of the workers' families by an average of about 63%. In the private sector, the farm families' total annual income would increase by US$4.6 million due to loans under the project. In Montenegro the annual incremental income of the Agrokombinat is estimated at US$7.5 million. The average workers' family income is projected to increase by about 55%. The investment cost per beneficiary family for the two projects would amount to about US$2,300.

C. Economic Justification

6.09 The Montenegrin project would focus on increasing production in the social sector. AK would develop 2000 ha of land which so far has been unsuitable for any agricultural production. During more than five years of research and trial production AK established the project area's suitability for grape and certain fruit tree production, which would be undertaken under the project; it also gained experience in the most appropriate methods of land development, irrigation, cultivation and fertilizer and pesticide use. With no alternative agricultural use of the land, the project's economic benefit to the Montenegrin economy would be substantial as reflected in the economic rate of return of more than 17%. The project would complement the Bank's lending under past and forthcoming agricultural credit operations in Montenegro, which provide credit to private farmers, as well as the Government's own allocation of credit to the private sector in the 1976-80 Agricultural Development Plan. With the amounts foreseen for private farmers under both the Second Agricultural Credit Project, which is planned to be presented for consideration by the Board later this year, and Montenegro's Agricultural Development Plan 1976-80, the needs of the private sector would be adequately covered.

6.10 The Macedonian project would emphasize increasing the agricultural processing and marketing capacity in the social and production in the private sector. Apart from credit channelled directly to private farmers, the processing facilities in the social sector would indirectly benefit private farmers by providing marketing outlets and thus alleviating one of the main constraints to increased production in the private sector.

6.11 Foreign Exchange Earnings. The projects in concentrating on the domestic market would, over their 30 years lifetime, generate about US$100 million in foreign exchange through increased exports. Taking into account foreign exchange savings through import substitution and direct and indirect import components of investments and operating costs, the total net foreign exchange earnings or savings are estimated to amount to the order of US$60 million (at 1976 prices). This has been taken into account in the economic rate of return calculation.

6.12 Employment. The projects would generate an estimated 1200 man years permanent jobs in Macedonia and 630 in Montenegro. For an additional 23,600 farmers (those receiving credit plus indirect beneficiaries), the projects would reduce underemployment and provide means to use more fully their free capacities in buildings. The additional investments and consumption of inputs, such as fertilizer, pesticides, fuel, via their backward linkages, and the increased production via forward linkages, would generate sizeable indirect employment opportunities which were not quantified. The productivity aspects of employment have been taken into account in the economic rate of return.

6.13 Income Distribution. The projects would finance investments in two less developed regions in Yugoslavia with a per capita income of about 30% below the Yugoslav average. Moreover, about US$4.4 million or 18.5% of the proposed Bank loan to SBS would directly benefit an estimated 2,100 small farmers in Macedonia 1/, of which about 1,350 farmers would belong to the target groups with annual per capita incomes below US$340. Their incomes are estimated to increase by about 40% for mechanization investments up to around 130% for livestock farmers. The processing investments would bestow indirect benefits by providing marketing outlets for their incremental production to some 21,300 farmers in Macedonia and about 170 farmers in Montenegro (Annex 11, Table 4), of which more than half are estimated to belong to the target groups. The Macedonian project would also assist the efforts to reduce the income gap between the social and private sectors.

6.14 Economic Rate of Return. Based on the assumptions discussed in detail in Annex 11 the economic rates of return were calculated for the respective projects (see Tables 2 and 3 of Annex 11). The Montenegrin project would generate a 17.3% rate of return; and the Macedonian project 25.6%. These rates of return do not take account of the non-quantifiable benefits resulting from the contribution of the project to improved resource allocation in the agricultural and agroindustries sectors through training and institution building. Sensitivity tests were conducted to assess the stability of the respective rates of return to variations in project cost and benefit streams. The variations are expected not to exceed 10% of the base estimate. The results are:

1/ Farmers receiving credit, farmers benefitting from the tobacco drying sheds which are processing tobacco solely supplied by private farmers, and farmers sharing in mechanization investments.

		Montenegrin Project	Macedonia Project
Investment Costs	+10%	16.0%	23.2%
Operating Costs	+10%	15.9%	19.8%
Benefits	-10%	14.4%	17.0%

Both projects' rates of return are most sensitive to variations of benefits. However, even under a pessimistic assumption of 10% lower benefits, the rates of return remain satisfactory.

VII. RECOMMENDATIONS AND AGREEMENTS REACHED

7.01 During negotiations, assurances were obtained from IBT and AK as well as from SBS that they would implement the respective projects and follow the financing, disbursement, procurement, lending and reporting procedures discussed above as well as implement the staffing and organizational requirements outlined above.

7.02 The conclusion of a loan agreement between the IBT and the AK securing the local financing and an agreement on on-lending of the Bank loan to the AK, both acceptable to the Bank, would be conditions for making the proposed loan to IBT effective. The establishment of the Project Unit within AK would also be a condition of the loan's effectiveness.

7.03 Having received adequate assurances from the respective borrowers and AK, the Montenegrin project would be suitable for a Bank loan of US$26 million, equivalent, to IBT for a term of 15 years including a three year grace period; the Macedonian project would be suitable for a Bank loan of US$24 million, equivalent, to SBS for a term of 15 years including a three year grace period.

January 26, 1977

APPRAISAL OF

AGRICULTURE AND AGRO-INDUSTRIES II PROJECT

YUGOSLAVIA

The Agriculture and Agro-Industries Sector, Policies and Priorities

A. The Agricultural Sector

1. The role of the agricultural sector in the economy of Montenegro and Macedonia is outlined by the following indicators:

Indicators of the Agricultural Sector

	Montenegro	Macedonia
Total area	13,812 sq. km	25,713 sq. km
Total area % of SFR Yugoslavia	5.4	9.2
Agricultural land as % of total republic area	38.3	51.9
Cultivated land as % of total republic area	13.5	25.9
Agricultural GMP as % of republic total	14.9	23.0
% of population living in rural area	34.3	39.9
% of employment in agriculure /1	40.0	32.0

/1 Proportion of agricultural labor force in total republic labor force.

Source: Statisticki Godisnjak Yugoslavije, 1975.

Agriculture contributed 14.9% to the total GMP of Montenegro, and 23% of the total GMP of Macedonia, and absorbs 40% and 32% of the active working population of the two republics respectively. Though its role has been declining relative to the rest of the economy with the rapid progress of industrialization, it still remains an important sector in the overall development of the two republics.

Production

2. Total agricultural production grew between 1966 and 1975 at an average annual growth rate of 3.6% in Macedonia, 2.8% in Montenegro. Fruits and vegetable production increased most rapidly, encouraged by the rising

relative prices and expanded irrigation availability, mainly at the expense of extensive grain production. Macedonia in addition increased significantly the production of rice and sunflowers.

Annual Growth Rates of Production of Major Crops 1965-1975

	Macedonia /1	Montenegro /2
Wheat	-0.2	-1.5
Tomatoes	7.5 - 8	3.5
Peppers	9.0 - 9.5	11.0
Apples	6.0 - 7.0	1.5
Pears	8.0	3.1
Sunflowers	13.0	-
Rice	6.0	-
Cotton	-1.3	-

/1 Average 1965-67 over average 1973-75.
/2 Average 1965-67 over average 1972-74.

Source: Statistical Yearbook of Macedonia, 1975.
Statistical Yearbook of Montenegro, 1975.

Most of the expansion of the vegetable production (and sunflowers in Macedonia) was achieved by an expansion of the cultivated area. Yields increased most significantly in the production of grain and rice.

Development of Yields of Major Crops (figures are averages)

	Average during Period	Macedonia	Montenegro
		(100 kg/ha)	
Wheat	1961-70	17.8	17.5
	1963-72	19.1	18.2
	1965-74	20.5	18.8
Rice	1961-70	39.5	-
	1963-72	43.5	-
	1965-74	43.2	-
Tomatoes	1961-70	189.0	145.9
	1963-72	189.6	147.1
	1965-74	191.7	152.7
Peppers	1961-70	127.0	134.0
	1963-72	134.4	141.3
	1965-74	139.8	171.1

Source: Statistical Yearbook of Macedonia.
Statistical Yearbook of Montengro.

3. In the meat sector, the production of broilers increased most significantly, increasing its share in total meat production between 1966 and 1974 from 9% to 17% in Macedonia and from 31% to 43% in Montenegro.

4. Milk production in Montenegro increased continuously during the last decade with average annual growth rates of 4-5%, due mainly to higher yields per cow (75% of the incremental production). In Macedonia, milk production stagnated until 1971 and began to rise since then with increasing growth rates of 5-6%, based almost exclusively on an increase in the number of cows rather than the higher yields per cow.

Average Annual Growth Rates of Animal Production
in Macedonia and Montenegro
1968-75

	Macedonia	Montenegro
Milk	0.9	2.6
Beef	-0.6	-2.4
Lamb	2.9	1.4
Broilers	2.9	2.1
Eggs	27.8	5.2
Pork	2.3	1.8

Agricultural Inputs

5. Land Use. Agricultural land use has changed in both republics since 1963 in favor of high value fruit production. Both republics reduced their arable land (mostly meadows and pastures) by 7% and increased the area under orchards and vineyards; newly irrigated land was predominantly planted with vineyards and orchards. In Macedonia, 4% of total agricultural land in 1974 was under irrigation and about 2% in Montenegro. The irrigated area has increased by about 57% in Macedonia between 1965 and 1974 while it stagnated in Montenegro.

Distribution of Irrigated Land in Macedonia and Montenegro in 1974
(as % of total irrigated land)

	Macedonia	Montenegro
Arable land	73.0	45.0
Orchards	12.7	22.4
Vineyards	11.1	9.7
Meadow and pasture	3.2	22.9

6. Agricultural Population. The active agricultural population declined by 1.5% annually in Macedonia and by 1.7% in Montenegro between 1961 and 1971.

Development of the Active Agricultural Population
('000)

	1953	1961	1971	1975
Macedonia	353	322	270	260
Montenegro	101	86.8	73	68

Source: Statistical Yearbook of Yugoslavia; 1975 Mission's estimate.

7. Fertilizer. The application of fertilizer in the two Republics followed roughly the overall development in Yugoslavia, although its level is still below the Yugoslav average. It has risen in both republics by 8%-9% annually since 1965, but reached only about 70% of the average per ha consumption in Yugoslavia.

Estimated Fertilizer Consumption per ha of Cultivated Land in 1974

	Yugoslavia	Macedonia /1	Montenegro /1
	kg/ha		
N	35.6	27	27
P	16.6	13 - 14	12 - 14
K_2O	17.2	13 - 14	12 - 14

/1 Without meadows.

8. Power. The number of horses has remained practically constant in both Republics since 1960, while the number of tractors increased. Most of the tractors and agricultural machinery was purchased after 1970, particularly by the private sector. The pace of mechanization was, however, remarkably slow compared with other regions in Yugoslavia. While the number of tractors increased by 10.6% per year during 1961-1973 in Yugoslavia, the rate of increase is only 5.4% and 3.9% for Macedonia and Montenegro, respectively. Accordingly, the hectarage per tractor is much larger in Macedonia and even more so in Montenegro.

Number of Tractors

	Yugoslavia	Macedonia	Montenegro
1961	35,779	3,058	264
1973	120,487	5,729	418

Ha of Arable Land per Tractor

1973	61	100	145

9. Productivity. Productivity in the agricultural sector is lowest in Montenegro both because of the low level of modern input use as well as extremely unfavorable natural conditions. Macedonia's agricultural sector, on the other hand, is much more advanced and enjoys more favorable conditions. The growth rate of production and the decrease in labor input amounted to an average annual growth of labor productivity by 4%-5% in both Republics. The labor productivity in agriculture in 1974 in Macedonia was about 7% higher than the average for Yugoslavia; in Montenegro it was 11% lower in 1974.

Land and Labor Productivity in Agriculture
1974

	Yugoslavia	Macedonia	Montenegro
Agricultural land/worker (ha)	3.6	5.1	7.8
Cultivated land/worker (ha)	2.5	2.6	2.7
Social product/worker (Din)	18,013	19,280	15,970
Social product/agricultural land (Din)	5,055	3,755	2,042
Social product/cultivated land (Din)	7,306	7,561	5,804

Natural Conditions

10. Both republics are characterized by extremely mountainous terrain, with peaks rising well over 2,500 m. Plains and valleys suitable for cultivation make up hardly more than one quarter of the total surface of Macedonia, while in Montenegro, which has the lowest ratio of arable land to total surface area, a mere 6.8% of the land surface is in the plains, and only 15% of the plains has favorable agronomical characteristics. The rest are either sandy and unsuited to crop production, suffer from drainage problems, or are liable to flooding. The mountains, with steep slopes, heavy soils and karst, are generally unfavorable for crop production, but extensive upland pastures make possible sheep and some cattle growing. The agricultural sector of Montenegro and Macedonia has, accordingly, a "dual" structure, characterized by extensive mountain farming oriented towards livestock and intensive lowland crop farming.

11. The pattern of farming is also determined by the climatic conditions which divide both Republics into two distinct zones - the Mediterranean (or modified Mediterranean) climatic zone in the eastern and central parts of Macedonia and the coastal belt in Montenegro, and the continental climate zones prevailing in the mountainous regions of the two republics.

Organization of the Agricultural Sector

12. Agriculture of Montenegro and Macedonia, like that of the rest of Yugoslavia, is characterized by the parallel existence of two sectors - social and private. Their relative importance is shown in the following table.

Respective Roles of the Private and Social Sectors, 1973
(relative shares, total agriculture = 100)

	Montenegro		Macedonia		Yugoslavia	
	Private	Social	Private	Social	Private	Social
Cultivated area	95	5	80	20	86	14
GMP	92	8	70	30	77	23
Market Production	65	35	55	45	55	45
Labor Force	98.1	1.9	91.2	8.8	95.2	4.8

Source: Statisticki Godisnjak Yugoslavije

13. The Social Sector. The social sector has its origin in the post war collectivization policy and received further impetus from the Agrarian Reform which limited the size of private holdings to 10 ha of cultivable land and 25 ha of forest land. These limitations still apply. During the past ten years the production capacity of the social sector has been increased, mainly through capital investments, which increased by 163% in Macedonia and 72% in Montenegro between 1965 and 1974 (Annex 1 Table 2). The increase of land resources was limited to reclamation and purchase from the private sector against lifetime pension payments to the private holders. It did not play an important role during the last decade.

14. The number of employees in the social sector (including processing industries) in both Republics has remained at almost the same level since 1965, fluctuating around 33,000 persons in Macedonia and between 3-4,000 persons in Montenegro. However, the employment structure changed significantly especially in Macedonia, where the number of employees in primary production declined by 7% between 1963 and 1974, from 26,900 persons to 24,900 persons.

15. The social sector covers a variety of organizations, which include agricultural kombinats, state farms and agricultural cooperatives (Zadruga) and other organizations such as veterinary and research stations. There is a tendency for social sector organizations in both Republics, as elsewhere in

the country, to merge with the aim of achieving a more efficient use of resources, especially of marketing and processing facilities and research and planning services. In 1974, there existed only 48 autonomous kombinats and 93 autonomous cooperatives in Macedonia, against 80 kombinats and 521 cooperatives in 1970. In Montenegro there were only five kombinats and 9 cooperatives in 1974, compared with 77 independent organizations in 1962. In Macedonia the 12 most important social sector enterprises have formed the ZIKM (Central Industrial Kombinat, Macedonia). The ZIKM is an umbrella organization which supplies certain services to the enterprises of the organization such as planning or assistance in planning, marketing and market research, and training of staff. The social sector organizations which have formed the ZIKM remain independent, autonomous organizations which pay the umbrella organizations for their services and provide a financial guarantee for their existence.

16. The social sector has been a dynamic force in the development of modern agriculture in Yugoslavia and, in both Republics, its performance has been remarkable. In Montenegro the volume of physical production in the social sector increased at a trend rate of 5.1% between 1962-73, while in Macedonia, the social sector recorded an average rate above 9% between 1965-73. The main explanations for the rapid growth of the social sector in agriculture were: (i) heavy concentration of investments in this sector; (ii) difference in the "intellectual input" high-lighted by a 5.3% increase of university trained workers in the social sector in Montenegro and 20% in Macedonia between 1963-73, while the total employment in the social sector in the two Republics remained at the same levels during this period (para 14); and (iii) much greater emphasis placed on research in the social sector as illustrated by the existence of three major specialized research institutions in Macedonia that do 65%-80% of their work for social sector enterprises, and an independent research institute in Montenegro that derives some 40% of its resources undertaking contract research for social sector enterprises.

17. Growth rates of production within the social sector varied widely between different subsectors, indicating the priority given to capital intensive production.

Growth rates of the Production of the Social Sector 1965-74

	Macedonia	Montenegro
Wheat	2.2	-1.0
Sunflowers	7.2	-
Rice	2.1	-
Apples	65.5	2.4
Grapes	10.1	5.4
Milk	4.4	4.9

(Average 1964-66 and 1972-75)

Source: Statistical Yearbook of Montenegro, 1975
Statistical Yearbook of Macedonia, 1975

18. The rapid growth of production resulted in an impressive level of the land and labor productivity which exceeded considerably the productivity in the private sector.

Productivity in the Social and the Private sectors, 1974

	Yields Macedonia			Yields Montenegro		
	Average	Social Sector	Private Sector	Average	Social Sector	Private Sector
	100 kg/ha			100 kg/ha		
Wheat	24.5	32.1	19.7	22.0	27.4	21.7
Maize	17.4	46.0	16.4	14.4	-	14.4
Sunflower seed	10.5	12.7	8.2	-	-	-
Sugar beet	366.0	408.0	341.5	-	-	-
Milk (l/cow)	945.0	3,460.0	900.0	644.0	2,600.0	616.0
Social Product/worker (Din)		59,457	13,213		64,096	13,507

Source: Statistical Yearbook of Montenegro
Statistical Yearbook of Macedonia

19. The share of the processing industry in the social sector's GMP in the two Republics is relatively small in comparison with the rest of Yugoslavia. About 20%-25% of the social product of the social sector of agriculture in Macedonia is produced by the processing industry, while its share in Montenegro is about 35%. The relatively small capacity is partly due to the orientation of fruit and vegetable production towards early varieties for consumption in fresh form. However, an expansion of processing facilities is justified considering the planned expansion of vegetable production and the fact that both Republics send part of their peak season production for processing to other republics. Macedonia's relatively high share of sheep slaughtered in abattoirs shown in the table below is due to strong export orientation of lamb production in Macedonia.

Fresh and Processed Production of Main Agricultural Produce in Macedonia and Montenegro in 1974
(in percent of Yugoslavia)

	Macedonia	Montenegro
	(Total Yugoslavia = 100)	
Tomato Production	27.0	2.0
Pepper Production	35.0	2.0
Canned Vegetables	13.0	0.5
Paste Products	6.7	-
Milk Production	3.0	2.3
Milk Products on authorized markets	4.7	1.8
Fresh milk on non-authorized markets	5.3	0.8
Total beef /1 slaughtered	4.0	3.0
beef in abattoir	3.0	2.0
Total sheep /1 slaughtered	34.6	4.6
sheep in abattoir	52.0	5.0

/1 Heads

20. The social sector supplies more than 40% of the production sold on organized markets in both Republics. This underlines its role in supplying the cities. As elsewhere in Yugoslavia, the social sector is concentrating on the labor extensive and capital intensive production lines, but it also plays an important role in marketing labor intensive products of the private sector, such as milk. The social sector markets 54% and 95% of milk marketed in Montenegro and Macedonia respectively but shares only 55% and 24% of the total production.

Share of the Social Sector Production (a) and of Social Sector Market Production (b) in Total Agricultural Production and Total Market Production Respectively (1974)

	Macedonia		Montenegro	
	(a)	(b)	(a)	(b)
		total = 100		
Total Market Production	--	42	--	45
Grain	36	69	2	67
Sunflowers	61	78	--	--
Tobacco	3	3	--	--
Fruit	34	57	12	96
Vegetables	n.a.	35	3	29
Milk	24	95	5	54
Meat	9	17	0.4	14
Wine	74	99.6	47	99.2

Private Sector

21. The private sector in both Montenegro and Macedonia dominates in terms of land area, labor force and production. It consists of 62,000 holdings with an average size of 4.9 ha in Montenegro and of about 160,000 farms with an average size of 3.1 ha of cultivable land in Macedonia.

Size Distribution of Individual Farms in Macedonia and Montenegro

Size of Holdings ha	Macedonia		Montenegro	
	% of holding	% of area	% of holding	% of area
0 - 2	57.7	17.9	46	23
2 - 3	13.8	14.1	14	11
3 - 5	15.0	23.7	15	17
5 - 10	13.5	44.3	25	49

An average of 4.1 persons live on a farm in Montenegro and about 3.6 persons in Macedonia. One active person worked on 2.6 ha of cultivable land in Montenegro and 2 ha in Macedonia.

22. The production in the private sector increased by 3.2% in Macedonia and by 2.5% - 3% in Montenegro between 1970 and 1975. Productivity and yields remained relatively low and the productivity gap between both sectors continued to increase during the past plan period. The major reasons are:

(a) a generally lower quality of land;

(b) lower share in the irrigated area;

(c) inferior varieties of seeds, plant and animals;

(d) low degree of mechanization;

(e) low fertilizer intput; and

(f) small farm size and scattered holdings.

23. The income situation of the private farmers depends largely upon the opportunities for off farm income, on the one hand, and on the possibilities to intensify land use, on the other. The share of off-farm income has increased considerably in both Republics. On the average off-farm income contributes roughly half of the individual sector's total income in both Republics. However, large differences exist with respect to:

(a) the employment opportunities in the vicinity of the farms;

(b) the size of the farm;

(c) the natural condition of the farm location.

If unfavorable natural conditions coincide with a lack of opportunities for off-farm work, as is the case in most parts of the mountains in Montenegro as well as in Macedonia, the income of the farmers is extremely low.

Cooperation between the Private and Social Sectors

24. Cooperation between the social and private sectors takes the form of trade in inputs and outputs, provision of services by the social sector, such as supply of fertilizers, cultivation, harvesting, marketing and credit and contract production. While such cooperation brings considerable benefits to the private farmers, it is fairly limited - less than 5% of the farmers in Macedonia, and 2% of farmers in Montenegro, are involved in contract cooperation. Moreover, in both Republics, this form of cooperation shows a declining trend. One explanation for the limited size of contract cooperation may be that these two southern Republics, long under Turkish rule, have not evolved a strong tradition in agricultural cooperatives as the northern republics had done under the Austrian influence. Another reason is the concentration of the major activities of the social sector in the valleys and high plains and, therefore, a lack of adequate market outlets in the mountains. The declining trend in contract cooperation is partly due to the increasing importance of off-farm income, and the corresponding decreasing interest in agricultural activities partly owing to the fact that farmers are willing to enter into contract cooperation only so long as they benefit in terms of learning new techniques and achieving higher productivity.

25. A more loose form of coooperation in the marketing of products has gained importance in recent years in Macedonia. As Macedonia is a food surplus region, the individual sector had to rely increasingly on the social sector marketing its produce, particularly vegetables and fruits, in other parts of Yugoslavia or abroad. The volume of the private sector's production marketed via the social sector increased by 210% in Macedonia. In Montenegro marketing through the social sector declined because as a food importing Republic, private farmers had increasing opportunities to sell their production directly on the local markets.

Sales of Private Sector Production through the Social Sector
1973 prices

	Macedonia			Montenegro		
	1970	1973	1974	1970	1973	1974
	million Din					
Total Market Production	858	1,404	1,803	218.0	132.0	98.0
Vegetables	116	143	133	9.1	5.3	5.8
Fruits	52	125	150	2.3	1.0	0.4
Meat	273	321	355	107.0	91.8	75.0

Extension Services

26. Traditionally, prior to the setting up of independent extension services, the provision of services to the private farmer, such as the introduction of new varieties and improved breeds, and dissemination of new techniques was made by social sector organizations. However, this arrangement had its limitations. Unless private farmers had joined production agreements with social sector organizations, they could not benefit from these services. Moreover, social sector organizations have tended to concentrate in a small number of communes which are fairly well developed, and private farmers in underdeveloped mountainous regions could not be reached by them. Hence, the distribution of services has become uneven.

27. In 1971, Macedonia established an independent extension service for the development of private sector agriculture. In each of the thirty communes, there is an independent extension station employing 2-4 university graduates as experts. The services are fully financed from the republic and commune budgets, the two sides sharing the financing in equal parts. The major objectives of the extension services is the improvement of the production techniques on private farms, the introduction of new varieties and the improvement of breeds (in cooperation with the Veterinary Institute and the Institute for Livestock Breeding). On the commune level, the extension service tries to reach the farmers by carrying out production demonstrations and experiments in higher yields varieties and breeds, offering technical advice and helping farmers in preparing credit applications to be submitted to kombinats or banks. In addition, the republic operates a central extension service that supports the commune stations by supplying information materials, providing technical assistance, facilitating exchange of knowledge and preparing local working programs. In the periods 1974-75, the achievements of Macedonia's extension service were as follows:

- Artificial insemination of 71,000 cows (54% of total number of cows in Republic).

- Provision of 2,000 rams of good quality (0.2% of rams available for service) and subsidies for 4,500 heifers (5.1% of Republic total).

- Provision of 5,000 tons of seeds.

- Provision of 541,000 fruit root stocks.

- Carrying out of some 1,000 demonstration tests.

During this same period, it also assisted in providing credit for investments in 1,300 tractors (23% of Republic total), 34,000 sheep (1.8% of Republic total), 623 cows (0.5% of Republic total) and 236 holdings of orchards and vineyard plantations. For the 1976 program, the Republic and the Communes have set aside 20 million dinars and 10 million dinars respectively for the extension service.

28. In Montenegro, the extension service was officially initiated in February 1976. Though it has not fully commenced its activities, the proposal is to set up extension centers throughout the Republic. Each commune is expected to have a center funded in part by the commune, and in part through a central fund. A total of thirty-five persons is expected to be working for the extension service on the Republic and Commune level.

Marketing and Prices

29. As elsewhere in Yugoslavia, Montenegro and Macedonia have "organized" markets with "authorized purchases" by social sector enterprises existing side by side with "informal" markets where the peasants sell directly to consumers.

Shares of Market Production in Total Agricultural Production in Montenegro and Macedonia, 1974
(Total Production = 100)

	Montenegro	Macedonia
Cereals		
Wheat	-	41.5
Barley	-	20.8
Maize	-	14.3
Oats	2.5	-
Vegetables		
Potatoes	2.8	4.4
Cabbage	3.0	10.5
Tomatoes	2.0	26.8
Peppers	13.8	16.7
Fruits		
Grapes	6.6	62.9
Livestock Produce		
Milk (liters)	4.8	28.6
Wool	14.6	14.9
Eggs ('000)	3.2	57.7
Meat		
Beef	3.3	45.6
Mutton	24.4	72.6
Pork	6.3	21.1

Source: Statistical Godisnjak Jugoslavje, 1975.

30. The importance of the organized markets is relatively high in Macedonia because of the orientation of large parts of the private sector's production to delivery to other parts of Yugoslavia, or to exports. In 1974, for instance, 42% of wheat, 27% of tomatoes, 63% of grapes, 58% of eggs and 73% of mutton were sold in the organized market (see Table above). However, for sales to other republics, the private sector does not rely exclusively on the social sector. Private farmers or informal groups of private farmers send significant quantities (especially of early vegetables) directly to local markets of larger cities in the northern republics.

31. In Montenegro the role of the "organized market" has been less significant. The Table in para 29 indicates that for all commodities other than peppers, wool and mutton, less than 10% of total production goes through the "organized market", reflecting the predominantly subsistence nature of agriculture in Montenegro.

32. Agricultural price policy rests on agreement reached by all the members of the Federation, and currently three types of pricing arrangements are used:

(i) Guaranteed minimum prices: applied to all important agricultural goods (cereals, meat, wool) for which the implementation of a price guarantee is technically possible;

(ii) Minimum prices without guarantee of the Government: Prescribed mainly for those agricultural goods which need processing, such as milk, sugar beet and other industrial crops; and

(iii) Prices free from intervention: for goods which are marketed in peasant markets or are highly perishable, so that effective control is practically impossible.

33. Guaranteed minimum prices are intended to be adjusted according to changes in production costs. However, in practice the agricultural price policy has not been able to prevent the actual prices from increasing above the tolerance limit of 10% above the minimum over the past five years. The Government lacks the necessary funds and storage capacity for maintaining a buffer stock to smooth seasonal price fluctuations of basic staple products like cereals and maize. The inefficiency of the price policy particularly for grain has resulted in a similarly ineffective price control for those products that are closely related to grain prices, such as pigs and broilers.

Prices Indices for Agricultural Outputs and Inputs
(1965 = 100)

	1970	1974
Agriculture Total	136	303
Cereals	116	300
Vegetables	140	315
Fruits	106	336
Animal Production	116	328
Agricultural Inputs		
Work instruments and reproduction material	113	234
Agricultural machines	111	179
Chemicals used in agriculture	122	283
Building materials	143	271

Source: Statisticki Godisnjak Jugoslavije.

Taxation

34. Social sector agricultural enterprises pay income and turnover taxes and various compulsory and statutory contributions, in much the same way as industrial enterprises. However, agricultural investments and most inputs are exempted from turnover taxation. The income tax of kombinats and cooperatives in Montenegro and Macedonia is proportional to their income. The tax rate varies by region, ranging from 3.4% in Montenegro to 3% in Macedonia. Compulsory and statutory contributions include a surcharge for social insurance, allocations to the collective consumption fund, business and reserve funds and payments to the Skopje Earthquake Reconstruction Fund and the Fund for the Accelerated Development of the Less Developed Regions. Private farmers pay a tax according to the cadastral value of their agricultural land. The valuation is based on the estimated productivity of the land with each republic applying its own rules in establishing yields, production costs and prices to be used in arriving at cadastral income. The valuation is updated every five years.

Agro-industries Sector

35. Both Republics have a comparatively undeveloped agroindustrial base, in Montenegro, due to its mountainous topography, agricultural production is low and communications are difficult for effective collection of produce to feed an industry. Consequently incentives are lacking to increase production and volumes are generally insufficient to establish profitable agroindustries. The main agricultural producing area is the Cemovsko Polje plain, whose potential will be partly developed under the Project.

36. Macedonia is a major vegetable producing region within Yugoslavia and there are substantial quantities of vegetables available for local processing industries and for marketing in other Republics. The share of Macedonia in the total Yugoslavia processed vegetable production has been around 15-16% in recent years, having declined from about 25% in 1960. This decline is due to the growing population of fresh vegetables in Macedonia and the fact that the processing industry has not kept pace with the expansion and, by having remained rather stationary, has become both insufficient in capacity and to some extent obsolescent.

37. In 1972, the industry processed 28,700 tons of vegetables representing a mere 6% of the total 483,300 tons produced.

Present and Forecast Processed Vegetable Production in Yugoslavia and Macedonia ('000 tons)

Product	1970		1972		1980	
	SFRY	SRM	SFRY	SRM	SFRY	SRM
Canned vegetables	78.6	14.9	101.5	15.7	220.0	100.0
Dehydrated vegetables	0.7	-	0.3	-	2.5	1.0
Frozen vegetables	1.8	-	1.6	-	10.0	8.0
Tomato juice	0.3	0.1	0.3	0.1	2.0	1.5
Other products	9.2	1.3	8.8	2.1	16.0	8.0
Total	90.5	16.3	112.4	17.9	250.5	118.5

38. According to the above projections, the total output of vegetable products in Yugoslavia will more than double the 1972 level and almost 50% of the 1980 production will come from Macedonia. The greatest total growth will be in canned products, although a considerable increase in frozen vegetables production is also anticipated. Dehydrated vegetable output, which was negligible up to 1972 is expected to reach over 1,000 tons/year in Macedonia and substantial increases are foreseen in the production of tomato juice and other vegetable products.

D. Agricultural Development Policy and Priorities

39. The disappointing performance of the agricultural sector in the second half of the 1960s, with annual growth rates of production below 2%, and awareness of the need to use more efficiently the resources of the private sector, initiated discussions on an integrated policy approach for the agricultural sector in the early 1970s. In July 1973 the Republics and Autonomous provinces agreed on a common agricultural policy for the period up to 1985. This agreement, called the Interrepublican Agreement on the Long-term Development Policy for Agriculture, reflected the growing concern among political and economic authorities that the country's needs for food can only be met with the cooperation of the private farmers.

40. Basic Principles. The plan emphasizes as the basic principles of the long-term agricultural policy:

(a) the further development of the social sector through modernization of production techniques, expansion of processing facilities, better utilization of available resources and the adjustment of production to changes in demand;

(b) the development of private farms either through cooperation with the social sector or through new forms of association among private farmers to ensure further progress in the socialization of agriculture and rural areas.

These principles have been adopted by all republics and provinces. The operational part of the plan focuses on three areas:

(a) price policies;

(b) investment policies;

(c) private sector development policies through cooperation and new forms of enterprises, the so-called associations.

The present price system as discussed above will be maintained in principle. Market prices are intended to be kept within the range of ± 15% of minimum prices through interventionist purchases or sales. Minimum prices for livestock will be fixed in relation to the average price for maize. The ratios aimed at are: for pigs 1:8.5; for heifers 1:10; for fattened sheep 1:6.9; and for broilers 1:8.9.

41. Investment Targets. The draft development plans 1976-80 for the two Republics envisage the following investment targets. Annual investments are projected to reach 1.5 billion Dinars in Macedonia, more than 50% increase against the previous plan period. In Montenegro, the plan calls for 1.5 billion Dinars investments for the whole period, of which about one-third is planned for investment in the private sector. The figures include the Cemovsko Polje project.

42. Macedonia plans to spend the 7.5 billion Dinars foreseen for investments in agriculture as follows:

Irrigation	Din 2 billion
Processing Industries	Din 1.5 billion
Primary Production	Din 4 billion of which about 1 billion is planned for the private sector.

Montenegro plans to spend about 30% of the projected investments in the northern regions for the promotion of livestock. The rest is to be spent in plant and fruit production and irrigation.

43. Financing. The sources of financing will remain basically the same as in the past. Investors' own funds, including the contribution from the basic turnover tax, will contribute about 30% of investments. The Federal Fund for

the Less Developed Regions will contribute about 40% and the rest is expected from international sources.

44. To mobilize enterprises' own resource, the following measures already listed in the previous plan will be continued:

(a) income tax exemption for investments in agriculture;

(b) turnover tax exemption for investment credits in agriculture;

(c) interest rate subsidies for investment credits in agriculture;

(d) reduction of import duties on agroindustrial equipment not produced in Yugoslavia;

(e) elimination of the Dinar deposit requirements with the National Bank for foreign credits channelled into agricultural investments;

(f) increase in the foreign exchange retention quota from depreciation charges.

45. Support will be continued to all social enterprises that establish new or extend existing units for the cooperation with the private sector. Moreover, new associations within the private sector will be promoted. These associations may take various organizational structures, from loose cooperation in machine services to full integration of individual farms in collective units, similar to the collective farms established in the early 1950s. Farmers may leave the collective at any time with all their property, if they wish to do so.

46. Credits to private farmers will continue to be almost exclusively channelled through cooperation arrangements with the social sector. Private farmers' associations will also be directly eligible for bank credits.

47. Growth Targets. The Macedonia draft development plan projects the same growth rates for 1976-80 as in the past plan period, i.e. an annual production growth rate of 4.5% for the agricultural sector as a whole (8.5% in the social sector and 3% in the private sector). Macedonia intends to make full use of its competitive advantages in the markets for vegetables, fruits, table grapes, rice and tobacco. It expects to increase is share in the domestic markets for these products. For meat and milk, it intends to raise the level of self-sufficiency of the Republic.

48. Montenegro expects especially high growth rates in the production of wine and fruit, taking into account the production of the Cemovsko Polje project, which is expected to be in full production at the end of the plan period. In the other areas slightly higher growth rates than in the past are expected.

Projected Annual Growth Rates of Agricultural Production 1976-80

Total Agriculture	4.5	4.0
Social sector	8.5	7.5
Private Sector	3.0	3.8
Crop production)		3.0 - 4.7
Livestock production)	5.0 /1	4.4 - 5.3
Wine and fruit production)		4.0 - 6.0

/1 Total primary production.

Evaluation

49. The Agricultural Development Plan for the first time in Yugoslavia's post-war development addresses particularly the private farmer besides providing comprehensive guidelines for further development of the social sector. The major specific measures for the promotion of the development of the private sector are:

(a) Promotion of cooperation with the social sector and establishment or improvement of the extension service in order to achieve a more rapid transfer of modern technology already available in the social sector.

(b) Provision of credit for small farm investments to complement private farmers' own financial resources and to increase the incentive to use them for production purposes.

The measures address the most serious bottlenecks in the development of the private sector. However, the support measures for the private sector are practically limited to farmers that either form an association or cooperate with the social sector on a contractual basis. In this way they will not reach the farmers in the remote mountainous regions, where the social sector is not represented and where the scope for cooperation is limited. Rural development investments with emphasis on infrastructure components would be a pre-condition for improving productivity and marketing of these farms. In addition, socially oriented programs would have to complement production supporting measures, particularly where the natural conditions are most unfavorable for agricultural production. The five year plan apparently realizes these difficulties in projecting low (but realistic) growth rates of private sector production as compared with the projected growth rates for the social sector. The resulting widening gap of incomes between both sectors will reinforce the recent trend for private farmers to look for additional income sources outside the sector. Since these opportunities are mainly available around the cities and, frequently, in the more fertile plains the income difference within the private sector will increase even further and may cause serious development problems in the mountainous regions.

50. The projected growth rates for the social sector have been achieved in the past. Though it becomes more difficult to repeat them at the higher level, it seems possible to realize them at least approximately, considering the relatively large proportion of investments in irrigation and the corresponding follow-up investments at the farm level.

January 1977

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Index of Production
Food Manufacturing Industries in Yugoslavia

(1973 = 100)

	1964	1971	1972	1974
Food manufacturing industries (all) -				
Yugoslavia	80	87	95	108
Macedonia	50	85	90	106
Montenegro	29	81	80	98
Flour production	86	102	101	105
Flour preparation	60	82	87	105
Fruit, vegetables, meat, milk preparation	61	93	97	113
Sugar	81	85	78	102
Sweets and cocoa products	63	84	95	107
Vegetable oils and fats	61	83	97	114
Spirits and beverages	26	83	95	105
Other food products	43	94	98	114

Source: Industrija 1974, Statisticki Bilten 910, Belgrade July 1975

ANNEX 1
Table 2

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Investments in the Social Sector of Agriculture

	Current Prices		1965 Prices /1	
	Macedonia	Montenegro	Macedonia	Montenegro
	-------million Din----		-----million Din------	
1965	146		146	
1966	158	12	144	10.9
1967	194	10	172	8.8
1968	219	11.9	190	10.3
1969	359	10.1	306	8.6
1970	373	10.4	298	8.3
1971	575	16.4	396	11.3
1972	502	27.0	315	16.9
1973	534	29.0	303	13.0
1974	756	35.0	385	18.8
1975/2	1,000	n.a	431	n.a
1976-80	1,500/3	200.0/3 /4	n.a	n.a

Source: 1965-1967, 1973/74 Ministry of Agriculture
1968-1972 Statistical Yearbook of Macedonia 1974

/1 Mission's Estimate
/2 Estimate of Ministry of Agriculture
/3 Average per year
/4 Includes Cemovsko Polje Project

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Production of Processed Food Products in Yugoslavia

	1968	1970	1972	1974
	----------m tons----------			
Flour ('000 tons)	2,021	2,172	2,265	2,386
Corn meal	50,769	51,163	50,414	41,781
Rice	15,594	10,626	23,920	20,512
Bread and Pastry	480,104	550,328	617,201	782,003
Pasta	46,332	52,166	52,000	63,000
Biscuits & Cookies	48,892	62,681	78,645	90,901
Fruit without sugar	16,238	14,560	23,628	32,228
Natural fruit juice	-	32,522	56,324	60,578
Fruit syrup	-	18,438	20,526	25,776
Fruit preparation without added sugar	14,468	5,835	10,196	11,311
Fruit preparation with added sugar	51,796	39,562	44,186	67,806
Dried Fruit	1,018	1,608	4,176	2,405
Frozen Fruit	-	-	-	3,149
Canned vegetables	47,684	78,575	101,481	122,447
Dried Vegetables	518	670	306	855
Frozen Vegetables	-	-	-	4,389
Fresh meat	384,147	407,604	445,763	547,354
Salted and cured meat	26,292	26,488	30,988	36,554
Bacon and sausage	51,256	72,512	93,000	99,598
Canned meat	50,011	56,741	57,593	70,060
Concentrated soup	6,130	5,392	6,815	7,206
Edible animal fats	37,919	35,401	41,045	40,491
Salted, smoked, cured fish	2,703	2,430	2,062	1,295
Canned fish	18,374	21,210	26,000	31,000
Canned milk	669	837	1,152	1,368
Butter	5,924	4,071	4,640	5,543
Cheese	19,153	21,504	23,713	27,794
Youghurt, sour milk, ice cream	52,771	81,214	91,040	150,400
Sugar	360,041	354,109	355,841	478,938
Candy and sweetmeats	34,167	33,144	43,276	42,623
Crude edible oil	-	128,778	122,752	150,943
Edible oil	120,013	151,450	165,000	179,000
Margerine	22,625	33,769	38,500	45,093
Coffee, roasted	-	15,409	21,199	24,209
Fermented tobacco	48,936	41,387	46,960	59,042
Cigarettes	29,329	32,072	34,365	39,960
	----------('000 l)----------			
Spirits, refined	3,412	3,509	4,200	4,700
Beer	475,200	666,500	834,000	943,000

Source: Industrija Statisticki Bilten, Belgrade 1975

January 1977

APPRAISAL OF

AGRICULTURE AND AGRO-INDUSTRIES II PROJECT

YUGOSLAVIA

Production and Marketing

Production

1. Agricultural production in the Cemovsko Polje plain in Montenegro and Macedonia depends largely on the availability of water. With irrigation the project regions enjoy considerable comparative production and marketing advantages for grapes, fruit, vegetables, rice, sunflower and tobacco, both on the Yugoslav market and, for most products, on the European markets as well. Production of these crops has expanded with the increase of the irrigated area mainly at the expense of extensive grain production or grassland as may be seen from the following data:

Index of Acreage and Production in Macedonia /1
1974
(1965-1967 = 100)

	Acreage	Production
Wheat	91	95
Maize	95	118
Grapes	112	145
Apples	147 /2	205
Tomatoes	155	158
Peppers	162	192
Sunflower	196	249

/1 Source: Statistical Yearbook of Macedonia.
/2 No. of trees.

2. The project would raise production by expanding vineyards, fruit orchards, vegetable growing and livestock as well as through improving cultivation methods and increasing the use of fertilizer and better seeds. It would also influence the production and marketing structure by increasing the production of early vegetables in plastic houses and by expanding the capacity of the storage and processing industry.

3. Vegetable Production. Vegetable production covers about 10% of the total arable land in Macedonia and about 40% of the cultivated land in Zone B

of the Cemovsko Polje plain, the project region in Montenegro 1/. The private sector produces practically the entire labor-intensive fresh vegetable crop, which is largely sold on local peasant markets. Surpluses during the peak season are also delivered to the processing facilities or trade organizations of the social sector. The social sector farms, especially in Macedonia concentrate on capital-intensive production lines such as beans, peas and tomatoes for their own processing facilities. The project would finance plastic houses for the production of early vegetables, mainly tomatoes, peppers and cucumbers. Plastic houses were also financed under the first agricultural credit project and have found a very satisfactory response from private farmers; production increased by more than 60% since 1973. Increased annual production in plastic houses from the project at full development is projected to amount to 570 m tons. In addition mechanization will have an indirect impact on vegetable production which is estimated at 7,000 to 7,500 m tons at full development.

4. Fruit Production. In 1974, Macedonia supplied 12% of the total Yugoslav production of apricots, 11% of the apple production, 8% of the production of pears, 4% of the production of peaches and 75% of the market production of table grapes. Montenegro's share in total fruit production is below 2%, except for peaches which amounted to 3.3% of the entire Yugoslav production.

5. Fruit production has been fluctuating with weather conditions. However, yearly variations tend to be smaller in these two Republics than in the rest of Yugoslavia. The production of apples, pears, sour cherries and grapes shows a strongly upward moving trend since 1965. The area of sour cherry and peach plantations has increased rapidly in recent years, after a long period of stagnation (see Tables 4 and 5). Most of the new plantations have not yet reached full production. In Macedonia the project will result in an increase of orchard plantations in the private sector of 110 ha and of table grapes of about 55 ha. In Montenegro, the production of peaches, which amounted to 2,286 m tons in 1974 would be raised by 3,200 m tons at full development of the project. The production of sour cherries amounted to 143 m ton in 1974, 0.3% of Yugoslavia's total production. The project would raise sour cherry production by 3,900 m tons at full development.

6. Tobacco Production. Macedonia's annual tobacco production of 27,800 m ton in 1974 accounted for 47% of Yugoslavia's total production of 59,000 m ton. Area and production have increased by 2-3% annually since 1971, after a period of stagnation and decrease. Macedonia and the rest of Yugoslavia grow

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1/ For production data on vegetable, see Annex 2, Tables 2 and 3.

mainly Oriental and semi-Oriental types of tobacco. Virginia tobacco accounts for 15% of the total production; most of it is produced in eastern Croatia. Production of Virginia tobacco was introduced in Macedonia in 1967 after a period of testing by the Prilep Tobacco Institute. It is mainly grown in irrigated areas and exclusively on private farms. Virginia tobacco growing was supported by the tobacco drying sheds financed under the First Agroindustries Project Macedonia. It amounts, at present, to about 1,400 m ton per year. Since 1971, Yugoslavia has exported about 18,000-20,000 m ton of Oriental and semi-Oriental tobacco per year. Imports, mostly of Virginia tobacco, declined from 5,500 m ton in 1971 to 1,800 m ton in 1974. Macedonia enjoys very favorable climatic and soil conditions for growing Virginia tobacco. Substitution of Virginia tobacco for Oriental varieties as well as the increase in area devoted to Virginia tobacco has been held back by the lack of drying facilities. The total available drying facilities suitable for Virginia tobaccos amount at present to 2,700 m ton (dried leaves).

7. The project will increase the drying capacity by 800 m ton dried leaves at full development, thus permitting an increase of the area under Virginia tobacco by 400 ha. The incremental production would mainly supply the domestic market as the local demand for Virginia tobacco is expected to increase with consumption of cigarettes, at a rate of 4-5% per year.

8. Sheep Production. About 25% of the total sheep herd is kept in Macedonia. The number of sheep reached a peak of 2.2 million in 1968 and subsequently has declined until 1972. Since 1972 it has increased again with the improvement of the economic conditions and reached 1.9 million in 1975. 1.75 million sheep or 92% were kept in the private sector. The predominant race is the local Pramenka breed (in Macedonia subdivided into two subraces: Ovcepola, which is kept in the east, and Shara, which is kept in the west), with a low productivity (1-1.2 kg low quality wool per animal, 25-30 kg milk per lactation, and an average slaughtering weight of below 20 kg). The fertility rate is low with about 90-95 lambs per 100 ewes. The average size of the herd in the private sector varies between 80 and 150 ewes; but herds of 500 sheep and more also exist.

9. Macedonia's production of lamb exceeds its consumption. Surplus production is either exported or sold to other Republics. The production of the low quality wool is processed locally. Market prices are low and farmers frequently face difficulties in marketing the wool. High quality wool from Merino sheep has a good market. Wool is sold at prices between 20-25 Din per kg. The project would contribute to improved quality of both wool and meat in the private sector. It would supply 20,000 sheep and produce at full development 33,000 lambs, 1.8 million kg milk and 155,000 kg wool. In addition, the new breeds would gradually upgrade existing herds and thus further raise the production of quality lamb and wool.

10. Milk Production. Macedonia produced only 3.2% of the total milk in Yugoslavia (2.9% of the cow milk and 25% of the sheep milk). Its share

in the production sold on authorized markets is remarkably higher with 6.5%. Macedonia is a milk deficit Republic. The number of cows fluctuated considerably between 1961 and 1971. Since 1971 it has continuously increased at rates between 5% and 6% annually, reaching 147,000 cows in 1975, of which 138,000 are kept in the individual sector. About 50% of these cows are the Busha type of native race with low milk yields (usually around 800 kg per cow and low meat producing potential). About 20% are pure breeds (Friesians, Montafons or Simmenthals) or F3/F4 cross breeds between Bushas and pure breeds. About 30% of the cows are cross breeds at the F1/F2 level.

11. The Government supports the improving of cattle breeds mainly in the following ways:

(a) by artificial insemination. At present about 25% of the cows in the individual sector are thus inseminated.

(b) by supplying and subsidizing selected "community bulls". About 25% of the cows are inseminated at present in this way.

To avoid quality heifers being sold for slaughtering, the extension service supports and subsidizes a heifer raising program for selected areas. The project would assist the Government in these efforts by financing the purchase of high quality breeds and investments in buildings and fodder production on private farms. Its direct impact on the production of milk is estimated at 2,700 m tons. The supply of high quality heifers to other farmers will raise milk production indirectly.

Marketing

12. The increase in production resulting from the project would be absorbed predominantly by the domestic market. Exports would include some of the early vegetables and fruit, wine and sheep production.

13. Vegetable Marketing. Most of the project's vegetable production is consumed domestically, both within Montenegro and Macedonia as well as in other regions. Most of the production "exported" to Yugoslavia's other Republics is the surplus during the peak season for both processing and direct consumption.

14. The project region in Montenegro produces most of the vegetables of the Republic (except potatoes). Its contribution to the Yugoslav market is, however, marginal and restricted to the sale of some early vegetables and some sales to processing industries. Macedonia's share in the total Yugoslav production of tomatoes and peppers amounted to 28% and 35% respectively in 1973/75. It contributed considerably to Yugoslavia's exports of tomatoes and peppers.

15. The main buyer of Yugoslavia's peppers is the Federal Republic of Germany, which absorbed 63% of Yugoslavia's pepper exports in 1974 (see Table 10). Germany's pepper imports since 1967 increased by more than 30% and are likely to continue to rise, although probably with slightly decreasing growth rates. Yugoslavia has maintained successfullly its competitive position in West European markets against increasing competition, mainly from Bulgaria, Romania and Spain. It can be expected that with their closeness to the main market and long experience in marketing in this field, Yugoslav exporters will continue to be competitive. Tomatoes were largely exported to the German Democratic Republic (66% of total exports in 1973, as shown in Table 10). In Eastern Europe, Yugoslavia meets heavy competition of Comecon members, notably Bulgaria and Romania whose total 1972 exports about equalled Yugoslavia's entire production. Because of poor market data and the presence of state trading, Yugoslavia's prospects in the Eastern European markets are uncertain and difficult to evaluate. Western Europe, which absorbed about 10% of Yugoslavia's tomato exports, may become more interesting in the future. Total demand in Western Europe is likely to rise by approximately 2% per year. Macedonia's competitive position in these markets would be strengthened by expanding the early production.

16. Domestic vegetable consumption, excluding beans, has been growing since 1966 at 3.5% to 4% per year, with slightly increasing growth rates after 1969 (Table 13). Per capita consumption, approximately 84 kg in 1975, is comparatively high relative to the country's per capita income level. Production and consumption since 1965 developed more or less parallel, although price development suggests that there might have been a slight tendency of production to lag behind consumption in recent years except in the main season (Table 12). The increase in consumption is likely to continue except for potatoes and beans. Yugoslav sources estimate the annual increase of the future demand at 3-4% based on an income elasticity for demand of 0.6 thus projecting a per capita consumption of 115-120 kg (excluding beans and potatoes) in 1985. FAO projections, based on an income elasticity of 0.5 arrive at consumption growth rates of about 3%.

17. Seasonal prices have fluctuated in wide ranges during 1972-74, (Table 12), indicating the uneven supply distribution during the year. While there is some tendency towards oversupply during the main season, the supply of fresh vegetables is low or non-existent between November and May. In summary, it can be concluded that there is only limited room for the expansion of consumption during the main season at prices that cover production costs. There is, however, a large and growing need for vegetables outside the major season. This off-season demand can only be satisfied if the supply is adjusted to avail of it. The project takes this situation into account by providing for investments in plastic houses to extend the growing season and for investments to enlarge the storage and cooling capacity.

18. Fruit Marketing. The project region contributes considerably to the supply of apples, table grapes and early peaches on the Yugoslav market and to the export of table grapes and of early peaches. Fruit consumption in Yugoslavia follows more or less the development of supply. Imports are insignificant. Exports play a role only for soft fruits, early peaches and table grapes; in 1974, 17% of their total market production was exported.

19. Exports of grapes have tripled in value since 1970. The export by volume increased by 115% between 1970 and 1974. East Germany has become the major importer, with 1974 imports amounting to 43.6% of total Yugoslav exports in 1974, followed by Czechoslovakia and Austria (see Table 11). Yugoslavia's competitive position in the East European markets is good and further export increases to these areas can be expected. In the West European markets it meets heavy competition from other Mediterranean countries and there is probably only limited room for further expansion.

20. Peaches are marketed predominantly in Yugoslavia. Only less than 1% of the peach production is exported. The United Kingdom absorbed 44% of total Yugoslav exports in 1974, 24% were exported by Austria and the rest went to Comecon countries, notably to Czechoslovakia, the predominant buyer of Yugoslavian peaches in the Eastern Bloc. Export prospects to Eastern countries may improve somewhat. Demand for peaches in Western Europe is likely to continue its steady growth since 1960. Yugoslavia has succeeded to export against heavy competition from Italy and Greece, mainly the early production from the project regions. It is likely to defend or even improve its position successfully. Domestic market prospects continue to be good, particularly as Montenegro and Macedonia enjoy the advantages of early production. A consumption growth of 3% to 4% per year has been projected with the demand for early production increasing even faster.

21. The market for fresh apples is limited to domestic consumption. Only concentrated apple juice is exported, mainly to the Federal Republic of Germany (67%) and the United States (31% of total exports). Exports of concentrated juice increased 120% between 1970 and 1974. The demand has increased rapidly as reflected by a price increase of more than 400% during the same period. The project's production is expected to be marketed mainly in the Federal Republic of Germany, where market prospects appear good.

22. Yugoslavia's production of sour cherries is sold about evenly domestically and abroad. Exports are well diversified with Eastern European markets absorbing about 80-85% of total exports. The main exporters are the Federal Republic of Germany, Italy, Austria, the Netherlands, France and Great Britain. The market prospects for sour cherries are excellent, both in Yugoslavia as well as in Eastern Europe. Production has lagged behind demand, and the situation is likely to remain unchanged for the foreseeable future.

23. Market for Sheep Production. Domestic consumption of mutton and wool increased modestly since 1965 with average annual growth rates below 2%, with a tendency to stagnate during recent years. The stagnating consumption is mainly due to insufficient supply at prices that would prevent consumers shifting to the consumption of pork and poultry meat.

24. Exports decreased by almost 50% between 1967 and 1974 from 4,600 m ton to 2,370 m ton, although export prices increased drastically from 16 Din per kg (carcass weight) in 1968 to 43 Din per kg in 1974. About 99% of all exports went to Italy in 1974. The EEC's import restrictions on meat drastically reduced exports to Italy and prospects that they would return to the previous levels are uncertain. Macedonia, which has a large share in Yugoslavia's sheep exports, is particularly hard-hit. However, it should be possible to market the relatively small portion of the production so far exported (5% of the total production has been exported) partly on the domestic market and partly on the new export markets. Domestic sales would require a reduction in prices by about 15-20%. New export market prospects appear in some Arab countries in the Middle East and North Africa. The slaughterhouse investments under the project, designed to allow slaughtering according to international hygienic standards and to Moslem regulations, would be essential in opening up such export markets. In 1975, Macedonia exported live sheep to Tunisia as it lacked proper slaugthering facilities. With suitable facilities and a determined export effort, Macedonia should be able to gain ample access to these markets and to compete successfully against other suppliers, such as Romania and Bulgaria.

25. Milk and milk products are entirely consumed in Macedonia. Per capita consumption of milk increased from about 29 kg in 1965 to about 65 kg in 1975, with annual growth rates slightly above 8%. The consumption level is still about 20% below the average consumption of Yugoslavia, mainly because of the insufficient supply. Consumption of milk products increased annually by 3-4% since 1965 and corresponds at present to the average per capita consumption in Yugoslavia of about 7 kg. Milk production in Macedonia is not likely to meet the future demand. The investments in livestock and dairy facilities under the project would help to close the gap.

The Wine Market

Past Development

26. The area under vineyards in Yugoslavia declined slightly from 261,000 ha in 1965 to 248,000 ha in 1975. Production of grapes and wine during the last 10 years showed a slightly upward moving tendency, with an average annual growth rate of about 1-1.5% between 1965/67 and 1973/75. However, growth varied significantly annually and by region: production increased strongly in Montenegro and Macedonia, while it stagnated in Serbia proper and Vojvodina. The latter shared 37% of the total production in 1974.

Production of Grapes and Wine by Republic

(Average production in 1973/74 as % of average production in 1960/69)

	Grapes	Wine
Yugoslavia	110	125
Montenegro	167	154
Macedonia	154	189
Kosovo	135	200
Slovenia	128	133
Croatia	107	120
Bosnia-Herzegovina	105	147
Serbia Proper	98	115
Vojvodina	90	112

27. Domestic consumption has increased continuously since 1965 with an average annual growth rate of about 2%. With total production and consumption moving parallel, the wine market appeared relatively stable during the last 10 year period. However, behind the overall wine market development there occurred fundamental structural changes that may have significant repercussions for its future development.

28. Market Organization. The organization of the wine market follows in principle the general structure of agricultural markets. Like the market of other products it consists of two parts:

(a) the "unorganized (peasant) markets", where private farmers sell their home-made wine directly. This market includes family consumption of home-made wine in rural households;

(b) the "organized market" with authorized purchases, where social sector enterprises sell commercially processed wine.

29. The wine sold on the unorganized market is processed on private farms using the farmer's own grapes. The share of the unorganized market in total production is steadily declining, although it still amounts to about 75%; the share varies widely between the Republics ranging from 0% in Kosovo to 80% in Slovenia.

Share of Unorganized Markets' Production in Total Production expressed as %

Yugoslavia	65
Bosnia-Herzegovina	55
Montenegro	57
Croatia	77
Macedonia	42
Slovenia	80
Serbia Proper	61
Kosovo	0
Vojvodina	79

30. The organized market consists of:

(a) wine from grapes of the social sector and processed in social sector wineries;

(b) wine from grapes produced in the private sector and processed in social sector enterprises; and

(c) wine from grapes produced and processed in the private sector sold through the trade channels of the social sector.

The importance of these categories varies widely between the Republics. While in the project regions almost all wine sold on organized markets is processed in wineries of the social sector, the share amounts to only 40% in Serbia and Croatia.

Production of the Social Sector as % of the Total Production Sold in Organized Markets

Production Sold in Organized Markets = 100	
Yugoslavia	62
Macedonia	99.7
Montenegro	92
Kosovo	100
Serbia proper	38
Croatia	41

About 70-75% of the grapes that are processed in the wineries of the social sector are produced in the private sector, the portion varying between years and regions.

Share of the Private Sector Grapes in the Input of the Social Sector Wineries

(Total Input of Social Sector Wineries = 100)

	1974
Yugoslavia	76
Macedonia	88
Montenegro	0
Croatia	91
Serbia proper	91
Slovenia	66
Bosnia-Herzegovina	37
Vojvodina	33
Kosovo	32

In Montenegro the social sector is practically the sole producer of grapes. The soil and climatic conditions of the individual sector are not suitable for wine growing and other crops are more competitive.

31. Organized market demand grew at a rate of 7-7.5% per year since 1970, while production increased steadily between 1965 and 1974 with average annual growth rates of 8-9%. The low grape harvest in 1975 (30% below the peak production in 1973 and 10% below the already subnormal production in 1974) caused a sharp drop of the total wine production, which probably has interrupted the upward trend of market production. However, available preliminary figures do not permit a definite statement.

Balance of Market Production, Foreign Trade and "Apparent" Consumption of Wine in Yugoslavia

	1970	1973	1974	1975
	1,000 hl			
Total Production	5,403	7,701	5,811	5,230
Peasant Markets, Home Consumption and Processing /1	4,063	6,041	3,841	3,410
Market Production	1,340	1,660	1,970	1,840 /4
Net Foreign Trade /2	382	430	700	480
Exports	381	640	832	640
Imports	6	210	132	160 /4
"Apparent" Consumption /3	958	1,230	1,200	1,360 /4

/1 Processed wine about 20-25%.
/2 Without sparkling wines, vermouth and wine from fermented grapes (Prosek).
/3 Effective final demand, minus change in stocks.
/4 Mission estimate.

Source: Statisticki Godisnjak Jugoslavija 1975
Foreign Trade Statistics 1975
Wine Fund 1976

32. Exports. The surplus of the organized market production was absorbed by increased exports. About 42% of the total market production was exported in 1974. Since 1970 exports increased by 218% equivalent to an average annual growth rate of 22%. The low 1975 production and the surplus conditions on the West European markets caused a decline of Yugoslavia's exports by 23%, from 830,000 hl to 640,000 hl, the level of exports in 1973. Imports of wine increased from 6,000 hl in 1970 to more than 200,000 hl in 1973 and about 160,000 hl in 1975. Imports are mainly low quality wines from Morocco and Algeria used largely for blending and processing.

33. Bottled Versus Bulk Exports. About 87% of the wine was exported in barrels. Exports of quality wine in bottles gained importance during recent years but amounted only to 13% of exports in 1974.

Share of Different Categories of Wine in Total Wine Exports
Total Exports = 100

	1970	1974
Quality wine in bottles	3	13
Quality wine in barrels	69.9	50.7
Ordinary wine in barrels	7.7	20.7
Wine for processing	19.4	15.6

The structure of exports is more determined by the market organization in the receiving countries than by an active Yugoslav marketing policy. The export of wine in bottles is of major importance only in Eastern countries which lack the necessary storage and bottling capacities for the import of wine in bulk. Also the USA and Canada import largely bottled wine as small trading firms without bottling facilities handle most of the imports. Countries like the Federal Republic of Germany, where about 80% of the total imports is handled by one large firm, prefer to use their own storage and bottling facilities to enlarge their profit margin.

34. Regional Export Structure. About 54% of the total exports in 1974 went to the EEC countries, one third to the Comecon and about 6% to Japan, which has become the most important customer outside the EEC and the Comecon. Japan increased its imports from Yugoslavia from 4,000 hl in 1970 to 50,000 hl in 1974. The major part of the large increase in exports between 1970 and 1974 was, however, absorbed by EEC countries, especially by the Federal Republic of Germany, who increased imports of Yugoslav wine by 2.45 million hl or more than 300%, thereby absorbing 54% of the total increase in exports between 1970 and 1974. Comecon countries increased their exports by only 97,000 hl accounting for 21% of the total increase of exports between 1970 and 1974.

Share of Major Countries in the Increase of Exports between 1970-1974

(Total Increase 1970-1974 = 100)

EEC Countries	66
F.R. Germany	54
United Kingdom	12
Comecon Countries	21.3
USSR	17.3
East Germany	14.3
Czechoslovakia	- 10.6
Japan	11.7
Others	1.0 /1

/1 Balance of small increase (USA and Canada) and small decrease (Switzerland & Austria).

35. Prices. Export and domestic prices increased continuously since 1970 indicating the stable market conditions Yugoslav producers have enjoyed so far.

Development of Wine Prices 1970-1974

	1970	1973	1974
		Din/l	
Domestic Markets			
Individual Producers	1.59	3.52	4.14
Social Sector Producers	2.48	6.15	6.87
Export Markets			
Quality wine in barrels	2.60	4.90	5.45
Wine in bottles	6.14	9.82	10.44

Source: Wind Fond

Within individual years prices varied considerably between countries and, on the domestic market, between regions, indicating in both cases mainly quality differences (see Table 14). Quality wines achieved from 20% to 40% higher prices in general. Market differentiation according to quality, particularly creating a separate market for high quality wines, is in the initial stage. Montenegro is leading in these efforts as it produces relatively high quality wines.

Differences in Wine Prices in Macedonia According to Quality in 1975

	Din/l
Ordinary wine (red)	8.16
Quality wine (red and white)	9.60
High quality wine	11.40

Source: Vino Macedonia

Prospects

36. General. Basic trends of production and consumption on the domestic markets, as discussed above, will continue in the next years. However, growth rates are likely to change and endanger the stable development of the past. Projections of Yugoslav Wine Fund imply the following growth rates:

Projected Annual Growth Rates 1975 - 1985

	%
Area under vineyards	0.5
Yields	4-5
Production of grapes	4-5
Total wine production	4-5
Organized market production	9
Demand on organized markets	3-4

These projections show that a tendency towards surplus production is built into the present development, unless the rapid increase of exports continues.

37. Exports. The prospects for Yugoslav wine exports depend on the development of the wine markets in the following countries or country groups:

(a) the EEC
(b) the Comecon
(c) Japan
(d) United States and Canada

38. The EEC is the most important market for Yugoslav exports absorbing more than half of the total wine exports and two-thirds of the increase of exports between 1970-1974. The short-term outlook for imports into the EEC has improved slightly with the "normal" EEC harvest in 1975/76, after several surplus years caused by the good harvests in 1973/74 and 1974/75.

Production and Imports of Wine in the EEC

Average for:	1968/72	1973/74	1974/75	1975/76
	----------1,000 hl----------			
Production	135,700	170,050	160,617	142,339
Imports	4,481/1	7,226	5,264	5,361

Source: Kom. report (Kom(75)) 416 Brussel, 1975.
Statistisches Jahrbuch fur Ernahrung, Landwirtschaft und Forsten Hamburg/Berlin in 1975 and Vorbilanz fur das Weinwirtschaftsjahr 1975/76, Brussel.

Medium and long-term outlooks are less favorable. Direct wine consumption stagnated practically since 1968/69. The increase of total consumption was mainly due to increased use of wine for processing to alcohol, partly supported by Government subsidies.

Development of Consumption of Wine in the EEC

	1969/70	1973/74	1974/75	1975/76
	million hl			
Total Consumption	141.1	189.9	162.2	150.1
-Direct Consumption	127.6	124.6	128.4	132.1
-Processing & distillation	11.4	23.2	32.4	16.9

39. Per capita consumption in the EEC varied between 48 and 51 kg since 1970, varying from 2 kg per capita in Ireland to more than 100 kg in Italy and France. Differences are explained by consumption preferences rather than by differences in per capita incomes. This suggests that future consumption is likely to stagnate or to increase only modestly. The stagnating direct consumption is likely to continue with small variation between countries. Additional expenses for wine are likely to be spent mostly for higher quality. Production is likely to continue to increase as replanting of old vineyards, especially in Italy and France, will increase yields. There is also an increase in the area under vineyards expected.

40. The new regulations for the wine market in the EEC implemented in May 1976 try to tackle the surplus problem by preventing new planting of vineyards until 1978 (except vineyards for the production of quality wine in certain regions) and by granting premiums to farmers who give up the production of low quality wines without establishing new vineyards within the next six years. It is, however, doubtful that these measures will achieve their intended objective, since the EEC has at the same time raised the guaranteed minimum price for low quality wine, thus providing a strong production incentive. Therefore, the tendency of supply to grow faster than demand is likely to continue.

41. Yugoslavia shares only 4% of the total wine imports of the EEC and has so far succeeded in defending and even increasing its market share. Recent changes in the foreign trade policy of the EEC have worsened the competitive position of Yugoslav wine producers considerably:

(a) by granting duty free import quotas of yearly 550,000 hl (about 10% of present total imports) to the Magreb States;

(b) by increasing the degree of protection for domestic producers and by determining a minimum import price for imported wine (reference price) which is enforced by a variable duty, if necessary.

The pressure from third countries to receive preferred access to the Common European Market will continue. Greece, Portugal and Spain are probably the

next candidates. Granting preference to these countries would have a major impact on Yugoslavia's market position, particularly in West Germany and the United Kingdom. The EEC's concession to the Magreb States would affect Yugoslavia only indirectly since most of the Magreb wine is imported to France, to where Yugoslavia is not exporting.

42. Yugoslavia is likely to be able to defend its present position successfully since the major part of its imports to the United Kingdom and to West Germany is in the hands of a very few effective and powerful importers. Nevertheless, expansion of exports will become increasingly difficult; exports are likely to stagnate or at best may increase by 1 - 2% annually. Moreover, the possibility that the Common Market will impose a ban on wine imports from non-preference countries in years of great surplus cannot be excluded entirely in the light of past experience on other markets.

43. Export prospects for high quality wines (appellation controlee) are more favorable. The market for well-established, high-quality wine, of which only limited quantities are available, has hardly been affected by the general surplus situation in the EEC. The prices remained high. On the other hand less known quality wines experienced a considerable price decrease close to the price level of ordinary wines. The conclusion is that wines of selected qualiity will have good chances, regardless of whether they are produced inside or outside the Common Market area. However, to exploit these chances by introducing wines unknown to consumers, such as the Vranac wine to be produced under the project, requires not only high-quality production but also skillful marketing efforts. Yugoslavia and particularly the Cemovsko Polje plain have the potential for producing excellent wine.

44. Limited information exists about the market of the Comecon Member Counties. Yugoslav exports increased moderately with annual growth rates of 3 - 4% during the last years. Considering the present level of wine consumption in Czechoslovakia, Eastern Germany and the USSR and their prospects for general economic development, one can expect a continuation of the increase of exports to these countries with similar orders of magnitude as in the past.

45. The rapid increase of wine exports to Japan has induced ambitious hopes in Yugoslavia. An increase of exports from 50,000 hl in 1974 to more than 150,000 hl is planned for 1976. Japan is a new-comer on the international wine market; it increased its imports from 13,710 hl in 1969 to almost 400,000 hl in 1974, of which Yugoslavia imported 13%. Sharp competition is likely to develop among wine exporting countries and the increase of consumption in Japan has to be projected with great caution, since the general public has not yet developed a wine-drinking habit. Yugoslavia's export prospects should not be overestimated therefore. The growth rates of its exports since 1970 are not likely to continue.

Conclusion

46. Wine Exports. The growth rate of Yugoslavia's wine exports since 1970 will decrease considerably. Exports are likely to increase at growth rates around 3% and possible somewhat faster if Yugoslavia succeeds in using its potential of producing high quality wine.

47. Domestic market. The main market for Vranac wine will remain the domestic market. The projections of the Wine Fund for domestic markets (see para 35) may be slightly too pessimistic, especially if prices in real terms were to fall under the pressure of increased supply, demand on the organized market is likely to increase faster, and one might expect growth rates of 5 - 7% assuming an income elasticity of demand of 0.7 and a price elasticity of demand around 1.0.

48. Vranac is a high quality red wine produced mainly in Montenegro and Macedonia, which resembles famous French wines like Chateauneuf-du-Pape or Paul Masons Pinot Noire from California. So far it is used for direct consumption almost only in Montenegro and Macedonia. Outside the project regions it is mainly used fore blending because of its dark red color and its special flavor. In 1975 it was sold in Montenegro at 13.75 Din/l in bulk and at 18 - 22 Din/l in bottles. These prices are considerably above the average (see para 34) indicating that the demand for Vranac wines is high.

49. The increasing pressure of supply in Yugoslavia may lead to a more distinct separation of the markets of high-quality and ordinary wines, similar to the development in Western Europe. Experiences there show that fluctuations of prices and quantities in the former markets are considerably smaller than on the ordinary wine markets. To create a stable long-term market for Vranac, efforts need to be continued to establish Vranac as a high quality well-known wine outside Montenegro. A promising start has been made. In early 1976 the wine received the appellation controlee label from the Yugoslav Wine Fund in accordance with the methodology prescribed by the Office International du Vin, of which Yugoslavia is a member.

January 1977

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Development of Crop Production in Macedonia 1965 - 1975
(in 1,000 m ton)

	Wheat	Barley	Maize	Rice	Sugarbeet	Tobacco	Cotton	Sunflower
1965	259	70	80	25	92	28	5.4	7.8
1966	299	74	85	23	165	26	5.8	8.4
1967	346	72	100	20	187	27	10.2	9.4
1968	237	39	90	17	126	21	8.6	9.2
1969	289	46	86	28	160	22	9.1	9.2
1970	303	64	105	32	165	24	11.9	16.5
1971	300	52	102	36	158	22	10.0	19.8
1972	284	59	103	31	144	29	7.2	20.6
1973	276	70	108	32	119	32	7.6	23.5
1974	306	79	85	32	83	28	6.8	21.0
1975	287	73	97	30	113	32	5.8	27.0
				1965 = 100				
1966	115	106	106	92	179	93	107	108
1967	134	103	125	80	203	96	189	121
1968	92	56	113	68	137	75	159	118
1969	112	66	108	112	174	79	169	118
1970	117	91	131	128	179	86	220	212
1971	116	74	128	144	172	79	185	254
1972	110	84	129	124	157	104	133	264
1973	107	100	135	128	129	114	141	301
1974	118	113	106	128	90	100	126	269
1975	111	104	121	120	123	114	107	346

Source: Statistical Yearbook of Macedonia 1974 and 1975

ANNEX 2
Table 2

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Development of Vegetable Production in Macedonia 1965-1975
(in 1,000 m ton)

	Potatoes	Beans	Cabbage	Tomatoes	Pepper	Onions
1965	55	3.2	15	64	43	24
1966	66	3.6	20	73	61	24
1967	75	3.8	22	60	61	26
1968	63	3.2	22	69	64	24
1969	64	3.2	24	77	69	24
1970	83	3.9	29	91	80	44
1971	84	3.9	33	97	98	38
1972	77	3.2	30	100	108	33
1973	84	3.9	32	114	112	39
1974	78	3.8	31	113	118	38
1975	79	4.2	31	138	106	35

1965 = 100

1966	120	113	133	114	142	100
1967	136	119	147	94	142	108
1968	115	100	147	108	149	100
1969	116	100	160	120	160	100
1970	151	122	193	142	186	183
1971	153	122	220	152	228	158
1972	140	100	200	156	251	138
1973	153	122	213	178	260	163
1974	142	119	207	177	274	158
1975	144	131	207	216	247	146

Source: Statistical Yearbook of Macedonia 1974 and 1975

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Vegetable Production in Montenegro
(Cemovsko Polje Plain)

Projected Production in Zone B for the period 1976-80

	1975	1976			1977			1978		
	(tons)	ha	yield/ha (tons)	Total Output (tons)	ha	yield/ha (tons)	Total Output (tons)	ha	yield/ha (tons)	Total Output (tons)
Paprika	14,350	450	35	15,750	500	36	18,000	560	37	20,720
Tomato	8,400	250	35	8,750	280	36	10,080	310	37	11,470
Watermelon	4,100	210	20	4,200	220	22	4,840	240	24	5,760
Other vegetables	4,350	300	15	4,500	310	15	4,650	325	18	5,850

ANNEX 2
Table 3

ANNEX 2
Table 4

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Development of fruit production in Macedonia 1965 - 1975
(in '000 m ton)

	Apples	Pears	Plums	Soft Cherries	Sour Cherries	Apricots	Peaches	Grapes
1965	25	4	13	3	0.3	4	3	123
1966	35	8	28	3	0.5	2	4	136
1967	35	9	23	3	0.3	5	5	100
1968	42	8	26	3	0.3	2	3	139
1969	58	9	30	3	0.4	6	6	191
1970	50	13	30	3	0.5	5	5	182
1971	63	12	24	3	0.5	4	4	174
1972	54	11	25	3	0.4	4	4	149
1973	76	13	23	3	0.5	3	5	197
1974	54	9	26	2	0.6	3	5	175
1975	64	18	32	3	0.7	4	6	213

1965 = 100

1966	140	200	215	100	167	50	133	111
1967	140	225	177	100	100	125	167	81
1968	168	200	200	100	100	50	100	113
1969	232	225	231	100	133	150	200	155
1970	200	325	231	100	167	125	167	148
1971	252	300	185	100	167	100	133	141
1972	216	275	192	100	133	100	133	121
1973	304	325	177	100	167	75	167	160
1974	216	225	200	67	200	75	167	142
1975	256	450	246	100	233	100	200	173

Source: Statistical Yearbook of Macedonia 1974 and 1975

ANNEX 2
Table 5

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Development of the number of Fruit Trees in Macedonia, 1965-1975

	Apples	Pears	Plums	Soft Cherries	Sour Cherries	Apricots	Peaches
	1,000 trees						
1965	1,640	686	1,410	173	34	329	351
1966	1,840	704	1,520	176	34	334	383
1967	1,889	757	1,545	179	35	320	412
1968	2,098	707	1,527	175	32	295	366
1969	2,431	719	1,527	185	34	274	368
1970	2,452	716	1,542	170	72	271	327
1971	2,490	732	1,560	166	73	265	295
1972	2,650	747	2,570	164	81	275	248
1973	2,750	748	1,560	163	85	260	255
1974	2,850	770	1,552	160	117	264	291
1975	2,794	799	1,543	155	136	256	420
	1965 = 100						
1966	112.2	102.6	107.8	101.7	100.0	101.5	109.1
1967	115.2	110.3	109.6	103.5	102.9	97.3	117.4
1968	127.9	103.1	108.3	101.2	94.1	89.7	104.3
1969	148.2	104.8	108.3	106.9	100.0	83.3	104.8
1970	149.5	104.4	109.4	98.3	211.8	82.4	93.2
1971	151.8	106.7	110.6	96.0	214.7	80.5	84.0
1972	161.6	108.9	111.3	94.8	238.2	83.6	70.7
1973	167.7	109.0	110.6	94.2	250.0	79.0	72.6
1974	173.8	112.2	110.1	92.5	344.1	80.2	82.9
1975	170.4	116.5	109.4	89.6	400.0	77.8	119.7

Source: Statistical Yearbook of Macedonia 1974 and 1975

ANNEX 2
Table 6

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Average Annual Growth Rate of the Production of Vegetables and Fruits in Macedonia 1965 - 1975

	Average Annual Growth Rates	
	1965-1975/1	1970-1975/2
Tomatoes	7.5 - 8	8 - 9
Peppers	9 - 9.5	8
Onions	5	1 - 2
Apples	6 - 7	3 - 4
Pears	8	4 - 5
Peaches	2 - 3	0 - 1
Plums	1 - 2	0.5 - 1

/1 Average 1965/67 - Average 1973/75

/2 Average 1969/71 - Average 1973/75

ANNEX 2
Table 7

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Fruit Production (1962-74) - Montenegro
(tons)

	Grapes	Apples	Plums	Pears	Olives	Figs	Peaches
1962-66	6,328	1,829	10,431	1,388	2,204	2,927	215
1967	7,958	1,368	4,657	1,260	5,589	3,935	477
1968	8,733	4,141	19,327	2,012	238	4,770	822
1969	7,552	2,383	5,466	971	487	4,142	453
1970	8,715	2,353	7,455	1,532	30	4,924	692
1971	10,034	2,157	7,618	1,963	1,379	4,140	1,382
1972	7,403	1,566	4,473	1,111	430	3,416	1,615
1973	10,507	2,953	3,550	2,003	1,278	3,389	2,822
1974	9,084	1,784	8,872	1,276	610	2,373	2,280
Growth rate 1962-74							
Average 1973/74 over " 1962-66							
	1.5	1.2	0.6	1.18	0.4	0.98	11.9
Average Production 1969-74							
	8,479	2,282	7,983	1,502	1,361	3,780	1,196

Sources: Statistical Yearbook of Yugoslavia, 1975; Tables 108.20, 108.21, 206.18
Statistical Yearbook of Montenegro, 1974; Table 7.20

APPRAISAL OF

YUGOSLAVIA

Livestock (1,000 head) in Macedonia 1965-1975

	Cattle	Cows and Heifers in calf	Sheep
1965	290	101	1,804
1966	312	105	1,997
1967	319	109	2,101
1968	322	114	2,196
1969	320	117	2,094
1970	282	106	1,863
1971	288	106	1,828
1972	302	109	1,903
1973	320	129	1,810
1974	334	130	1,859
1975	364	147	1,907

1965 = 100

1966	108	104	111
1967	110	108	116
1968	111	113	122
1969	110	116	116
1970	97	105	103
1971	99	105	101
1972	104	108	105
1973	110	128	100
1974	115	129	103
1975	126	146	106

Source: Statistical Yearbook of Macedonia 1974 and 1975

ANNEX 2
Table 9

APPRAISAL OF

YUGOSLAVIA

Livestock Production in Macedonia 1966 - 1975

	Total Meat	Cattle	Sheep	Wool	Milk
	'000				million liter
1966	21.0	5.7	8.1	2.3	89.6
1967	24.2	6.3	9.4	2.3	95.0
1968	24.0	6.9	8.9	2.4	99.3
1969	24.6	8.4	8.5	2.4	101.8
1970	22.3	6.1	8.3	2.3	95.5
1971	23.4	5.0	8.6	2.2	92.6
1972	26.5	7.8	10.0	2.1	99.8
1973	26.5	6.2	10.8	2.0	104.8
1974	32.4	8.5	10.2	2.0	112.3
1975	36.0	10.0	12.0	2.0	118.0
	1966 = 100				
1967	115.2	110.5	116.1	100.0	106.0
1968	114.3	121.1	109.9	104.4	110.8
1969	117.1	147.4	105.0	104.4	113.6
1970	106.2	107.0	102.5	100.0	106.6
1971	111.4	87.7	106.2	95.7	103.4
1972	126.2	136.8	123.5	91.3	111.4
1973	126.2	108.8	133.3	87.0	117.0
1974	154.3	149.1	125.9	87.0	125.3
1975	171.4	175.4	148.1	87.0	131.7

Source: Statistical Yearbook of Macedonia 1974 and 1975

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

Yugoslavia

Structure of Pepper & Tomato Exports in 1973 and 1974

		Austria	Czechosl.	Hungary	F.R. of Germany	Switzer-land	Sweden	Nether-lands	U.S.A.	Israel	France	Greece	Canada	Australia	USSR	Belgium	Great Britain	German D.R.	Denmark	Poland	Italy	Lebanon	Japan	Zambia	Total
		'000 Din																							
Peppers																									
Fresh capsicum	1973	80	3,213	272	3,585	260	106																		7,516
	1974	102	4,330		4,307	395		230			30				38										9,432
Frozen capsicum	1973				6,149	76	531	564	151																7,471
	1974				8,705		80	481			114						8								9,388
Unground-paprika	1973				2,300					693															2,993
	1974				6,263	21				716								3							7,003
Preserved-capsicum	1973	598	3		27,165	66	1,181	288		67	277	41	364	435	10										30,515
	1974	373	4		18,408		713	555	1,390		118		172	1,503	929	130	132	32	124						24,583
Ground paprika	1973	1,859	25		1,175	256	27					126	340	15		5,653									9,476
	1974	7,760			3,398	722	16	51	78				1,110	19		105		1		1					13,261
Paprika paste	1973								1,085																1,085
	1974								1,448																1,448
Total Peppers	1973	2,537	3,241	272	40,374	658	1,845	852	1,236	780	277	167	704	450	10	5,653									59,056
	1974	8,235	4,334		41,081	1,138	809	1,317	2,916	716	262		1,282	1,522	967	235	140	36	124	1					65,115
As % of Total	1973	4.30	5.49	0.46	68.37	1.11	3.12	1.44	2.09	1.32	0.47	0.28	1.19	0.76	0.02	9.58									100
	1974	12.64	6.66		63.09	1.75	1.24	2.02	4.48	1.10	0.40		1.96	2.34	1.49	0.36	0.22	0.06	0.19						100
Tomatoes																									
Fresh tomatoes	1973	709																							709
	1974	2,018																							2,018
Tomatoes in airtight containers	1973	8												46			2,020	13,686		2			4,154	4	19,920
	1974	409			11,871	1,251		277						1,823	15,698	1,011	4,691	8,033	42	1,617	726	1,250			48,699
Total Tomatoes	1973	717												46			2,020	13,686		2			4,154	4	20,629
	1974	2,427			11,871	1,251		277						1,823	15,698	1,011	4,691	8,033	42	1,617	726	1,250			50,717
As % of total	1973	3.48												0.22			9.79	66.34		0.01			20.14	0.02	100
	1974	4.79			23.41	2.47		0.55						3.59	30.95	1.99	9.25	15.84	0.08	3.19	1.43	2.46			100

Source: Statistics of Foreign Trade of the SFR Yugoslavia 1974 and 1975

ANNEX 2
Table 10

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Structure of Fruit Exports 1970 and 1974

		Austria	Belgium	Czechosl.	Denmark	German D.R.	France	F.R. of Germany	Great Britain	Hungary	Israel	Italy	Nether-lands	Poland	Switzer-land	U.S.A.	U.S.S.R.	Australia	Others	Total
		'000 Din																		
Cherries	1974	102										83			3,578					3,763
Sour Cherries	1974	9,097					938	16,143				24,767	5,011							55,956
Sour Cherry juice	1974	4,237				9,939		1,292					1,605						40	17,113
Sour cherry & cherry juice concentrated	1974	230	156			3,836	59	7,290	219		1,347	2,085	480						268	15,970
Frozen Cherries	1974	2,481					802	20,522	6,615			2,450	2,982			40			1,598	37,490
Cherry Pulp	1974	142				3,056			132				191						68	3,589
Sour Cherry Pulp	1974	4,240	52	714		12,683	5,199	11,405	473		1,671		8,960			236		394	432	46,459
Frozen Sour Cherries	1974	610						434												1,044
Total	1974	21,139	208	714		29,514	6,998	57,086	7,439		3,018	29,385	19,229		3,578	276		394	2,406	181,384
as % of total	1974	11.66	0.11	0.40		16.27	3.86	31.47	4.10		1.66	16.20	10.60		1.97	0.15		0.22	1.33	100.00
Apples	1970	14															352		22	388
Apples	1974			14,302				825									2,845		1,057	19,039
Apple juice	1970																			-
Apple juice	1974																			-
Apple juice concentrated	1970							1,422											180	1,602
Apple juice concentrated	1974							5,110								2,420				7,530
Total	1970	14						1,422									352		202	1,990
as % of total	1970	0.70						71.46									17.69		10.15	100.00
Total	1974			14,302				5,935								2,420	2,845		1,067	26,569
as % of total	1974			53.83				22.33								9.11	10.71		4.02	100.00
Grapes, fresh	1970	5,082		3,987		388				1,027									255	10,739
Grapes, fresh	1974	6,858		7,577	61	12,995				1,999				301						29,791
Total	1970	5,082		3,987		388				1,027									255	10,739
as % of total	1970	47.32		37.13		3.61				9.56									2.38	100.00
Total	1974	6,858		7,577	61	12,995				1,999				301						29,791
as % of total	1974	23.02		25.43	0.21	43.62				6.71				1.01						100.00
Peaches	1970	1,087						290												1,377
Peaches	1974	548		665				84	1,016											2,313
Total	1970	1,087						290												1,377
as % of total	1970	78.94						21.06												100.00
Total	1974	548		665				84	1,016											2,313
as % of total	1974	23.69		28.75				3.63	43.93											100.00

Source: Statistics of Foreign Trade of the SFR Yugoslavia 1971 and 1975

ANNEX 2.7
Table II

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Monthly Producer Prices of Vegetables and Fruits 1971 - 1975

	Year	Average		May		June		July		August		September		October		November		December		January		February		March		April	
		a	b	a	b	a	b	a	b	a	b	a	b	a	b	a	b	a	b	a	b	a	b	a	b	a	b
		Din/kg																									
Tomatoes	1971	0.86	1.07	-	-	2.48	3.85	0.98	1.32	0.94	1.02	0.67	0.88	0.88	1.01	0.59	0.61	-	-	-	-	-	-	-	-	-	-
	1972	1.49	2.00	-	-	3.53	7.34	2.06	3.48	0.98	1.20	0.78	0.92	0.73	1.03	-	1.40	-	-	-	-	-	-	-	-	-	-
	1973	2.10	2.41	-	-	5.63	8.26	2.15	2.75	1.11	2.10	1.17	1.05	1.88	1.74	0.86	2.70	-	-	-	-	-	-	-	-	-	-
	1974	3.03	3.93	-	-	7.64	12.40	2.11	3.36	1.98	1.96	1.57	0.98	1.29	0.99	2.14	1.16	11.61	9.20	-	-	-	-	-	-	-	-
	1975	3.93	4.89	-	-	8.54	9.49	4.74	5.46	1.99	1.45	1.36	1.23	1.37	1.59	1.61	3.09	-	-	-	-	-	-	-	-	-	-
Peppers	1973	1.84	2.01	-	-	-	-	3.13	2.75	1.95	2.31	1.75	2.04	1.53	1.79	2.08	2.33	-	-	-	-	-	-	-	-	-	-
	1974	2.44	2.60	-	-	8.37	11.30	3.94	3.94	2.32	3.41	1.67	2.61	1.61	1.79	2.06	1.97	1.84	2.44	-	-	-	-	-	-	-	-
	1975	2.33	3.09	-	-	12.99	22.27	4.81	4.26	1.69	2.50	2.20	2.75	1.95	2.54	0.88	2.20	-	11.00	-	-	-	-	-	-	-	-
Onions	1973	2.10	2.42	4.92	-	3.48	1.88	3.08	2.57	2.16	2.50	1.74	2.04	1.76	2.41	1.73	2.20	2.80	2.89	1.99	-	3.38	-	3.03	-	4.99	-
	1974	1.66	2.01	1.84	1.83	1.82	1.93	2.13	3.19	1.57	3.02	1.65	2.04	1.52	2.13	1.71	2.78	1.29	2.33	1.75	-	1.85	1.89	1.60	-	1.51	2.06
	1975	2.81	3.42	1.21	0.89	1.22	3.15	1.91	2.48	1.91	3.62	2.76	3.00	5.54	2.51	6.96	5.30	5.63	4.84	1.26	-	1.27	1.00	1.32	2.00	1.44	1.67
Table Grapes	1972	n.r.		-	-	-	-	-	-	2.52		2.50		2.53		2.61		2.27		-	-	-	-	-	-	-	-
	1973	n.r.		-	-	-	-	-	-	3.68		2.92		2.72		3.56		2.90		-	-	-	-	-	-	-	-
	1974	4.85		-	-	-	-	7.84		5.56		4.65		4.65		4.75		5.55		-	-	-	-	-	-	-	-
	1975	6.22		-	-	-	-	-	-	-		-		-		-		-		6.25		6.14		-	-	-	-
Table Apples	1972	n.r.		-	-	-	-	2.28		2.83		2.54		1.92		2.06		2.70		2.10		2.72		2.43		2.78	
	1973	n.r.		-	-	-	-	3.09		1.80		1.21		2.48		2.24		2.10		2.93		3.62		3.51		3.68	
	1974	2.78		-	-	2.16		2.57		4.14		3.06		2.86		2.66		2.40		-	-	-	-	-	-	-	-
	1975	4.25		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		2.64		3.90		4.89		5.34	
Peaches	1972	n.r.		-	-	2.62		2.64		2.35		1.53		2.08		-	-	-	-	-	-	-	-	-	-	-	-
	1973	n.r.		-	-	5.03		4.24		4.03		2.33		3.64		-	-	-	-	-	-	-	-	-	-	-	-
	1974	4.27		-	-	5.26		4.08		4.15		4.10		4.20		-	-	-	-	-	-	-	-	-	-	-	-
	1975	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

a = individual sector
b = social sector

Source: Appraisal of an Agricultural Credit Project, Yugoslavia May 12, 1975

ANNEX 2
Table 12

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

ANNEX 2
Table 13

Consumption of Fresh and Processed Vegetables in Yugoslavia 1970 - 1975 and Projection 1980 - 1985

	1965/69	1970	1971	1972	1973	1974	1975	1980	1985
				Total Consumption in '000 m ton					
Fresh vegetables	1,171	1,436	1,459	1,481	1,683	1,734	1,882	2,200	2,640
Tomatoes					412	415	418		
Peppers					336	356	362		
Processed vegetables		45		n.r.			85	167	302
Fresh Fruit & grapes	1,169	1,161	1,040	1,031	1,171		1,345	2,038	2,825
Fruit Juices		23		n.r.			43	83	111
Other Fruit Products		67		n.r.			75	85	97
				Per Capita Consumption kg					
Fresh vegetables	59	74	75	76	80	82	84		
Tomatoes					19.3	20.1	20.8		
Peppers					15.3	16.8	17.1		
Processed vegetables		2.2					4.0	7.5	13
Fresh Fruit & Grapes	59	59.9	53.6	52.9	59.8		66.0	95.0	120
Fruit Juices		1.1		n.r.			2.0	3.7	4.8
Other fruit products		3.3					3.5	3.8	4.2

Sources: Fresh Fruit and Vegetables, 1970-1973 Statsticki Godisnak Yugoslvije, 1973-1985 missions estimate; processed fruit and vegetables: Business Association of Enterprises for Industrial Processing of Meat, Fruit and Vegetables (Jugokonserva) Belgrade.
Fresh Fruit: Congress about Human Food Production in Yugoslavia, Novi Sad 1975.

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Development of Wine Prices in Yugoslavia 1970, 1973 and 1974

	1970	1973	1974
Domestic Markets			
Individual Producers on Organized Markets	1.59	3.52	4.14
Producers Social Sector	2.48	6.15	6.87
Wholesale prices	3.17	7.15	9.47
Retail Price	5.03	10.67	12.62
Hotel Price	10.70	22.15	26.03
Export Markets			
Average wine in barrels	2.35	4.51	5.18
Average wine in bottles	6.14	9.82	10.44
West-German wine in barrels	2.76	4.30	4.86
West-German wine in bottles	6.63	8.77	13.24
East German wine in barrels	2.26	3.85	4.73
East German wine in bottles	-	7.53	7.26
U.S.S.R. wine in bottles	6.46	9.36	9.85

Source: Statistics of Foreign Trade of the SFR Yugoslavia 1971, 1974 and 1975, and Wine Fond

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Development of Yugoslavian Wine Exports

	Total		Quality wine in Barrels			Wine in Bottles			Ordinary Wine in barrels			Wine for Processing		
	1000 hl	Average Price Din/hl	1000 hl	% of Total	Average Price Din/hl	1000 hl	% of Total	Average Price Din/hl	1000 hl	% of Total	Average Price Din/hl	1000 hl	% of Total	Average Price Din/hl
1970	381.79	249.82	267.01	69.9	260.25	11.53	3.0	613.53	29.35	7.7	210.64	73.90	19.4	170.98
1973	640.46	492.96	276.93	43.3	490.07	80.18	12.5	982.42	155.68	24.3	412.51	127.67	19.9	289.95
1974	832.53	571.94	421.72	50.7	545.95	108.43	13.0	1,044.39	172.43	20.7	490.32	129.95	15.6	370.33

ANNEX 2
Table 15

Source: Statistics of Foreign Trade of the SFR Yugoslavia 1971, 1974 and 1975

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Structure of Wine Exports in 1970 and 1974
(in '000 hl)

			Austria	Belgium	Czechosl.	Denmark	German D.R.	Nether-lands	Italy	F.R. of Germany	U.S.S.R.	Switzer-land	Sweden	Great Britain	Japan	Kenya	Canada	United States	Australia	Finland	Norway	Others
Wine in bottles		1970	0.1	0.4	6.2	-	-	-	0.3	0.2	1.2	-	-	0.1	-	0.1	1.1	1.3	0.1	-	-	0.4
		1974	0.2	1.0	2.8	-	0.3	0.8	0.3	2.1	79.6	5.2	0.6	0.7	0.4	0.2	6.6	7.0	0.1	-	-	0.5
Ordinary wine in barrels		1970	-	-	-	-	21.1	-	2.9	0.5	-	4.7	-	0.2	-	-	-	-	-	-	-	0.1
		1974	-	-	-	-	34.1	-	1.1	135.8	-	0.2	-	1.2	-	-	-	-	-	-	-	1.7
Quality wine in barrels		1970	1.3	-	65.6	0.5	11.3	0.7	6.3	116.2	-	26.5	1.1	27.3	-	-	-	-	-	7.3	1.3	1.6
		1974	0.8	-	30.8	0.4	-	0.3	2.4	224.8	-	20.1	1.2	77.0	52.4	0.1	-	-	-	8.0	3.4	-
Wine for processing		1970	-	-	8.1	-	65.4	-	-	0.4	-	-	-	-	-	-	-	-	-	-	-	-
		1974	1.7	-	-	-	128.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1
Total wine	381.9	1970	1.4	0.4	79.9	0.5	97.8	0.7	9.5	117.3	1.2	31.2	1.1	27.6	-	0.1	1.1	1.3	0.1	7.3	1.3	2.1
Total wine	834.2	1974	2.7	1.0	33.6	0.4	162.6	1.1	3.8	362.7	79.6	25.5	1.8	78.9	52.8	0.3	6.6	7.0	0.1	8.0	3.4	2.3
As % of total	100.00	1970	0.37	0.10	20.92	0.13	25.61	0.18	2.49	30.71	0.31	8.17	0.29	7.23	-	0.03	0.29	0.34	0.03	1.91	0.34	0.55
As % of total	100.00	1974	0.32	0.12	4.03	0.05	19.49	0.13	0.46	43.48	9.54	3.05	0.22	9.46	6.33	0.04	0.79	0.84	0.01	0.96	0.41	0.27

Source: Statistics of Foreign Trade of the SFR Yugoslavia 1971 and 1975

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YUGOSLAVIA

Production of Processed Food Products

Product	Units	Macedonia					Montenegro		
		1968	1970	1972	1974	1974 as % of Yugoslavia	1972	1974	1974 as % of Yugoslavia
Flour	000 m ton	147	173	167	172	7.0	16	21	0.9
Corn meal	m ton	374	103	895	788	2.0	-	-	-
Rice	m ton	15,594	10,626	23,920	20,512	100.0	-	-	-
Bread and Pastry	m ton	67,622	70,144	84,500	96,182	12.0	4,607	10,147	1.3
Pasta products	m ton	2,613	2,683	3,105	4,218	7.0	-	-	-
Biscuits & cookies	m ton	1,791	2,588	3,715	5,077	6.0	-	-	--
Fruit, preparations without sugar	m ton	277	694	2,145	918	3.0	763	376	1.2
Natural fruit juices	m ton	-	1,380	2,647	3,253	5.0	31	-	-
Fruit Syrups	m ton	-	17	-	30	0.1	6	1	-
Fruit without added sugar	m ton	38	-	52	-	-	3	-	-
Fruit with added sugar	m ton	2,717	1,335	1,670	788	1.2	2,252	1,938	3.0
Canned vegetables	m ton	6,108	14,976	15,660	16,105	13.2	780	642	0.5
Other vegetable preparations, incl. frozen	m ton	1,159	1,324	2,137	2,835	-	-	-	-
Meat, fresh	m ton	8,418	6,645	8,493	6,475	1.2	1,239	1,382	0.3
Bacon, cured, & sausage	m ton	270	581	399	355	0.4	78	96	0.1
Canned meat	m ton	32	19	4	3	0.1	288	1,102	1.6
Soup concentrate	m ton	13	6	9	-	-	-	-	-
Animal fats	m ton	157	51	29	14	0.1	2	-	-
Butter	m ton	42	20	26	15	0.3	-	-	-
Cheese	m ton	425	899	1,029	1,347	4.8	19	-	-
Yoghurt, ice cream, etc.	m ton	5,291	7,218	5,951	8,391	5.6	1,389	2,778	1.8
Sugar	m ton	16,802	19,384	13,995	11,306	2.4	-	-	-
Candy	m ton	3,144	2,664	3,416	3,003	7.0	-	-	-
Cocoa products	m ton	817	869	1,365	1,311	n.a	-	-	-
Crude oil	m ton	-	6,627	6,224	7,841	5.2	-	-	-
Edible oil	m ton	6,270	8,525	10,616	10,269	5.7	2,934	4,496	2.5
Margerine	m ton	201	603	602	820	1.8	-	-	-
Refined spirits	000 hl	1,378	1,392	853	1,110	23.6	-	-	-
Beer	000 hl	293	259	312	506	5.4	356	396	4.2
Other non-alcholic beverages	000 hl	44	77	100	197	n.a	19	18	n.a

Source: Industrija 1974
Statisticki Bilten 910, Belgrade, 1975

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YUGOSLAVIA

Animals Slaughtered for Meat In Yugoslavia and Macedonia

	Yugoslavia						Macedonia		
	Total Number Slaughtered (000)		Total Number Slaughtered in Abattoirs (000)		Mean Live Weight of Stock Slaughtered in Abattoirs (kg)		Total Number Slaughtered(000)	Total Number Slaughtered in Abattoirs (000)	Mean Live Weight of Stock Slaughtered in Abattoirs (kg)
	1969	1974	1969	1974	1969	1974	1974	1974	1974
Cattle									
Total	2,166	2,155	1,977	1,716	269	251	87	53	271
Calves	886	870	787	572	83	98	40	18	142
Other cattle	1,280	1,285	1,190	1,144	378	328	47	35	337
Pigs									
Total	7,954	11,921	2,930	4,476	94	98	217	32	88
Suckling pigs	2,089	3,652	280	302	13	17	40	2	16
Lean pigs & pork pigs	4,045	5,849	2,138	3,543	99	102	111	25	92
Fattened pigs	1,821	2,420	513	630	113	115	66	4	104
Sheep									
Total	6,263	4,590	2,788	2,453	19	17	1,585	1,268	11
Lambs	4,605	3,178	2,131	1,722	15	15	987	761	9
Ewes & Rams	1,658	1,412	657	731	34	34	600	507	28

Source: Statistical Yearbook, Yugoslavia, 1975

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YUGOSLAVIA

Production Index of Processing Industries and Total Industry

	Processing Industries		Total Industry	
	1952 = 100	Chain Index	1952 = 100	Chain Index
1965	507	107	455	108
1966	550	109	474	104
1967	561	102	473	100
1968	559	100	503	106
1969	608	109	560	111
1970	674	111	611	109
1971	753	112	674	110
1972	806	107	727	108
1973	852	106	770	106
1974	922	108	853	111

Source: Industrija 1974, Statisticki Bilten 910, Belgrade 1975

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APPRAISAL OF

AGRICULTURE AND AGRO-INDUSTRIES II PROJECT

YUGOSLAVIA

Financial and Institutional Aspects

A. The Banks' Legal Framework and Accounting System 1/

I. LEGAL FRAMEWORK

1. The basic legal framework under which Yugoslav banks operate is provided by the Federal Banking Law of December 1971 and each bank's statutes. Major provisions of this law and of the statutes of the proposed IBRD borrowers - SBS and IBT - are the following:

(a) A bank cannot be founded by fewer than 25 founders; the minimum conditions of joining and withdrawals of founders are prescribed by the statutes.

(b) A bank must have a minimum of Din 50 million as founders fund (capital). Prior to 1975, a founder could have up to 10% of the total voting rights depending on his share in the founders fund, but now each founder has one vote.

(c) The founders of a bank have an unlimited liability in respect of the bank.

(d) The bank's statutes prescribe the powers of the various managing organs. The bank Assembly consisting of representatives of the founders is the highest governing body of the bank.

(e) The Assembly appoints the bank's chief executive and members of the Executive Board and Credit Board.

(f) The Assembly approves the bank's annual business policy and the policy on interest rates and decides on the allocation.

(g) Banks are required to make a yearly appropriation to a Reserve Fund out of income, of at least 0.5% of loans outstanding at the year-end. This fund can be used only for writing-off bad

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1/ This section is adapted from the Appraisal Report for Industrial Credit Project II, November 1975, as there have been no changes in the intervening period up to the time of this Appraisal.

debts and, temporarily, for meeting the bank's obligations in case of tight liquidity. The resources of this fund have to be generally maintained in liquid or semi-liquid funds.

(h) Banks are required to write-off bad debt first against income. Write-offs against the Reserve Fund are only possible to the extent that there is insufficient income.

(i) A bank will be liquidated if it is unable to meet its obligations for more than six months.

(j) In case of liquidation, the deposits of individuals with the bank have priority over all other creditors of the bank. (In addition, such deposits of individuals are also guaranteed by the Federal Government under a separate law).

2. In addition to the Banking Law, the banks have to comply with various regulations and directives issued by the National Bank of Yugoslavia and the Federal Government. The main directives which have a direct implication on the banks' financial operations are:

(a) Liquidity Requirements. The banks have to maintain a certain proportion of their demand deposits (currently ranging from 2% of domestic savings accounts to 24% of enterprises' giro deposits) as deposits with the National Bank. The primary purpose is to ensure adequate liquidity of banks but the measure is also used as a tool for implementing monetary policy.

(b) Foreign Exchange Regime. Only authorized banks can undertake foreign exchange transactions under supervision of the National Bank. SBS and IBT are so authorized. When making a foreign exchange loan to an enterprise, a bank has to ensure that the borrower will be in a position to generate sufficient foreign exchange funds (through retention quotas against depreciation and exports, and special quotas) to repay the loan. The banks are also authorized to buy and sell foreign exchange at the Belgrade foreign exchange market. All foreign borrowings are regulated by the National Bank and have to be registered with it prior to and after the borrowing is contracted.

(c) Limitations Regarding Banks' Overall Commitments. Under a Federal Law, passed in the second half of 1975, a bank is required to keep the level of commitments of guarantees and investment loans within the limits of its liquid investment potential. Under the law, the Federal Executive Council shall specify which resources shall constitute a bank's liquid investment potential and the conditions under which guarantees can be made. It is intended that banks shall report periodically to SDK the status of their liquid investment potential

and obligations incurred, while SDK, in turn, shall inform the Federal Executive Council. The law seeks to tighten the financial management of investments and affects, aside from banks, enterprises, socio-political organizations, communities of common interest, agricultural cooperatives, etc.

II. ACCOUNTING SYSTEM

3. The accounting systems in Yugoslavia are substantially different from the systems of western countries. In preparing periodic balance sheets, statements of income and expenditures, and other financial reports, the two banks do not adhere strictly to generally accepted accounting principles. The major differences in the system and the difficulties in reconciling these differences are summarized below:

(a) The branches of the banks being autonomous units in themselves, prepare their own balance sheets and income statements. In consolidating statements for a bank as a whole, the individual balance sheet items of its branches are often added up without eliminating inter-branch entries.

(b) The banks' accounts of resources and operations include funds managed by them on behalf of local authorities (socio-political organizations) at no risk to the banks. Such operations on commission basis have to be eliminated from the main body of the banks' balance sheets.

(c) Short-term loans have maturities of up to two years and data on loans with less than one year maturity (current assets) is not kept separately. It is therefore not possible to separate current and long-term positions strictly according to normal accounting definitions.

(d) Accounts are maintained for each loan made by a bank differentiated by purpose and/or source of funds (e.g. loan for fixed assets or for working capital and loan from Federal funds, Republic funds, etc.). A borrower may have as many as 100 such loans outstanding, maintained in the branches or the head office of the bank. No routine record is presently kept of total exposure to any one bororwer and, because of the large number of accounts involved, compilation of such information is a formidable job.

(e) The banks, operating as commercial and investment banks to their clients, observe strict confidentiality as regards financial information received from their clients. They cannot disclose the annual income and balance sheets of the clients to any outsider (including the IBRD) without the consent of the clients themselves.

(f) The banks do not attempt generally to make a periodic assessment of potential losses within their loan portfolios. Annual appropriations to the Reserve Fund can be considered as provisions against losses but are not the result of a case-by-case review of their loans outstanding (para 1 (g)).

(g) The appropriation for reserves is not treated as an expense item in determining a bank's net income. The banks, however, are required by law to write-off, against income, 25% (current rate) of their total uncollected interest overdue by 45 days or more at the end of a year.

III. AUDITS

4. The Social Accounting Service (SDK) is responsible for the audit of all enterprises, including the Banks, in terms of Yugoslav law. The audit is mostly in the form of a certification that the banks' and enterprises' operations are within the various legal requirements, that the statements are in agreement with the records kept by the banks and correct charges of interest, allocation of net income, etc. have been made. There is no verification of the existence of the various assets and liabilities to the banks and no opinion on whether they are fairly treated. In addition to the SDK, the banks are subject to inspections by the National Bank of Yugoslavia, which ensures, from time to time, that the banks comply with the regulations on foreign-exchange transactions and special deposit requirements.

5. Normal audit by the SDK does not meet the standards usually required by the Bank, but arrangements have been made for proper audits of the Bank Group projects in Yugoslavia, including audits of the proposed borrowing banks under the Project. SDK has implemented a training program for its staff, with the Bank's support, to undertake such audits. As per the audit program envisaged under the First and Second Industrial line of credit full audit of the SBS and IBT was done by SDK for the year 1974. Interim audits of the 1975 accounts of SBS and IBT are being done. These audit arrangements are considered satisfactory.

B. The Banks 1/

I. GENERAL

6. The Bank loan is proposed to be made to the Investiciona Banka Titograd (IBT) in Montenegro and Stopanska Banka Skopje (SBS) in Macedonia. Both banks are the leading bank in their respective republics and have been associated with the Bank financed First Agricultural Credit Project, and First and Second Industrial Credit Projects. SBS was the borrower under the Macedonia Agroindustries Project. IBT was founded in 1964 and SBS was formed in 1973 by merging three banks: Stopanska Banka, Commercial and Investment Bank, Skopje, and Commercial and Investment Bank, Bitola. The ownership, organization and operations of each bank, as well as the functions and powers of its main management organs and branches are governed by its statutes and the self-management agreements.

II. ORGANIZATION AND MANAGEMENT

Ownership

7. Both banks are owned and controlled by the large enterprises (founders) of their respective Republics. The founders are akin to shareholders and the founders fund is the equivalent of share-capital. As of December 31, 1975 the number of founders was 131 in IBT and 342 in SBS. The founders fund was 362 and 1,822 million Dinars for IBT and SBS respectively.

Organization Structure

8. The organization charts of both banks are placed at Appendices 1 (WB 15722 R) and 2 (WB 15721 R). The Banks are organized as follows:

(a) Founders Assembly is the highest governing body of a bank, in which every founder has the right to one vote. The Assembly approves the bank's policies, appoints the chief executive and elects the members of the Executive Board and Credit Board. It also decides on the distribution of the bank's income to employees and founders as well as appropriations to the bank's reserves.

1/ Both the SBS and IBT, as borrowers under the Second Industrial Credit Project (Loan No. 1277-YU) are described in more detail in the Report, Appraisal of Second Industrial Credit Project, No. 1058-YU.

(b) Executive Board is the chief management body of the banks responsible for executing their policies approved by the Founders' Assembly and other statutory functions, including approval of loans exceeding authority of credit boards (above 5 million Din in case of IBT and 30 million Din in case of SBS). Members of the executive board (19 for IBT and 35 in SBS) are elected from among the founders.

(c) Credit Board consists of members elected from among the founders. Its function is loan approval.

(d) Internal Control Committee is elected by the Founders' Assembly from among the founders. It ensures that the provisions of the law and of the statutes of the bank are correctly enforced, that funds are not misused and that the functions are adequately performed.

(e) Workers' Council consists of members elected from and by employees and represents the employees in the administration and operations of the bank. In consultation with bank's management it decides on individual salaries and fringe benefits for workers within the aggregate amounts approved by the founders.

(f) Head Office of each bank is organized along functional activities (sectors), such as Domestic Resources Sector, Sector for Investment, Foreign Business Sector and Legal and Administration Sector. Accounting activity is attached to the sector for Domestic Resources in case of IBT and to the Legal and Administrative Sector in the case of SBS. The Investment Sector is subdivided into departments for Agriculture, Basic Industries, Processing and other sectors, and Disbursement and Collection in the case of SBS. In IBT the Investment sector comprises Basic Industries, Processing Industries, other sectors, short-term loans and Engineering and Technical Departments. The Engineering group provides common services to other departments. The organization structure of the head office is satisfactory.

(g) Branches, SBS has 22 branches and IBT has 8 branches. Each branch has its own Founders Assembly, Credit Board and Executive Board. They have substantial autonomy in allocating funds mobilized by them and in day to day operations. However, the statutes of the banks limit the maximum amount of loan which the branch may approve.

Management and Staff

9. The General Manager of the bank is the Chief Executive. He is appointed for a four-year term by the bank's Assembly on the basis of recommendations of a selection committee. The General Manager is assisted by Assistant General Managers who in turn supervise two or three Department Directors. Junior Managers are typically university graduates with many

years of experience. Changes in top managers are infrequent, and professional competence is the main criterion for selection and appointment at all levels. The total staff of the banks is 477 in IBT and 1,565 in SBS. About 35% of the staff in IBT and 22% in SBS are in the head office. The proportion of professional staff in IBT is about 25% and 26% in SBS. The professional staff consists mostly of economists, accountants, engineers and lawyers.

Agricultural Staff in IBT

10. Agricultural staff in IBT forms part of the Engineering and Technical Group. IBT has one Agroindustries Engineer and an expert in Agronomy/Forestry. IBT also has several economists experienced in economic analysis and appraisal of agricultural projects. IBT has no separate agricultural department, as its loans to the agricultural sector form only a small portion of the total loan portfolio. At present there is an IBRD operations unit, consisting of 5 experienced economists as staff members, which is handling all work relating to lending and IBRD financed projects. For the Agricultural Credit project, the Unit is assisted in its work by the two agricultural experts, mentioned above, and hires consultants if needed. In view of the Unit's involvement in agricultural lending and the additional work load expected under this Project, it will be necessary to expand the Unit.

Agricultural Staff in SBS

11. Agricultural staff in SBS is part of the Agricultural Operations Department. The Department has a total of 29 staff members, encompassing expertise in agriculture, livestock, agro-processing, marketing, irrigations and economic and financial analysis areas. Experience with the Department's work under the Macedonia Agroindustries Project indicates two areas of weakness, (a) agroindustries expertise, and (b) marketing analysis. Structurally, there is a weakness in coordination of the work done in different departments of SBS and IBRD financed projects.

III. FINANCIAL STRUCTURE

12. The analysis of financial statements of the banks has been restricted to 1974 and 1975 as these have been reclassified by SDK from the Yugoslav system to a format generally acceptable to the Bank (paras 3 to 5). Certain adjustments in the accounts have been made to remove inter-branch accounts and separate the commission business (managed funds) from other businesses of the banks. The reclassified and adjusted statements are not strictly comparable to financial statements of the banks prior to 1974.

Resource Position

13. Most short-term resources consist of deposits and borrowings from the National Bank through rediscount facilities. As a general policy the

short-term resources are used almost exclusively for short-term investments and long-term resources for long-term investments. National bank may allow prudent usage of short-term resources for long-term resources. The long-term commitments of both SBS and IBT exceed the long-term resources. This situation is customary for these banks as they plan their operations on a disbursement basis rather than on a commitment basis. Each bank limits its over-commitments to the amount of resources it is fairly certain to receive from the Federal Fund during the period in which it has to meet these commitments. The resources position is therefore satisfactory.

Financial Performance (Table 2)

14. It is the stated policy of each bank that its income should cover all expenses with an adequate amount of transfer to: (a) the Reserve Fund (substitute for provision against losses), and (b) the "funds of the bank as a working community", which are used to acquire and maintain working facilities and to provide some fringe benefits to the workers. Profitability is not considered an essential measure of the bank's efficiency and financial performance. Income surpluses, if any, are returned to the enterprises as dividends or transferred to the founders' fund of the bank. Income statements of the SBS and IBT reflect the break-even nature of operations: gross income, less direct financial expenses in 1975, was 1.6% and 2.0% of average total assets for IBT and SBS respectively. These are low and reflect both the mixed nature and the non-profit orientation of the banks. The Administrative expenses in 1975 were also on the low side, about 0.5% of the average total assets for both IBT and SBS, showing strict control over the administrative budget.

Financial Position (Table 1)

15. The total assets of IBT and SBS, as of December 31, 1975, were 10.4 and 34.5 billion Dinars respectively, representing a growth of 21.5% and 22.4% over the previous year. The long-term loan portfolio accounted for 63.3% (IBT) and 55.8% (SBS) of the total assets. Each bank also manages, at no risk to itself, substantial funds on behalf of Federal and Republic Governments and socio-political organizations. The current ratios of the banks are near 1.1:1 and are satisfactory. The long term debt/equity ratios are high; 13.7:1 and 6.7:1 respectively for IBT and SBS. The high debt/equity ratios do not pose a danger to the banks' solvency as most of the long-term debts are loans from federal or republic authorities, repayments of which are more or less tied to the corresponding repayments by the enterprises to the bank.

Lending Operations (Table 3)

16. The short-term loan commitments amounted to Din 3.2 billion in IBT and Din 18.4 billion in SBS in 1975, representing an increase of 9.1% and 14.3% respectively over the previous years. Short-term loan disbursements are substantially the same as commitments. The percentage of short-term loans to agriculture was 7.1% in IBT and 12.4% in SBS (Table 3).

17. The long-term loans commitments by both banks in 1975 increased significantly by 128% and 46% over 1974. Sector-wise the increase was mainly in Industry and Agriculture sectors in IBT and in Industry sector in SBS (Table 4). Increase in Industrial Sector was due in part to a few large energy projects as well as to a significant rise in project costs due to international and domestic inflation.

Lending to Agricultural Sector

18. The percentage of short-term loans to agriculture was 7.1% in IBT and 12.4% in SBS. The corresponding percentages for the long-term loans to agriculture were 3% and 8.5% for IBT and SBS respectively. The lending to agriculture sector by IBT doubled in 1975 compared to 1974, reflecting an increased emphasis on agriculture in the republic's plan and expansion of IBT's lending to financing of the private sector agriculture. Nearly 30% of the IBT long-term loans for agriculture went to the private sector, benefitting 700 private sector farm families, and helped finance 221 tractors, 7,000 m2 of plastic houses, 23 ha vineyards, 1 ha citrus plantation, 40 pumpsets, 80 animal feed mills, 180 ha olive plantations, 100 cows and 30 sheep.

19. Agricultural lending has been relatively more prominent in SBS loan portfolio (14.6%) compared to IBT (3%). The average size of agricultural loans in both banks is small compared to the other two important sectors in lending, i.e. industry and transport, and public utilities.

Quality of the Loan Portfolio

20. Analysis of loan arrears in IBT as of December 31, 1975 and in SBS as of June 30, 1975, given in Tables 5 and 6, shows that the loans affected by arrears related to the total amounts outstanding were 6.5% in IBT and 6.1% in SBS. Most of the arrears was aged less than six months. The most frequent causes for arrears were the depressed markets at home and abroad and, in new projects, delays in project implementation, often resulting from difficulties in securing resources to finance cost over-runs. The arrears position both in amount and age deteriorated in the SBS in 1975 compared to 1974 and will need to be watched carefully. However, the overall situation is manageable considering (a) the actual arrears of principal and interest as percentages of the banks' portfolios are small, 1% and 1.9% for IBT and SBS respectively; (b) each bank's provisions (Reserve Fund) against bad debts exceeded arrears of over 3 months; (c) loans of the banks are adequately secured by acceptance orders from borrowers. These acceptance orders can be exercised through intervention of SDK, which handles all receipts and payments of enterprises. Through this legal instrument a bank can halt an enterprise's flow of payments until its obligations towards the bank have been met. Such a drastic step is taken only as a last resort and with due consideration for the implications of such action.

21. The number of loans granted is fairly evenly distributed in enterprises in all sectors of the economy indicative of a reasonably diversified loan portfolio (Table 4). However, the wide disparity of loan amounts per

borrower in different sectors resulted in an uneven distribution of loan amounts between sectors. However, an assessment of the extent of the bank's records do not show aggregate loans to an enterprise. This is not a problem for SBS and IBT since they have access to the borrower's financial statement and the list of its debt everytime a request for granting or renewing a loan is made. However, this information is required by the Bank to evaluate the SBS and IBT's loan portfolio. Until the full audit reports including an analysis of the banks' portfolios are available, the assessment of quality of the loan portfolio is incomplete.

Creditworthiness

22. In the Yugoslav banking system and financial environment the banks are in a unique position, which makes it possible to consider both IBT and SBS creditworthy even though neither the full audit of the banks is available nor detailed records are kept of banks' exposure to a single borrower. This assessment of creditworthiness is based on the same arguments that were accepted for Industrial Credits I and II and Agricultural Credit I, which are the following:

(a) The Founders have unlimited liability towards the bank's obligations. Creditors of the bank thus have legal recourse to all assets of founders, many of which are large industrial enterprises with substantial assets.

(b) The Banks are closely integrated with the economy of the Republics and their liquidation in case of financial crisis is inconceivable.

(c) The banks have qualified and experienced management and staff. Experience shows that both SBS and IBT's financial management has been adequate with no significant losses, arrears have been manageable, and obligations have been met satisfactorily.

Forecasts

23. At present investment planning in SBS and IBT is limited to one year within the framework of their annual business policy. Both banks prepared five-year projections of their operations and resources based primarily on the Plan (1976-80) for their regions. These projections are given in Tables 8 and 9 and are tentative with high margins of error. Medium-term planning is being attempted by both banks under the Second Industrial Credit Project and the quality of forecasts will improve as the banks acquire more experience. For the plan period of 1976-80, resource gaps projected for each bank, pertaining to domestic and foreign borrowings are high, in absolute terms (Din 5.0 billion for IBT and Din 14.8 billion for SBS) and as a portion of each bank's total long-term resource requirements (30% for IBT and 35% for SBS). The gaps are expected to be filled largely with foreign borrowings by own efforts or through the National Bank. The proposed loan is small in relation to the bank's total resource needs. No difficulty is anticipated in

both banks being able to discharge their financial obligations under the Project, as the amounts of funds needed will come mainly from Federal funds and are assured, as also the amounts involved are small relative to overall operations of the bank.

24. The projected income statements and balance sheets of the banks for 1976-80 are given in Tables 10 through 13. The break-even orientation of the banks is expected to continue; satisfactory debt service coverage through 1980 is indicated and the current ratios are projected to remain at a little above 1:1. The financial strength of the banks will depend not on the extent of equity but on the financial strength of its founders and the continuation of the past practice of transferring resources from time to time from the bank's accounts of federal and republic funds to managed funds or to enterprises which would have the effect of keeping debt/equity ratio low. Under these premises both banks are expected to remain creditworthy in future years.

IV. LENDING POLICIES AND PROCEDURES

Business and Financial Policy

25. Both SBS and IBT have a Business Policy which specifies the bank's main objectives, magnitude of operations and interest rate policies for customer deposits and lending operations for a year. The IBT has a policy of limiting its financial exposure in a single enterprise to a maximum of 10% of its portfolio (exceptions can be approved by its Assembly). SBS is limited by the Banking Law in its lending to a single client to 30% of its total investment portfolio. Both banks generally match the maturities of their loans and their resources. A wide distribution of loans amongst the founders ensured by the large number of founders (each with one vote in the Assembly) thus almost eliminating the risk of excessive lending. (This informal financial policy arrangement has worked satisfactorily in the past).

Project Appraisals

26. In both banks the projects financed entirely out of the resources of the branch are appraised and approved at the branch. However, since most of the bank's resources, incuding federal and republic funds and foreign exchange funds, are channelled through the head office, most projects are appraised and approved at the Head Office. The credit application consists of an investment program supported by technical, marketing and financial data. Appraisal reports are prepared by the appropriate department with the help of advisors/consultants in the case of complex projects. Under IBRD financed projects both banks have considerably improved their appraisal methods; however, the following weaknesses still exist:

(a) insufficient critical technical appraisal of the technical data and specifications provided by the borrower;

(b) no comparative evaluation of labor versus capital intensive alternatives;

(c) inadequate marketing analysis of future sales;

(d) the evidence supporting availability of raw materials is neither questioned nor verified;

(e) inadequate financial and economic analysis; and

(f) scanty attention to contingency allowances.

Strengthening of the technical appraisal capability of both banks for agro-industrial lending would be an important institution building objective under the Project. Further strengthening and application of financial and economic analysis in the project appraisals will continue to be one of the institution building objectives of the IBRD loan.

Supervision of Projects

27. Systematic supervision is directed by both banks only to projects under construction or to problem projects. Although the banks maintain close contact with their clients' operations and financial position in connection with short-term lending yet the operating projects of borrowers who repay their loans on schedules are not normally supervised. The supervision responsibility is mostly delegated to the branches of the banks. Both banks used to supervise projects more regularly during construction and after they become operations, to monitor and analyze the actual results against appraisal estimates and to take appropriate action where needed. The supervision work needs to be centrally coordinated at the head office to cover various facets of the borrower's dealings with the bank, and for effective feedback to investment and other operational departments. Supervision systems for projects will need to be streamlined and strengthened.

Procurement and Disbursement

28. The banks ensure that their clients observe the laws and regulations on procurement (advertising, bid opening, awards, etc.). When the total value of equipment for an investment is over Din 500,000 (about US$28,000), the selection of supplier has to be based on a minimum of three bids obtained through public tender published in the official Gazette of Yugoslavia. Exceptions are allowed for specific cases where this procedure would not be suitable. Disbursements are made on contractor notes, bills and other satisfactory evidence of serivces rendered or goods supplied. Overall disbursement methods appear to be sound.

V. INTEREST RATES AND RESOURCE ALLOCATION

29. Interest rates on loans and deposits are fixed each year by the Founders Assembly. The present interest rate structure in the two republic is as follows:

	IBT	SBS
Deposits (depending on maturity)	3 - 10%	4 - 10%
Short-term Loans	10.5 - 11%	8 - 11.5%
Long-term Loans		
from own resources	up to 11%	up to 11.5%
from Federal Funds	5%	5.5%

30. The banking structure, where the borrowers are at the same time the bank's major founders (shareholders), has led to relatively low interest rates. Furthermore, Federal, Republic and communal funds are provided to the banks at low cost with predescribed margins for on-lending or are used to subsidize interest rates. While the Yugoslavs consider low interest rates on investment credits important for encouraging investments and use subsidized rates to channel resources into priority areas, low interest rates, inter alia, may have contributed to excess demand for investments with in the past inflationary effects, to the choice of highly capital-intensive production techniques, and to overdesign of investment projects. They may have also negatively influenced resource mobilization. These issues are addressed in an Interest Rate Study recently completed by Vojvodjanska Banka under the First Agricultural Credit Project (1129-YU). The Study will be the basis for a discussion with the Yugoslav Authorities on the impact of the existing interest rate regime on resource allocation and mobilization in the agricultural sector and on appropriate measures to improve resource allocation and mobilization of the sector.

31. Interest rates for long-term loans to agriculture in the two Republics vary from 5%-5.5% on loans made out of Federal funds up to 11.5% on loans from the banks' own resources, with most of the lending done at 7%-8%. Interest rates for investments in priority subsectors may be subsidized to even lower levels such as 3% for irrigation in Macedonia. These interest rates are received and could be revised every year. The present interest rates imply negative real rates given the high rate of inflation (25% in 1974, 18% in 1975 and 11%-12% estimated for 1976).

B. "13 July" Agrokombinat

General

32. The "13 July" Agrokombinat (AK) was created in 1963 by amalgamation of small agricultural and processing units, for development of general agricultural production in Montenegro. It is governed under the self-management system. Like all kombinats it is an autonomous body with the status of a legal person and freedom to contract for capital, raw materials and workers. Its assets are social property, but it has mortgage and sale rights.

Organization and Management

33. The organization and structure of the AK is presented in WB Chart No. 16334. The Workers' Council is the apex body which decides the basic policy for AK. The members of the Workers' Council are elected for a two-year term from amongst the employees, who are also the collective owners of the AK. Half the Council members are replaced each year. The Workers' Council elects three executive boards to deal with different aspects of policy making. The General Manager is the chief executive of AK and is assisted by a Deputy General Manager and an Assistant General Manager. All the senior management is appointed by the Workers' Council. The General Manager is responsible for day-to-day operations and implements the policies laid down by the Workers' Council and executive boards. The General Manager is assisted in his work by a Committee of Managers, composed of Managers of each basic unit of AK. The General Manager is elected for four years with the possibility of reelection.

34. The operations of the AK are carried out by 26 economic units called "Basic Units of Associated Labor" (BOAL). Each BOAL is responsible for a specific activity, such as plantations, processing, etc. Each BOAL elects representatives to the Workers' Council and appoints the Manager for the BOAL. In addition to the 26 BOALS (see WB Chart 16334), there are three common services groups serving all the BOALS and the General Manager: Personnel Services, Administrative Services and Financial Services.

35. The total number of employees of the AK was 2,792 as at the end of January, 1976. In terms of qualifications, the distribution was as follows:

Qualification	Number	% of total
University graduates	180	6
Technicians and secondary school	578	21
Skilled workers	1,232	44
Semi-skilled workers	421	15
Non-skilled workers	381	14
Total	2,792	100

The number of employees has increased 60% in 1975 as a result of the mills and bakeries economic units moving into the AK during the year. The AK also employs seasonal workers for the picking of grapes and fruits.

Operations

36. The AK is engaged in a broad spectrum of activities covering primary agricultural production (crop production, milk and livestock production, and plantations), agro-processing industries (slaughterhouses, bakeries, fisheries, flour mills, winery and animal feed unit), and marketing services (cooperative marketing, supermarkets, retail and wholesale sales centers). AK also has an Agro-Economic Institute which is planning the new developments of the AK. Besides the Cemovsko Polje sub-project, the AK also plans the following investments: expansion of existing dairy farm by 400 cows; ham production factory (1,500 tons per year); carp ponds (140 ha); grapes and fruit nursery (40 ha); poultry farm (80,000 chickens), and apple orchards (60 ha).

Financial Structure and Performance

37. The aggregate balance sheet (Table 14) of AK amounted to Din 892.5 million in 1975 up from Din 461.9 million in 1973. The near double increase was mainly due to new investments and to amalgamation of wheat and corn processing units, and flour mills and bakeries, into the AK. Total equity funds of the AK amounted to Din 329.6 million in 1975 as against Din 110.5 million in 1972. The fixed assets existing, as well as in progress, increased from Din 261.47 million in 1973 to Din 490.2 million in 1975. The increase in fixed assets was financed mainly from long-term loans from banks and the increase in business funds for the working capital needs depended heavily on suppliers' credit, and supplemented them with short-term loans from banks. However, the current assets of the AK exceeded its current liabilities. The current ratio was 1.1:1.0 in 1975. The equity funds of AK exceed the long-term borrowings. The long-term debt/equity ratio was 0.7:1.0 in 1975. Both ratios were satisfactory. AK's financial position although small is sound and no difficulty is anticipated in meeting its share of 5.4% in project costs.

38. The financial performance of the AK should be viewed in the context of the self management system prevailing in Yugoslavia in which the financial objective of the investor is to maximize the average surplus per worker. The Net Surplus is arrived at after subtracting from gross earnings: the operating expenses (minus the salaries), depreciation, legal and contractual obligations. This Net Surplus is then allocated to pay salaries and to business, reserve and housing funds. The Net Surplus of AK increased from Din 45 million in 1973 to Din 119 million in 1975 (Table 15). The average surplus per worker was Din 39,291 in 1974 and increased to Din 42,651 in 1975. 1975 was an exceptional year since the bakery and flour mill, economic units, were merged into the AK affecting the financial results of the year. The net surplus as a percentage of equity was 41% in 1973, rose to 58% in 1974 but declined to 36% in 1975. The financial performance of AK has been satisfactory.

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APPRAISAL OF

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YUGOSLAVIA

Balance Sheets: 1974 and 1975 /1
(Amounts in Millions of Dinars)

	SBS		IBT	
	Dec.31, 1974	Dec.31, 1975	Dec.31, 1974	Dec.31, 1975
ASSETS				
Cash and deposits with other banks	893	1,058	348	464
Deposits with National Bank	1,017	1,040	234	315
Short-term loans	7,183	9,965	1,563	2,390
Long-term loans	16,198	19,251	5,898	6,594
Loans for Housing and communal construction	1,863	2,102	310	379
Fixed assets	91	194	32	70
Accrued income and other assets	948	906	187	200
Total Assets	28,193	34,516	8,572	10,412
Managed funds	9,540	9,449	1,825	3,005
LIABILITIES				
Demand deposits	3,033	3,935	916	1,311
Savings and other short-term deposits	3,637	4,925	387	587
Long-term deposits	3,662	4,504	6[illegible]	846
Loans from federal, republic and other funds	9,811	11,432	3,1[illegible]	3,024
Loans from banks and other sources	4,883	5,863	2,501	3,627
Accrued expenses and other liabilities	357	549	321	304
Total Liabilities	25,383	31,208	7,993	9,699
Equity				
Founders fund	1,858	1,961	341	362
Reserve fund	541	660	160	207
Fund of the bank's working community	411	687	78	144
	2,810	3,308	579	713
Total Liabilities and Equity	28,193	34,516	8,572	10,412
Managed funds	9,540	9,449	1,825	3,005

/1 These balance sheets have been prepared by SDK following, to the extent possible, accounting practices of Western countries which differ from the normal accounting practices in Yugoslavia. Short-term loans refer to laons with a maturity of up to two years and the items 'other assests' and 'other liabilities' shown together with accruals, include some short-term assets and liabilities, respectively. Separation of these items into current and long-term assets/liabilities was not possible for this exercise but would be attempted by SDK in future. It should also be noted that the 'Reserve fund', shown in conformity with Yugoslav practice under equity, has the character of provisions against bad loans.

ANNEX 3
Table 2

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Statements of Income and Expenses: 1974 and 1975

(Amount in Millions of Dinars)

	IBT		SBS	
	Dec.31 1974	Dec.31 1975	Dec.31 1974	Dec.31 1975
Income				
Interest Received	451	580	1,619	1,800
Fees, Commission and charges	17	17	40	45
Other	108	88	134	160
Gross Income	576	685	1,793	2,021
Expenses				
Financial Expenses:				
Interest paid	322	379	1,127	1,149
Debts written off	2	2	14	7
Other	127	136	115	190
	451	517	1,256	1,346
Gross Income less Financial Costs	125	168	537	675
Administrative Expenses:				
Salaries and personnel	25	36	74	99
Depreciation	2	2	6	7
Other operating Expenses	11	16	33	49
	38	54	113	155
Income before statutory obligations	87	114	424	520
Statutory Obligations (Taxes)	10	13	50	52
NET INCOME /1	77	101	374	468
Appropriations:				
Reserve Fund /1	37	46	121	155
Distribution to Founders	40	18	135	139
Fund of the Bank's working community	-	37	118	174
	77	101	374	468

/1 The net income as shown is not net of provisions against losses since no specific provision for portfolio losses is made. The appropriation to the Reserve Fund is a legal requirement (0.5% of outstanding loans) and can be considered as a provision.

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Summary of Loan Operations 1973 to 1975
(Amount in Million Dinars)

	Applications			Commitments			Disbursements		
	1973	1974	1975	1973	1974	1975	1973	1974	1975
I.B.T.									
All Sectors									
Short-Term Loans	4,351	3,740	3,520	3,677	2,930	3,197	3,507	2,721	3,707
Long-Term Loans	2,775	7,420	9,253	900	1,421	3,233	1,073	1,350	1,996
Agriculture Sector									
Short Term Loans	193	212	246	140	211	227	192	207	254
Long-Term Loans	186	200	224	7	99	97	17	15	59
Agriculture Sector as % of All Sectors									
Short-Term Loans	4.4	5.7	7.0	3.8	7.2	7.1	5.5	7.6	6.9
Long-Term Loans	6.7	2.7	2.4	0.8	7.0	3.0	1.6	1.1	3.0
S.B.S.									
All Sectors									
Short-Term Loans	13,551	17,083	21,600	12,253	16,105	18,406	12,253	16,105	18,406
Long-Term Loans	8,479	13,439	19,118	5,272	6,918	10,199	2,873	3,592	4,585
Agriculture Sector									
Short-Term Loans	2,250	2,760	2,650	1,951	2,405	2,289	1,951	2,405	2,289
Long-Term Loans	1,740	1,890	1,700	715	896	871	459	693	669
Agriculture Sector as % of All Sectors									
Short-Term Loans	16.6	16.2	12.3	15.9	14.9	12.4	15.9	14.9	12.4
Long-Term Loans	20.5	14.1	8.9	13.6	13.0	8.5	16.0	19.3	14.6

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

ANNEX 3
TABLE 4

Classification of Long-Term Loans by Sectors
(amount in Million Dinars)

	1974				1975			
	Number Granted	Project Value	Loan Amount	Disbursements	Number Granted	Project Value	Loan Amount	Disbursements
I.B.T.								
1. Industry & Mining	26	946	611	832	31	1,328	859	1,212
2. Agriculture and Forestry	27	136	110	26	32	312	281	81
3. Construction	-	-	-	-	-	-	-	-
4. Transport & Public Utilities	12	1,392	531	358	15	1,712	743	490
5. Trade & Catering	6	130	122	91	7	180	171	132
6. Arts & Crafts	-	-	-	-	-	-	-	-
7. Non-economic & other	21	47	47	43	29	70	70	80
Total	92	2,651	1,421	1,350	114	3,602	2,124	1,995
S.B.S.								
1. Industry & Mining	307	10,095	4,811	2,169	344	16,100	8,554	3,330
2. Agriculture & Forestry	281	1,890	896	694	252	1,700	871	669
3. Construction	8	22	14	17	10	38	17	15
4. Transport & Public Utilities	34	248	115	122	31	195	121	133
5. Trade & Catering	124	670	340	218	113	620	316	231
6. Arts & Crafts	64	260	137	85	57	230	100	76
7. Non-economic & other	73	254	150	132	48	235	98	131
Total	891	13,439	6,463	3,437	855	19,118	10,077	4,585

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YUGOSLAVIA

Long-Term Loans in Arrears over Three Months
(Amounts in millions of Dinar)

Borrowers with Total arrears in the Range:	Number of Borrowers	Principal Outstanding /1	Arrears of Principal and/or Interest by length of Time Overdue							
			Total over 3 months		3-6 months		6-12 months		over 12 months	
			Pr.	Int.	Pr.	Int.	Pr.	Int.	Pr.	Int.
		I.B.T. (as of December 31, 1975)								
Din. 1 - 500,000	98	788	9	6	5	4	2	2	2	1
500,001-1,000,000	15	196	7	5	4	2	3	2	1	1
1,000,001-10,000,000	4	57	2	1	2	1	-	-	-	-
10,000,001-20,000,000	12	523	45	27	30	20	10	4	4	3
over 20,000,001	-	-	-	-	-	-	-	-	-	-
Total	129	1,564	63	39	41	27	15	8	7	5
		S.B.S. (as of June 30, 1975) /2								
Din. 1 - 500,000	116	976	20	20	3	9	10	5	7	6
500,001 - 1,000,000	64	683	13	5	5	3	4	1	4	1
1,000,001 - 10,000,000	47	1,532	84	34	64	24	13	7	7	3
10,000,001 - 20,000,000	3	607	22	17	22	12	-	4	-	1
Over 20,000,000	5	3,301	117	103	78	69	22	15	17	19
Total	235	7,099	256	179	172	117	49	32	35	30

/1 Principal outstanding of loans in arrears.
/2 Analysis as on December 31 not available

Pr. - Principal; Int. - Interest

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Arrears and Write-Offs
(Million Dinars)

Date	Arrears		Provision against Losses		Write-offs
	Amount	% of Investment Portfolio	Amount	% of Investment Portfolio	Amount
I.B.T					
December 31,1973	27.6	0.6	120.3	2.5	1.5
December 31,1974	24.8	0.3	159.5	1.9	1.5
December 31,1975	102.0	1.0	207.0	2.0	2.1
S.B.S.					
December 31,1973	292.0	1.7	408.0	2.3	6.0
December 31,1974			541.0	2.7	14.0
June 30, 1975 /1	435.0	1.9	530.0 /2	2.3	-

/1 Data as on December 31 not available

/2 Lower than at the end of 1974 due to temporary use of Reserve Funds (for liquidity purposes) which have to be redeposited in the Reserve account by the year end.

ANNEX 3
Table 7

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Investiciona Banka Titograd

Projected Statements of Sources and Applications of Funds /1
Years Ending December 31, 1976-80
(amounts in Millions of Dinars)

	1976	1977	1978	1979	1980
Sources:					
Net increase in short term resources/2	140	150	160	175	190
Net increase in long term deposits	55	60	65	70	75
Collection on long term loans	545	625	725	850	1,000
Long term borrowings:					
Federal Fund	900	970	1,050	1,130	1,230
Republic Funds	140	150	160	175	190
Other Domestic	-	-	-	-	-
IBRD loans	70	56	137	203	119
Other foreign borrowings secured or identified	240/3	5	5	5	5
Unidentified domestic and foreign borrowings	1,065	914	908	817	931
Total Sources	3,155	2,930	3,210	3,425	3,740
Applications:					
Net increase in short-term loans and deposits with National Bank	140	150	160	175	190
Long term laon disbursements	2,540	2,230	2,400	2,500	2,700
Repayment of long term borrowings	475	550	650	750	850
Total Applications	3,155	2,930	3,210	3,425	3,740

Assumptions:

1. Projections are in constant prices since they are based primarily on the five year Plan targets, which are also in constant prices;
2. Federal Fund allocations, short-term resources and long-term deposits are projected to grow at 8% p.a. over 1976-80 (in constant prices), which is approximately equal to the expected growth in social sector GMP.
3. The substantial gaps shown under unidentified domestic and foreign borrowings are expected to be covered mainly through National Bank credits in both domestic and foreign currency.
4. Projections of IBRD loans for industry include a third industrial credit project of US$55 million in FY78. Expected resources under the IBRD agricultural credit line are included in other foreign borrowings secured or identified.

/1 Excluding the cash flow from operations and the corresponding applications (distribution to reserves, the bank's working community -including for fixed assets - and founders)

/2 Including net increase in short term deposits, credits and National Bank rediscount facilities.

/3 Includes special funds from the Federation for projects in power and other priority sectors

ANNEX 3
Table 8

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Stopanska Banka Skopje

Projected Statements of Sources and Applications of Funds /1
Years Ending December 31, 1976-80
(amounts in Millions of Dinars)

	1976	1977	1978	1979	1980
Sources:					
Net Increases in short term resources /2	720	780	840	910	980
Net increase in long-term deposits	340	370	400	430	470
Collections on long-term loans	1,280	1,420	1,600	1,850	2,200
Long Term Borrowings:					
Federal Fund	1,770	1,910	2,070	2,230	2,410
Republic funds	290	310	330	360	390
Other domestic	-	-	-	-	-
IBRD Loans	160	64	200	331	147
Other Foreign borrowings secured or identified	135	175	30	30	40
Unidentified domestic and foreign borrowings	2,490	2,531	2,715	2,759	3,783
Total Sources	7,185	7,560	8,275	8,900	10,420
Applications:					
Net increase in short-term loans and deposits with National Bank	500	550	600	650	700
Long-term loan disbursements	5,535	5,760	6,225	6,600	7,720
Repayments of long-term borrowings	1,150	1,250	1,450	1,650	2,000
Total Applications	7,185	7,560	8,275	8,900	10,420

Assumptions:

1. Projections are in constant prices since they are based primarily on the five-year Plan targets,which are also in constant prices.
2. Federal Fund allocations, short-term resources and long-term deposits are projected to grow at 8% p.a. over 1976-80 (in constant prices), which is approximately equal to the expected growth rate in social sector GMP
3. The substantial gaps shown under unidentified domestic and foreign borrowings are expected to be covered mainly through National Bank credits in both domestic and foreign currency.
4. Projections of IBRD loans for industry account for a third industrial credit project of US$55 million in FY78. IBRD assistance under the agroindustry credit and the agricultural credit line are included in "other foreign borrowings secured or identified"

/1 Excluding the cash flow from operations and the corresponding applications (distribution to reserves, the bank's working community - including for fixed assets - and founders).

/2 Including net increase in short-term deposits, credits and National Bank re-discount facilities. Collection of short-term loans is excluded since under "Applications" only net increase in short-term loans (disbursements less repayments) is shown.

ANNEX 3
Table 9

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Investiciona Banka Titograd

Projected Balance Sheets
Years Ending December 31, 1976-80
(Amounts in Millions of Dinars)

	1976	1977	1978	1979	1980
Assets:					
Short-term loans and deposits	2,390	2,540	2,700	2,875	3,065
Long term loans	10,485	12,090	13,765	15,415	17,115
Liquid funds and other assets	725	825	930	1,045	1,165
Total Assets	13,600	15,455	17,395	19,335	21,345
Liabilities:					
Short-term borrowings and deposits	1,895	2,045	2,205	2,380	2,570
Long-term deposits	755	815	880	950	1,025
Long-term borrowings	9,890	11,435	13,045	14,625	16,250
Other liabilities	320	320	320	320	320
	12,860	14,615	16,450	18,275	20,165
Equity:					
Founders fund and fund of the bank's working community	550	580	605	630	650
Reserve fund	190	260	340	430	530
	740	840	945	1,060	1,180
Total Liabilities and Equity	13,600	15,455	17,395	19,335	21,345

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

ANNEX 3
Table 10

Investiciona Banka Titograd
Projected Income Statements
Years Ending December 31, 1976-80
(Amounts in Millions of Dinars)

	1976	1977	1978	1979	1980
Income:					
Interest	690	780	870	945	1,035
Fees and commission changes	20	20	20	20	20
Other income	10	10	15	15	15
Gross Income	720	810	905	980	1,070
Expenses:					
Financial expenses	515	585	660	715	790
Administrative and other expenses	70	75	80	90	95
Statutory obligations (taxes)	50	50	60	60	65
Total Expenses	635	710	800	865	950
Net Income	85	100	105	115	120
Appropriations:					
Founders fund and fund of the bank's working community	25	30	25	25	20
Reserve fund	60	70	80	90	100
	85	100	105	115	120

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Stopanska Banka Skopje
Projected Balance Sheets
Years Ending December 31, 1976-80
(Amounts in Millions of Dinars)

	1976	1977	1978	1979	1980
Assets:					
Short-term loans and deposits	10,495	11,045	11,645	12,295	12,995
Long-term loans	25,905	30,245	34,870	39,620	45,140
Liquid funds and other assets	2,765	3,230	3,735	4,275	4,855
Total Assets	39,165	44,520	50,250	56,190	62,990
Liabilities:					
Short-term borrowings and deposits	9,690	10,470	11,310	12,220	13,200
Long-term deposits	4,600	4,970	5,370	5,800	6,270
Long-term borrowings	20,875	24,615	28,600	32,660	37,430
Other Liabilities	355	355	355	355	355
	35,520	40,410	45,635	51,035	57,255
Equity:					
Founders fund and fund of the bank's working community	2,785	3,050	3,320	3,595	3,875
Reserve fund	860	1,060	1,295	1,560	1,860
	3,645	4,110	4,615	5,155	5,735
Total Liabilities and Equity	39,165	44,520	50,250	56,190	62,990

ANNEX 3
Table 11

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

ANNEX 3
Table 12

Stopanska Banka Skopje
Projected Income Statements
Years Ending December 31, 1976-80
(Amounts in Millions of Dinars)

	1976	1977	1978	1979	1980
Income:					
Interest	2,080	2,240	2,560	2,770	3,110
Fees and commission changes	60	70	80	90	100
Other income	135	135	135	135	135
Gross Income	2,275	2,445	2,775	2,995	3,345
Expenses					
Financial expenses	1,585	1,700	1,955	2,110	2,380
Administrative and other expenses	195	220	250	280	315
Statutory Obligations (taxes)	60	60	65	65	70
Total expenses	1,840	1,980	2,270	2,455	2,765
Net Income	435	465	505	540	580
Appropriations:					
Founders fund and fund of the bank's working community	260	265	270	275	280
Reserve fund	175	200	235	265	300
	435	465	505	540	580

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Agrokombinat "13 July"

Comparative Balance Sheet 1973-75
('000 Din)

	1973	1974	1975
Assets			
Current Assets:			
Cash	8,032	9,309	69,758
Receivables	73,143	76,433	118,162
Inventories	99,704	108,235	170,970
Investments	10,014	10,241	18,326
Subtotal	190,893	204,218	377,216
Fixed Assets:			
Fixed Assets	216,660	224,515	469,397
Fixed Assets under construction	44,817	44,858	20,980
Buildings in use and payments in advance for buildings	9,552	10,282	24,915
Subtotal	271,029	279,655	515,292
Total Assets	461,922	483,873	892,508
Liabilities			
Current Liabilities:			
Short-term loans	21,343	21,923	82,387
Suppliers Credit - short term	107,189	113,947	154,781
Other short-term liabilities	50,058	53,473	88,511
Subtotal	178,590	189,343	325,679
Medium & Long-term Liabilities			
Medium term loans	2,836	2,886	3,865
Long-term loans from banks	147,963	150,689	206,198
Long-term suppliers credit	22,060	22,888	27,101
Subtotal	172,859	176,463	237,164
Equity:			
Business funds	96,218	102,305	292,398
Reserve fund	3,599	3,998	7,855
Funds for housing	10,656	11,764	29,412
Subtotal	110,473	118,067	329,665
Total Liabilities	461,922	483,873	892,508
Financial Structure Indicators			
Current Ratio	1.07:1	1.08:1	1.1:1
Total debt/equity	3.18:1	3.10:1	1.7:1
Long-term debt/equity	1.56:1	1.50:1	0.72:1

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

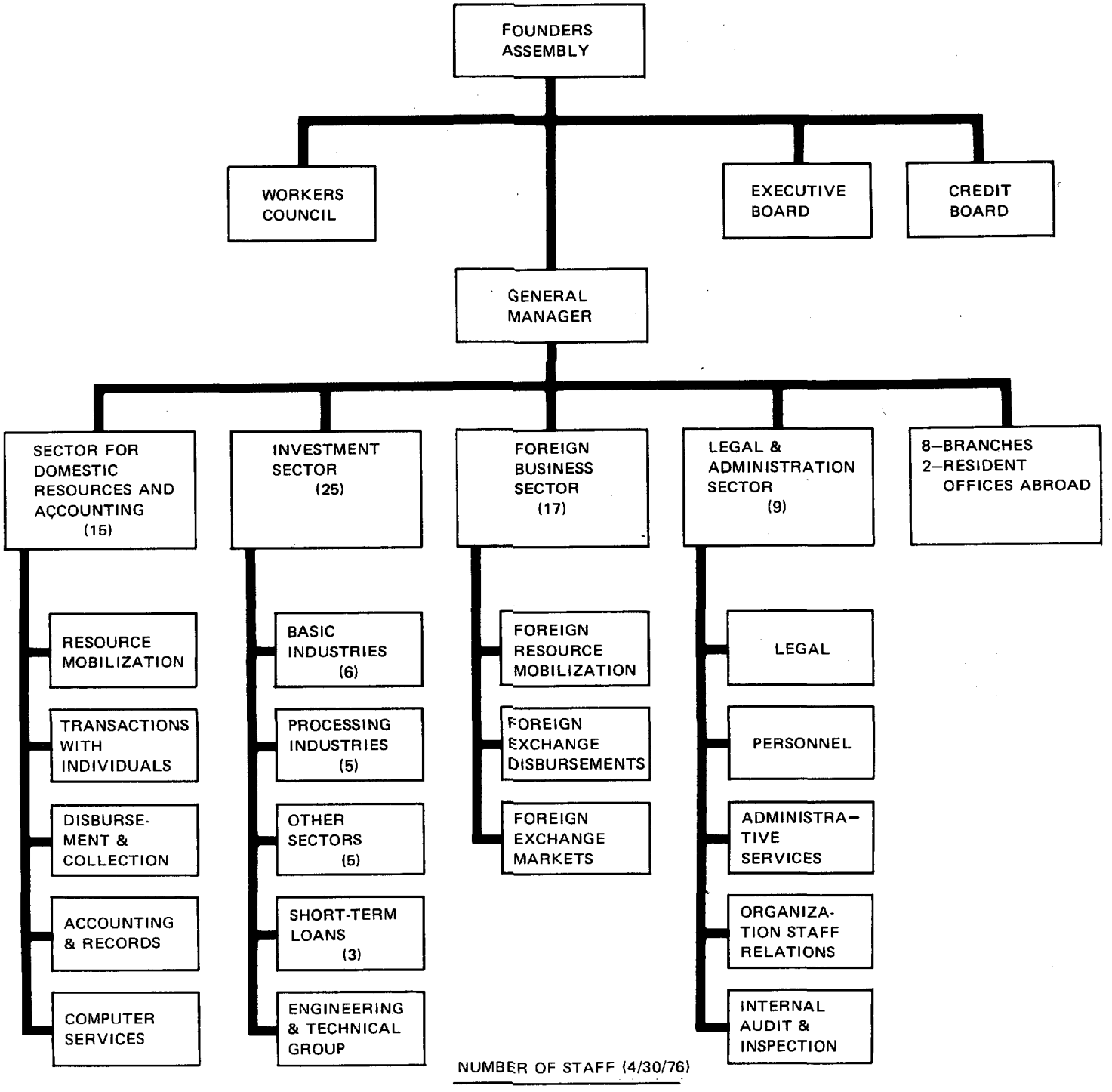
Agrokombinat "13 July"
Income and Expenses Statement: 1973-1975
('000 Din)

	1973	1974	1975
A. Income:			
Revenue	466,889	615,296	1,095,986
Subsidies /1	3,004		14,615
Total Income	469,893	615,296	1,110,601
B. Expenses:			
Operating Expenses	400,919	515,436	943,893
Depreciation	11,535	14,606	20,597
Legal and contractual obligations	12,205	16,692	27,030
Total Expenses	424,659	546,734	991,520
C. Net Surplus: (A-B)			
Allocated to -	45,234	68,562	119,081
Salaries	38,230	61,981	110,590
Funds:	7,004	6,581	8,491
Business Fund (Investment)	4,292	3,931	4,635
Reserve Fund	1,752	1,322	1,498
Housing Construction Fund	960	1,328	2,358

1/ This is the amount of Tax which is refunded from Republic whenever they have surplus budget. In addition, to stabilize income in periods of depressed prices, the Government subsidy is granted.

January 1977

YUGOSLAVIA – AGRICULTURE AND AGRO–INDUSTRIES II PROJECT
INVESTICIONA BANKA TITOGRAD
ORGANIZATION CHART

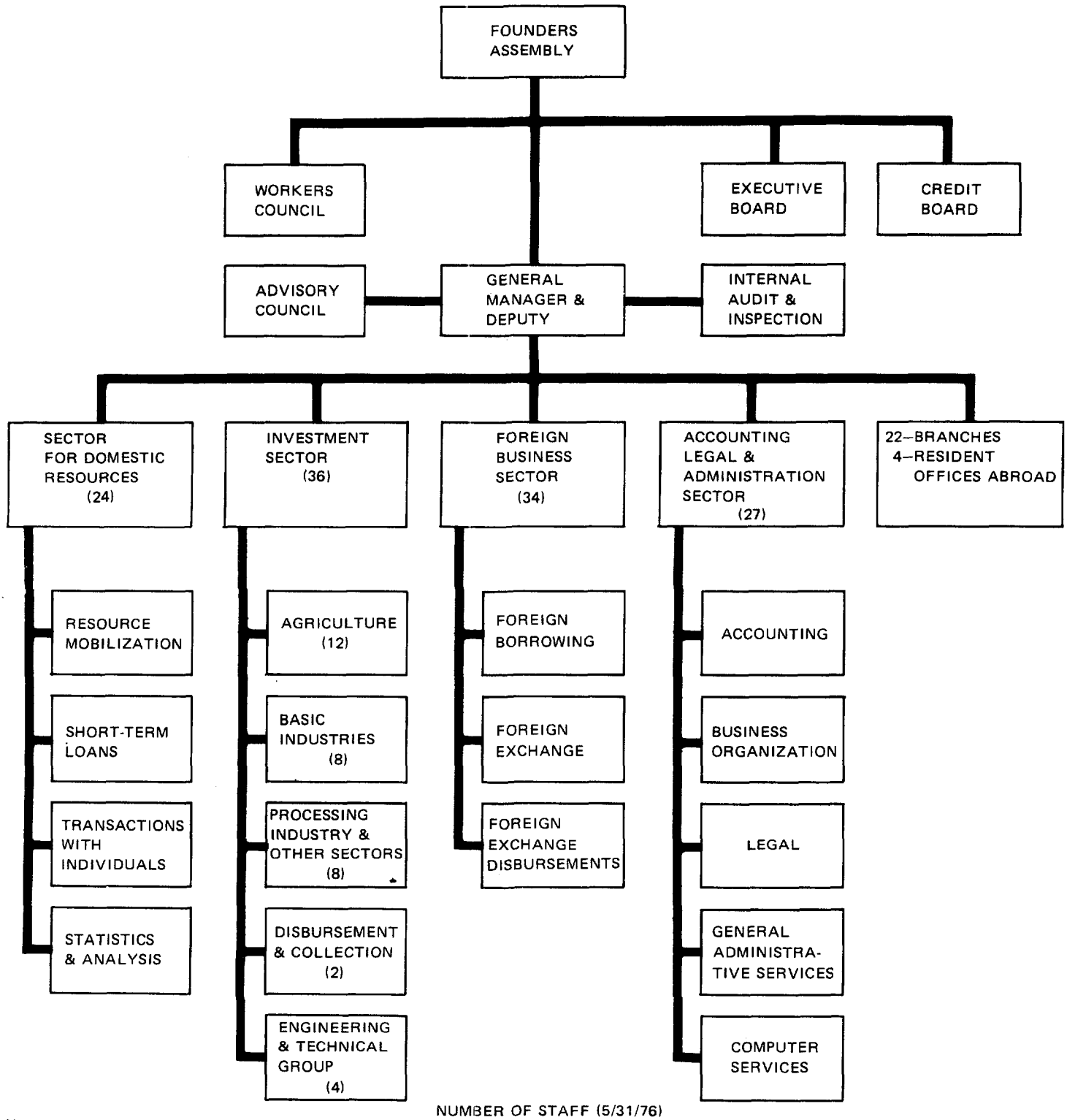


NUMBER OF STAFF (4/30/76)

Head Office	
Professional	68
Non–Professional	97
Total	165

Note: Figures in brackets give number of professional staff (defined as those with a minimum of two years college education).

YUGOSLAVIA – AGRICULTURE AND AGRO–INDUSTRIES II PROJECT
STOPANSKA BANKA SKOPJE
ORGANIZATION CHART



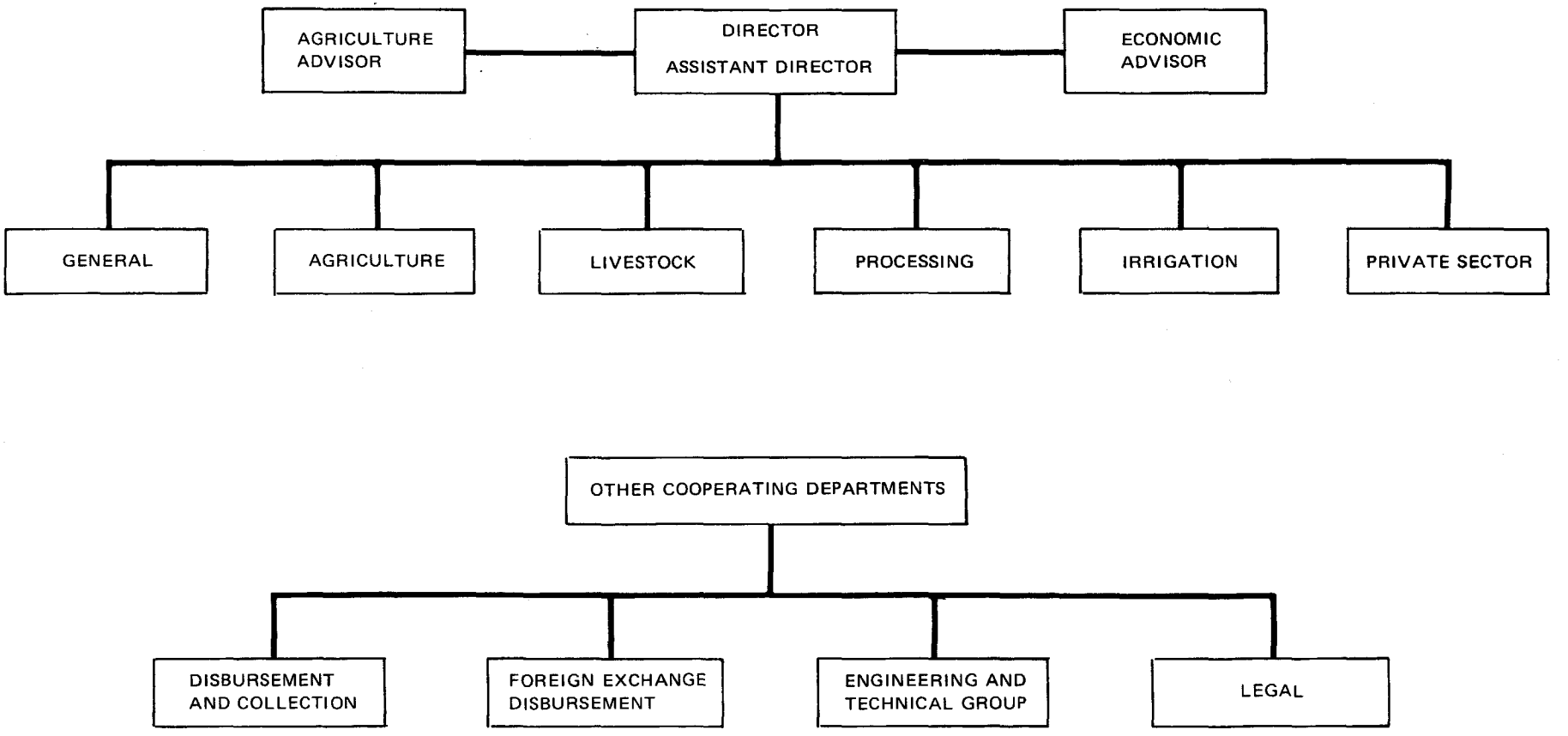
Note:

Figures in brackets give number of professional staff (defined as those with a minimum of two years college education).

NUMBER OF STAFF (5/31/76)

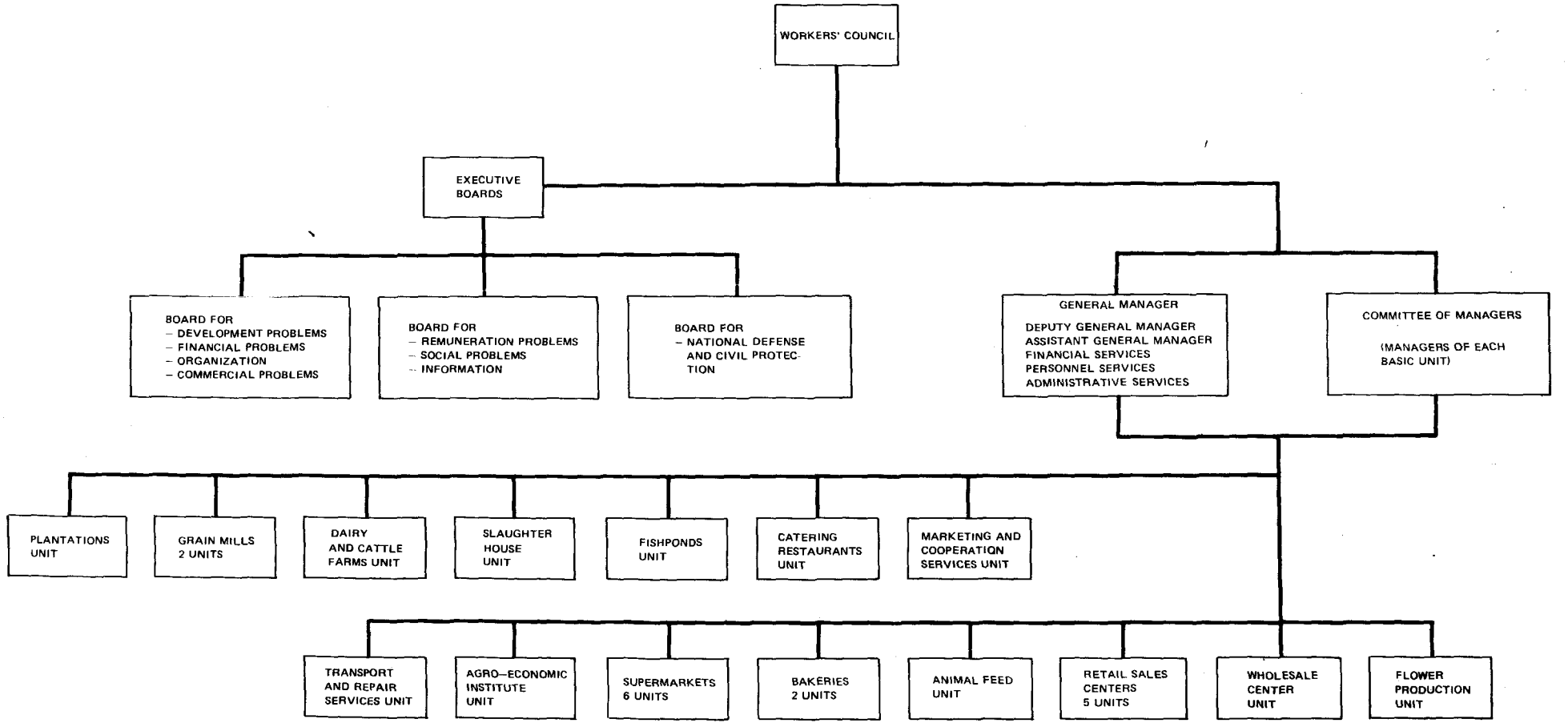
Head Office	
Professional	129
Non–Professional	247
Total	376

YUGOSLAVIA – AGRICULTURE AND AGRO–INDUSTRIES II PROJECT
STOPANSKA BANK
AGRICULTURE LOANS DEPARTMENT
ORGANIZATION CHART



World Bank–16333

YUGOSLAVIA – AGRICULTURE AND AGRO–INDUSTRIES II PROJECT
CEMOVSKO POLJE PROJECT
"13" JULY AGRO KOMBINAT – ORGANIZATION CHART



World Bank–16334

January 1977

APPRAISAL OF

AGRICULTURE AND AGRO-INDUSTRIES II PROJECT

YUGOSLAVIA

MONTENEGRO-CEMOVSKO POLJE PROJECT

Project Description

A. THE PROJECT AREA

General Features

1. Cemovsko Polje is the largest flat area (19,000 ha approx.) within the Republic of Montenegro (Map No. IBRD 12346). The plain, bordered by hilly and mountainous limestone formations slopes gently from Titograd toward Lake Skadar in north-south direction. The Moraca river flows southward along the western boundaries of the area and its tributary, the Cijevna river traverses the upper part of the plain. The main railway from Titograd to Bar runs along the western edge of the area and Titograd airport is located in the plain.

2. The Cemovsko Polje is divided into three zones:

(a) Zone A (10,000 ha), the lower part of the plain, extends over the area periodically flooded by Lake Skadar. At present Zone A is mainly used for seasonal grazing;

(b) Zone B (4,500 ha) covers the middle part of the plain. This zone is owned by small holders practising mixed agriculture on fragmented plots.

(c) Zone C (4,200 ha) lies on the upper part of the plain and is at present not farmed; recently land rights over about 3,000 ha were transferred from the Titograd municipality to the 13 July Agrokombinat. The proposed project area falls into this zone.

TOPOGRAPHY, SOILS AND DRAINAGE

3. Zone C is a flat area with little micro relief and only small undulations, degrading from the eastern foothills of Cemovsko Polje toward the central part of the plain with an average slope of about 0.7%. The River Cijevna crosses Zone C in the direction of maximum slope and cuts the area into two unequal parts. The area is covered by a gravelly fluvio-glacial layer. Gravels, which consist of dolomite and limestone, are assorted in size up to a maximum of 12-15 cm in general.

4. Two types of soils are mostly represented in the project area:

(i) The higher Cijevna terrace soils, covering about 72% of the area, are gravelly brown loams. At about 20 cm, the gravel content rises to 50-80%. Drainage is good to excessive.

(ii) Lower Cijevna soils, covering about 28% of the area, are similar to the higher terrace soils but their gravel content is more variable decreasing with distance from the river.

5. The carbon percentages of the top soil vary from 1-2%. The organic matter content is not given, but on the basis of the carbon content it appears to range between 2-3%. The phosphoric acid content has a range from 130 to 460 parts per million and suggests that the level of available phosphorus is reasonable. Exchangeable potassium in the top soil varies generally from 80 to 160 p.p.m. The total potassium content is also low and does not exceed 0.240%, indicating that potassium rich minerals, which may act as a reserve for replenishing available potassium, are absent. The salt content is negligible.

6. Based on a soil survey the land has been classified as follows:

Class	Soil description	Area in %
I	Limitations seriously restricting choice of crops and requiring measures for improvement	34.0
II	Very serious limitations severely restricting choice of crops and requiring special cultural practices	12.0
III	Similar to II but more extreme	54.0
	Total	100.0

7. There are several adverse factors and limitations which make the project area soils unsuitable for diversified cropping. However, based on the following considerations it is concluded that the proposed fruit orchards and vineyards can be successfully planted:

(i) Drainage is satisfactory and therefore no problems are likely to arise in establishing deciduous orchards, vineyards, and peach trees.

(ii) The areas with cemented subsoil, developed directly on fluvio-glacial deposits, could be substantially improved by deep ploughing in order to loosen the cemented layer.

(iii) High gravel content, which severely interfers with annual crop growing, is not a limiting factor for fruit trees and vines which have a deep root system.

(iv) The reduced water holding capacity, due to the high skeletal percentage in the soil, could be overcome by more frequent irrigation water applications.

(v) The good drainage conditions favor the establishment of vines and peach trees.

(vi) The low level of available phosphorus and probably available potassium could be corrected by means of fertilizers which also contain nitrogen.

(vii) Possible deficiencies of micro-elements such as zinc and manganese could be easily amended by foliar applications.

8. Suitability of Zone C for the proposed plantations is amply substantiated by the results obtained by the Agrokombinat over the last 5 to 6 years in its trial plot (30 ha) representing the average conditions within the project area.

CLIMATE

9. The climate in general may be described as Mediterranean with a strong continental influence as shown by the marked variation between summer and winter temperatures. The records of Titograd meteorological station, which cover a period of 35 years, indicate the following (for details see Annex 4, Tables 3, 4, and 5):

(i) The combined influence of high temperatures, strong winds and low relative humidity results in high evapotranspiration in summer making irrigation essential.

(ii) In order to protect the crop, especially the fruit trees, from the strong dry winds during summer and to reduce evapotranspiration and ensure efficient sprinkler operation, adequate protection should be provided by windbreaks.

(iii) Winter frosts present no risk to the deciduous fruit trees and vines since they flower and come into leaf well after the middle of March when the frost hazard is negligible.

(iv) Hail, causing heavy damage to the production, is frequent. Therefore crops should be insured against this.

WATER RESOURCES

10. Surface Water is available from three sources. First, river Cijevna which does not ensure enough water for the whole project area. Second, the river Moraca which has more than adequate discharge for total project purposes. Third, Lake Skadar has nearly limitless water; its nearest point to the project area is about 4 km. The water of both river Moraca and Lake Skadar is equally suitable for irrigation. The use of either source of water for irrigation presents no salinity or alkali hazards. The use of lake water rather than river water in early summer may prove more beneficial to crops because of its higher temperature.

11. Groundwater. The hydrogeological studies carried out in the past 1/ identified in the Cemovsko Polje two aquifers: (i) an upper aquifer corresponding to the alluvial quaternary fan of the River Cijevna and flowing toward Lake Skadar with a gradient of 1 m - 2 m per km; (ii) a lower aquifer in the underlying bedrock which consists of mesozoic limestone and dolomites highly karstified and fractured. This aquifer also flows toward Lake Skadar. The aquifer in the quaternary alluvium is recharged mostly by the flow of River Cijevna, while the water circulating in the mesozoic formation originates mainly in the mountain area bordering the Cemovsko plain. However, water interchanges between the two aquifers seem very probable.

12. The watertable is widespread under the whole plain at a depth ranging from 40 m to 20 m below the ground level in the upper parts of Zone C, and from 2 m to 3 m in the lower areas of Zone B where water is drawn by farmers from shallow open wells. The level variation from winter to summer is about 3 m. Several tube-wells have been drilled into the aquifer, both for water supply (Titograd and minor towns) and irrigation (Agrokombinat trial plot and new vineyard plantations): the well discharge varies from 80 to 166 l/sec for drawdown less than 1.50 m.

13. The available results of laboratory analyses confirm the good water quality for all uses. The referred hydrogeological studies assessed the safe yield from the upper aquifer nearly 80 million m3 per year. These figures are probably on the low side, but the only way to ascertain the actual potential would be to carry out test and observation for several years.

1/ Namely: Mise en Valéur de la Plaine de Cemovsko, Avant-projet d'irrigation a partir des eaux souterraines - Tome II. Les Resources Naturelles, by SATEC AGRAR & HYDROTECNIC, Mars 1971 - OECD Project.

14. Should the whole 2,000 ha project area be irrigated by groundwater, a peak flow of 1.460 m3/sec would have to be abstracted, i.e. about 90% of the overall groundwater potential assessed so far. This could imply a substantial lowering of the watertable in Zone B and raise problems with the present water users, making difficult the further irrigation development by small land holders in the area. Therefore the proposed limit the use of groundwater for irrigation in the project area at about 0.600 m3/sec, in order to leave a sufficient safety margin against possible conflicts with the existing water uses.

15. Water requirements. The water requirements have been calculated by means of the Blaney-Criddle methods as modified in the FAO Irrigation and Drainage Paper No. 24 "Crop Water Requirements," and are shown in Table 1. Based on the analysis of crop water requirements, irrigation would be necessary in general from June to August. However, it must be expected that in particularly dry years water applications would start in May. The peak requirement occurs in July with a demand of 0.61 1/sec x ha. However, since the system would operate 20 hours per day, it should be sized for a capacity of 0.73 1/sec x ha.

16. Total Water Demand and Supply. According to the gross crop water requirements shown in Table 1 at full development the average annual water demand in a year of average distribution of precipitations would be 4230 m3/ha. The overall supply of water from the project works at full development would be 2.961 million m3 per year from wells and 5.499 million m3 per year from Lake Skader.

B. CEMOVSKO POLJE PROJECT - DETAILED FEATURES

17. The project would provide for:

(i) Irrigation System

A fixed irrigation system (buried asbestos-cement pipes) would provide water down to 6 ha plots, which would be served by movable equipment. Water for 1,300 ha at an elevation of 87 m and less would be pumped from the Lake Skadar into an adjacent reservoir basin of 110 m elevation from where it would serve the irrigation system by gravity. The remaining 700 ha of higher than 87 m altitude would be served by groundwater. Portable equipment would consist of aluminum pipes, and sprinklers.

(ii) Pumping Equipment and Power Supply

The pumping station at the Lake Skadar would consist of 5 units with a total installed capacity of 950 1/sec. Six wells

with average discharge of 85 l/sec each would serve an average area of 116 ha each. Power would be supplied by installing a 110/10 kv substation and 16.5 km of 10 kv power lines.

(iii) Vineyards and Fruit Trees Establishment

The project would include agricultural equipment for deep ploughing to a depth of 80 cm and for land preparation and plantation establishment. The typical layout of the plantations would be a series of rectangular blocks of 200 m x 300 m (6 ha). Vines would be planted in rows, spaced 2.60 m, with individual plants 80 cm apart; they would be trained in cordons. Vines would be of the Richter 99 variety (for wine grapes) and Cardinal (for table grapes), both grafted on American rootstocks. Peach trees would be spaced 5 m x 5 m; early varieties that are currently grown in the Cemovsko Polje plain would be planted. Fertilizer and manure applications would be adopted to the soil conditions, requiring high dressings of phosphoric acid and potash during the establishment period. About eight sprayings against insect pests and diseases would be necessary. The plantation establishment would be coordinated with the construction of the irrigation facilities and would require five years. The annual schedule is given in Annex 5, Table 14. Windbreaks would be necessary to protect the plantations and to ensure uniformity of water distribution.

(iv) Infrastructure and Research

Three farm centers for storing equipment and inputs and providing facilities for field staff would be constructed. About 14 km unpaved service roads alongside the plantation blocks and a bridge across the Cijevna river would secure easy transportation and communication. A program of experiments on new fruit tree varieties as well as on fertilizer application, water requirements and pest protection would be implemented.

(v) Winery

A new winery would be built in Titograd for an annual crushing capacity of about 15,000 tons of wine grapes and a wine holding capacity of about 10 million liters. All fermentation, ripening, blending and storage vats would be of stainless steel. The winery would include the thermo vinification process and a complete stabilization plant and bottling facilities for 60% of the production. A distillation unit would also be included for producing brandy from "second press" wine.

(vi) Fruit and Vegetable Cold Store and Packing Line

A new cold store of a capacity of 3,000 tons would be built near Titograd. It would be designed to hold chilled produce such as peaches and table grapes and frozen products, mostly sour cherries, paprika and carrots. The facility would include a complete washing, grading and packing line in an adjacent building as well as a blast freezer. The facility would be built to a modular design for ready expansion. All refrigerated storage chambers would be at yard level to facilitate operating lift-trucks, included in the project.

(vii) Collecting Center

The Agrokombinat, under ooperation arrangements with private farmers, would collect and pack fresh vegetables from farmers in Zone B for direct marketing in urban centers through the Agrokombinat's existing facilities and for processing. Prices for fresh vegetables paid to farmers are determined on the basis of the achieved retail prices; prices for vegetables to be processed are guaranteed. The collecting center would also store and supply farm inputs to private farmers, such as fertilizers, pesticides, seeds and animal feed.

The following paragraphs describe the different components of the project. The detailed investment costs, operation and maintenance costs and financial projections are presented in Annex 5.

PLANTATION ESTABLISHMENT AND OPERATION

18. General. Zone C is divided as follows:

(a) 215 ha on which in the recent years a 30 ha trial plot has been set up and 150 ha of vineyards established.

(b) 3,117 ha initially intended for plantation development over 3,000 ha net; this area consists of 7 blocks of uncultivated land.

The project would establish 2,000 ha net (2,220 ha gross) of vineyards, and peach and cherry orchards covering the whole blocks named A, B, C and D, and part of the block named E.

19. Features of plantations are as follows:

(i) Vineyards

Wine grapes varieties both for "high quality wine" (mostly Varnac) and for blending wine would cover 1,300 ha altogether.

The table variety Cardinal would be planted on further 200 ha. This is an early variety for which there is good demand. The varieties would be grafted on American rootstocks as a protection against phylloxera. The vines would be trained in cordons, with trellises at 15 m intervals to be installed in the second year of plantation.

(ii) Peaches. Early and very early varieties which are currently grown in the Cemovsko Polje would be planted on 200 ha.

(iii) Sour cherries covering 300 ha for processing.

(iv) Windbreaks are advisable to increase the uniformity of distribution in sprinkler irrigation, reduce evapotranspiration and protect against winds. In addition they would ensure some protection against frost due to cold northerly winds. Windbreaks would consist of a double row of cypress trees. Since the windbreaks are expected to moderate the wind influence on an area up to a width 10 times the height of the trees, this protection would be consistent with the typical layout of plantations.

20. Plantation materials. Rooted and grafted vine cuttings, peach and cherry seedlings as well as young cypress plants would be supplied by local nurseries out of the project area.

21. Animal manure. Provision is made for the application of 20-25 tons of animal manure per hectare, to be mixed with the soil in the planting holes. In addition to the organic matter, animal manure would provide 100-125 kg of nitrogen per hectare, thus reducing the dressing of nitrogen fertilizers during the initial period.

22. Green manure and intercropping. Controlled trials would be carried out in order to establish the benefit, if any, derived from green manuring. The cost of green manure would not exceed Din 1,200 per annum. This item has been included in the estimates of operational costs. The soils in the project area are not suitable for intercropping and the plantations will be clean cultivated.

23. Fertilizers. The initial and annual dressings of fertilizers for the various plantations is shown in Table 2. The high dressings of phosphoric acid and potash during the first two years are necessary. The nitrogen dressings for grape production, although slightly on the low side, are reasonable in view of the adverse effect of very high dressings of this nutrient on the quality of wine. It is probable that the proposed dressings will have to be further reduced for vineyards intended for the production of "high quality" wine. There is no evidence of minor amount deficiencies. Fertilizer experiments would be conducted with a view to determining the optimum fertilizer dressings.

24. Deep ploughing and levelling. Before planting, deep ploughing or subsoiling to a depth of 70-80 cm is necessary for most of the area in order to loosen the soft, cemented horizon occurring at various depths in the profile. Levelling is not needed for sprinkler irrigation but some smoothing may be necessary to facilitate the use of machinery and farm operations in general and for the establishment of unpaved service roads.

25. The vineyards would receive regular treatments against mites and fungus diseases (mildew, oidium). Pesticides would be applied mechanically. Picking of grapes would be done by hand. Intensive treatment (up to 8 sprayings) would be carried out against fungus diseases and insect pests for fruit orchards also. Fruit would be picked by hand.

26. Plantation schedule. The project plantations would be implemented in 4 years, according to the following time schedule:

Project year	1	2	3	4	Total
			ha		
Wine grapes	200	300	400	400	1,300
Table grapes	-	-	100	100	200
Peaches	-	100	100	-	200
Cherries	-	100	100	100	300
Total	200	500	700	600	2,000
Windbreaks (3%)	6	15	21	18	60

27. Yields. The average yields at full production would be:

Wine grapes	14 m ton/ha (in the 7th year)
Table grapes	16 m ton/ha (in the 6th year)
Peaches	16 m ton/ha (in the 6th year)
Sour cherries	13 m ton/ha (in the 7th year)

IRRIGATION FACILITIES

28. Design Background. To date several preliminary designs have been outlined for the irrigation of the Zone C 1/. These studies examined alternative irrigation schemes supplied either from the River Moraca or from Lake Skadar, and also combined solutions with the area partially served by groundwater. The main conclusions may be summarized as follows:

1/ Namely:
- Avant-projet d'irrigation de la Plaine de Cemovsko, March 1971, by SATEC-AGRAR & HYDROTECHNIK (OECD Project)
- Investment and Technical Documentation for the Construction of the Irrigation System "Cemovsko Polje", January 1975, by Hidrozavod Novi Sad, Volumes I, II and III
- Revised solution of the above, January 1976, Volume IV

(a) Sprinkler irrigation is the only method suitable for the local soil conditions.

(b) Irrigation systems using groundwater are considerably cheaper than those served by surface waters; nevertheless, the present incertitudes on the actual potential of the aquifer prevent the whole reclamation area of Zone C from being served by this source, as the water table in Zone B could drop, thus creating problems with the present users and making further irrigation development in the zone difficult.

(c) Schemes using water diverted from the River Moraca are somewhat more economical than those taking water from Lake Skadar; preference, however, should be given to the latter source because of the higher temperature of the water and the risk that the River Moraca might be polluted in the future.

29. The proposed general layout of the irrigation scheme over 2,000 ha net would consist of two separate systems taking water from wells and from Lake Skadar. The proposed irrigation system, would be comprised of:

(i) The Groundwater Sub-System for 700 ha (i.e. the area to be planted in the first two years) in the upper parts of the project area on both banks of the River Cijevna since this zone is the most promising one for aquifer exploitation. Water would be drawn from 6 wells.

(ii) The Lake Skadar Sub-System for 1,300 ha net (corresponding to the area to be planted in years 3 and 4) on the lower parts of the project area, mostly south of the River Cijevna. Water would be pumped and lifted from Lake Skadar by means of a 750 m steel pipe up to a basin located on a saddle of the eastern hill range which separates the Cemovsko plain from the lake shore.

(iii) A main pressure line to convey the water from the basin by gravity flow to the command area and then deliver it to the distribution networks. The distribution networks layout would basically remain the same as in the HIDROZAVOD design. The movable irrigation equipment would consist of conventional aluminum pipes and sprinklers.

DESCRIPTION OF THE IRRIGATION WORKS

30. The irrigation system is designed to supply the average water requirement of 4,230 m3 per net hectare 1/, including a peak demand of 0.73 1/sec x ha for a daily operation of 20 hrs (para 16). The system flexibility, however, would allow for a water delivery 20% higher, by operating the irrigation system 24 hours a day.

31. Wells and pumping equipment. The groundwater system would supply 511 1/sec of water per 20 hours per day by 6 wells, each supplying an average discharge of about 85 1/sec 2/. The wells would be 600 mm in diameter and drilled to an average depth of 60 m below the ground level. The casing diameter would be 450 mm and screens would be protected by a gravel-packed filter. A submersible multistage electric pump with automatic control would be installed in each well and a small pumphouse would be constructed to accommodate the electrical and hydraulic auxiliary equpment, including air tanks.

32. By assuming the dynamic water level 35 m below the groundlevel, 12 m of head friction losses in the irrigation network, and 40 m of residual pressure at the hydrants, the total head of the pumps would be an average of 87 m, thus requiring about 100 kW of power which would be supplied by an outdoor 10,000/380 V transformer situated near the pumphouse.

33. Each well would serve a 116 ha independent block, by means of two main lines branched off from the pumphouse. These main lines would consist of Class C asbestos-cement buried pipes, 200-250 mm in diameter. Their total length would be about 5.025 m or 7.2 m per net hectare served. At the final design stage, possible interconnections between the networks of contiguous irrigation sectors should be studied to give the systems more flexibility and a balanced supply of water under unexpected circumstances.

34. Lake Skadar Pumping Station. The intake works would be located at the bottom of an indentation of the lake, a few hundred meters away from the Titograd to Albania road. The total capacity of the pumps would be 950 1/sec, with a total head of 111 m. The pumping station would have the following main features:

(i) Five multistage electrically driven pump units would be installed, each having a capacity of 190 1/sec. As the compensating tank would store the flow during the 4 hours break of daily irrigation, only 4 pump units out of five would operate 24 hrs a day in the period of peak water demand, so that normally there would be one stand-by unit.

1/ For 75% overall efficiency.
2/ Experience of the wells operating in the area shows that, in general, one well could safely supply 100 1/sec with 0.50 m drawdown.

(ii) Provision would be made for the auxiliary hydro-mechanical equipment (grills, suction end pressure pipes, gate valves, non-return valves, air tanks, etc.), transformers, electric control devices, etc. The required power would be about 1,550 kW.

(iii) A steel lifting pipe, 900 mm diameter and 750 m long, would connect the pumping station with the compensation tank. The pipe would be laid over the ground on concrete saddles at regular intervals. Civil works would also include the alignment levelling and concrete anchorage blocks.

(iv) Compensation tank would consist of a geometrically shaped pool, formed by an earthfill or rockfill embankment with 3 m crest width. The internal slopes and bottom of the tank would be concrete lined. The net capacity would be about 13,700 m3. Appurtenance structures would include intake works and bottom outlet with gates, spillway, fencing, electrical lighting and access road from the pumping station.

35. Main pressure line by gravity flow would convey an initial discharge of 950 1/sec from the compensation tank to the irrigation area and then continue across the area to the farthest sector on the northern bank of River Cijevna, by progressively feeding all the distribution networks of the system. The main line would consist of several stretches formed by Class C asbestos-cement buried pipes, decreasing in diameter from 900 mm to 200 mm. The total length would be 15,300 m including two secondary branches, i.e. about 11.8 m per served hectare. The pipeline design capacity would be sized for each stretch at the rate of 0.73 1/sec per served hectare, but secondary branches and terminal sections would convey a multiple of the discharge of the typical sprinkler fly-line (15 1/sec approx.). Besides the construction of the pipeline, civil works would include chambers, anchorage blocks and crossing structures. The River Cijevna would be overpassed with a steel pipe surported by the planned new road bridge. Hydraulic equipment would include gate valves, air valves and outlets.

36. Distribution networks. The layout of distribution networks would be the same for both the groundwater and Lake Skadar system. They would consist of parallel pipelines branching off at right angles from the mains. Distribution lines would run straight alongside alternate north-south service roads, i.e. at 416 m intervals, each line thus serving two rows of plantation units. The distribution networks would be formed by Class C asbestos-cement buried pipes ranging from 250 mm to 150 mm diameter. The design capacity of the various stretches would be about 15 1/sec every 21 ha net, according to the typical layout of the sprinkler irrigation equipment.

1/ $\frac{950 \text{ 1/sec}}{1{,}000} \times 4 \text{ hrs} \times 3{,}600 = 13{,}680 \text{ m3}$

37. There would be about 7,200 m of lines in the 2,000 ha irrigation area, corresponding to an average of 36 m per net hectare. The hydraulic equipment would include gate valves, air valves, outlets and 100 mm diameter hydrants at 100 m intervals. There would be about 525 hydrants, each serving an average of 3.80 ha net area.

38. Movable equipment and manpower requirements. Included in the project would be conventional sprinkler irrigation equipment which might gradually be replaced in the future with more advanced and labor saving devices once experience has been gained to make a decision.

39. The typical set for vineyards consists of 228 m of 100 mm diameter aluminum pipes (in lengths of 6 m), including the connection line to the hy drant, No. 11 double nozzle sprinklers with risers 1.50 m high, hydrant el bow with handle and manometer, fittings, etc. One length of pipe out of three would be equipped with stabilizing shoe and quick coupling for the sprinkler riser. Sprinklers would be spaced 18 m along the line, which would be placed parallel to the cordons. The interval between two adjacent settings would be 9 row interspacings, i.e. 25 m approximately.

40. The following operation features would apply:

- discharge of one double nozzle sprinkler 5 mm + 7 mm at the working pressure of 3.5 kg/cm2	1.41 l/sec
- total discharge of 11 sprinklers	15.50 l/sec
- volume delivered in 1 hour	55.75 m3/hr
- area covered by one setting	5,000 m2
- precipitation rate	11.15 mm/hr
- setting time for an application of 53 mm	4.75 hrs
- No. of settings in 10 days with 20 hours operation per day	42
- area covered by one set in the 19 day rotation	24 ha

The same typical set would be adopted in the peach and cherry orchards, where the diversity of layouts and crops might require some adjustment (height of risers, spacing and interval of sprinklers, diameter of nozzles, etc.).

41. For the whole 2,000 ha irrigation area 95 typical sets would be necessary. Taking into account the time required for displacing the equipment to the next sitting and a reasonable operation flexibility, 2 stand-by sets for every 5 would be provided. The total number of sets would therefore be 133.

42. At full water development there would be up to 8 water applications per year for the average of crops. Each shift of the typical set requiring 6 men/hr, the manpower requirement would be:

6 men/hr x 2 settings/ha x 8 water applications = 96 men/hr

The labor need could be somewhat reduced by using pipe trailers towed by small tractors.

43. Power lines and annual electricity consumption. A 10 kV overhead network 3 x 50 mm2 would be erected to supply electric power to the 6 well pumping stations. The network length would be about 5.5 km. Another 10 kV overhead power line 3 x 95 mm2 and 11.0 km long would supply the Lake Skadar pumping station. Both power lines would be derived from the existing 100 kV line bordering the northeastern edge of the project area, through a 100/10 kV substation to be erected by the Titograd Electricity Board near the road bridge on the River Cijevna.

44. The energy consumption for pressure water delivered by the distribution networks would be as follows:

Groundwater system (700 ha)	0.35 kWh/m3
Lake Skadar system (1,300 ha)	0.44 kWh/m3
Weighted average (2,000 ha)	0.41 kWh/m3

Based on the expected water development schedule the annual energy consumption at full development would be 3,468,600 kWh.

INFRASTRUCTURE

45. Farm Centers. Three farm centers would be constructed in the plantation area for storing equipment and inputs and providing facilities for the field staff and workers. The four centers would consist of:

	Area m2
- Garages and workshop	600
- Stores for spare parts and offices	300
- Canteen, first aid, lavatories, etc.	300
- Fences, yards, water and electricity supply	
- 3 sheds (galvanized steel structure)	3,000

46. Roads. In addition to the unpaved service roads alongside the plantation units, 1/ a main road network would be constructed to provide

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1/ The establishment of these tracks would be carried out in connection with the land levelling.

access to the farm centers and make possible easy communications and transports within the plantation area. The communication system would consist of 14 kms of macadam roads and a bridge on the River Cijevna (400 m2).

47. Infrastructure implementation would be sub-contracted in the same context as the construction works of the irrigation scheme. A first set of buildings and access roads would have to be ready for operation in the 3rd year, in connection with the first wine grape harvest. The remaining works would be completed within the 4th year.

AGRICULTURAL EQUIPMENT

48. The establishment and exploitation of the plantations would be mechanized except the fruit picking which would be done by hand. The machinery to be provided under the project would include heavy, medium and small tractors, trailers and a wide range of implements and minor equipment and spare parts as well. A part of the small tractors and trailers would be used to displace the sprinkler irrigation equipment. Medium and small tractors also would be used for road maintenance. The proposed equipment would not include standby tractors and implements needed in case of breakdown. These would have to be supplied from the pool already possessed by the Agrokombinat. The 2 heavy tractors are needed for the heavy initial operations of land preparation (deep ploughing and levelling of 2,000 ha, plus 60 ha of windbreaks). The heavy wear on equipment in deep ploughing and subsoiling has been taken into account in the estimated operating, maintenance and replacement costs.

49. The project would also need plastic boxes for transport of table grapes and fruits to the packing or processing facilities. The number of boxes needed is 60 per hectare; 24,000 boxes would be required, therefore, for the 700 ha of table grapes, peaches and cherries under harvest at the same time.

C. AGRO-INDUSTRIAL SUB-PROJECTS

Titograd-Winery

50. To process the wine grape production from the 1,300 ha planted under the project in the Zone C of the Cemovsko Polje plain, the project, would finance a new winery of a total capacity of about 10 million liters. The new facility would be located near Titograd and would be owned and operated by the 13 July Agroindustrial Kombinat. This Kombinat already owns a small winery (Vinarski Podrum) of 2.6 million liters for processing the Kombinat's production of grapes from about 400 ha of its presently owned vineyards.

51. The 1,300 ha of Zone C will only come into full production of wine-grapes in year 10, however, to avoid the expense of idle capacity for several years, the new winery financed under the project, would be designed to absorb

the winegrape production corresponding to year 7 or about 80% of the total at full development. By year 9 the winery would have to be expanded or alternatively, the surplus winegrape production would have to be sold fresh. The new plant would include thermo-vinification to obtain an optimum color of the wine with a minimum of tanning residues, a biological stabilizing plant and bottling facilities for about 60% of the production, and a distillery for producing brandy from the wine obtained after second pressing. Production of other by-products would not be economically justified for a winery of this capacity. All tanks would be made of stainless steel.

52. About 10% of the wine would be sold for export in 0.7 lt bottles under the category "Appelation Controllee", 50%, also in bottles, would be sold locally and the remaining 40% of the volume would be sold in bulk to other wineries, mostly located in the Republic of Serbia, for blending. See Annex 2 for further details on the marketing of the wine to be produced under the project. After integrating all investments and income and operating costs from all the three components involved in this sub-project, namely: (a) the irrigation and infrastructure corresponding to the 1,300 ha; (b) the planting and development of the 1,300 ha of vineyards; (c) the winery the overall combined financial rate of return of winegrape growing and processing is estimated to be 13%. The winery would offer employment on a permanent basis to 71 persons and on a seasonal basis to 100 persons.

Titograd - Cold Store and Packing Plant

53. The Project would finance the construction of a new cold store of 3,000 tons capacity. It would include fruit and vegetable washing, grading and packing facilities placed in a separate building. The cold store would include a blast freezer. The plant would be owned and operated by the 13 July Agro-Industrial Kombinat and would be located near the city of Titograd, adjacent to an existing cold-store, of 2,000 tons capacity, also owned by the Kombinat, but used mostly for storing meat, butter and fresh fruits. The new facilities would be provided essentially to serve the incremental production of peaches, tablegrapes and sour cherries from the new plantations in Zone C of the Cemovsko Polje field, financed under the project. However increased production of vegetables such as paprika and carrots, from the existing private farms in Zone B of the Cemovsko Polje field, would also be channelled through the new complex.

54. Obviously, only part of the incremental production would be kept in cold store and be graded and packed, as a large share is expected to be sold fresh directly at the markets. Peaches decay promptly and would only be kept in storage for a maximum 2 weeks, tablegrapes about 3 to 4 months and sour cherries, paprika and carrots would be frozen and carried in freezer store for about 2 to 4 months. The income and operating cost projections indicate the estimated proportions of produce that would be sold fresh and that would pass through the cold or freezer store and be sold graded and

packed. Also in this case the investment projections shown in Annex 5, Table 1 as well as the income and operating cost table, integrate the three components involved in this sub-project, namely:

(a) the irrigation and infrastructure corresponding to 200 ha of peaches, 300 ha of tablegrapes and 200 ha of sour cherries;

(b) the planting and development of these total 700 ha;

(c) the cold store, blast freezer and grading and packing plant.

A collecting center of about 500 m2 for the increase production of vegetables from Zone B (private sector), has also been included. The resulting combined financial rate of return for the production and cold storing and packing of the aforementioned produce would be about 17.65%. The size of the new cold store has been determined taking into account two factors: (i) lessen the cost of idle capacity during the development years when production is still comparatively low, and (ii) the demand in the domestic market for the more expensive cold stored and packed produce is not very well known and must be tested cautiously.

55. Trade in frozen vegetables in Montenegro as well as the rest of Yugoslavia is limited by inadequate storage and transport facilities. Shop storage is also lacking. The export market for the frozen cherries, however, would appear to be promising as can be seen in the following table:

Frozen Fruits (tons '000)
Importing Countries

	1970	1972	1975	1980
West Germany	30	48	51	60
Netherlands	9	12	10	11
France	7.3	8	9	11
Austria	2.9	6.3	7	8
United Kingdom	4.5	5.6	10	12
Sweden	6.3	4.1	4.6	5.6
Switzerland	3.4	6.1	6.3	7.0

95% of West Germany's imports are frozen fruits without sugar which includes frozen sour cherries. Prospects for Yugoslavian export of frozen vegetables have been reviewed in Annex 2. The cold store would be built following a modular pattern so it could be readily expanded if and when required. The cost of any such expansion has not been included and would not be financed under the project. The new facility would give permanent employment to about 68 persons and seasonal employment to an additional 80 persons.

D. PROJECT IMPLEMENTATION

56. A Project Unit, organized as a Basic Organization of Associated Labor (BOAL), would be created within the 13 July Kombinat for the implementation of the project in Montenegro. The Unit would have the following responsibilities:

(a) Preparation of final designs and tender documents for all engineering works to be subcontracted (irrigation systems, infrastructure and processing facilities).

(b) Preparation of list and specifications of all equipment to be procured through ICB (pumps and electro-mechanical equipment, movable equipment for sprinkler irrigation, agricultural equipment, processing plant equipment, etc.) or through local tenders (seedlings, fertilizers, etc.).

(c) Award of subcontracts and procurement contracts.

(d) Management, supervision and administration of the project implementation, and operation during the first 6 years.

57. The Project Unit will have four Division: Engineering, Plantations, Processing Plants and General. Under the overall control of the General Manager of the AK, there will be a Project Director heading the Project Unit and each of the Divisions will be headed by a Manager who will be responsible to the Project Director. The Manager (Engineering Division) would be responsible for implementation, operation and maintenance of all irrigation and infrastructure works. The Manager (Plantations) would be in charge of implementation, operation and maintenance of the vineyard and fruit plantations and farm machinery and agricultural equipment. The Processing Plants Division will carry out the erection of winery and cold and packing plant and will operate these facilities. The General Division will provide the accounting, administrative, and specialist services for procurement. The staff of the Unit would include qualified irrigation and agricultural machinery engineers, agronomists and horticulturists, economists, administrative staff and procurement specialists. Final designs of engineering works would be prepared by Yugoslav consultants, assisted by outside experts. Also, part-time consultants would assist the permanent technical staff of the operational units for the supervision of special works and supplies.

58. The Unit would have an Executive Board consisting of: General Manager of the Agrokombinat, who will also be the President of the executive board; Director and Division Chiefs of the Project Unit; Director of the Internal Bank of the Agrokombinat; Representative of the Secretary of Agriculture; a representative of IBT; and the Director of the Agro-Economic Institute

of the Agrokombinat. The executive board would approve the Unit's operating policies and procedures and supervise the project implementation. It would also play a coordinating role between the Agrokombinat, the Secretariat of Agriculture, IBT and IBRD. After the Project's implementation, the facilities would be transferred to the Agrokombinat's respective operating units. These units are adequately organized and staffed, and follow satisfactory policies to warrant efficient operation of the Project facilities.

January 1977

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Cemovsko Polje Subproject

Crop Water Requirements

ANNEX 4
Table 1

			May	June	July	August
Mean temperature (t)		°C	18.9	22.3	26.4	26.1
Daylight time as percent of annual (p)		%	0.33	0.34	0.33	0.31
C.U. factor f = p (0.46 t + 8.13)			5.55	6.41	6.68	6.24
ETO - 2.15 + 1.38f		mm/day	5.51	6.69	7.08	6.46
Crop coefficient (c) :	grapes		0.50	0.60	0.70	0.70
	peach & cherry		0.55	0.75	0.85	0.85
ET crop (ETO x c) :	grapes	mm/day	2.76	4.01	4.96	4.52
	peach & cherry	mm/day	3.03	5.02	6.02	5.47
	grapes	mm/mon.	86	120	154	140
	peach & cherry	mm/mon.	94	151	187	170
Mean effective rainfall (75% of actual)		mm/mon.	73	45	31	44
Available soil moisture on May 1st		mm	35	-	-	-
Net water requirements (ET crop - effective rainfall - stored moisture):						
	grapes	mm/mon.	-	75	123	96
	peach and cherry	mm/mon.	-	106	155	126
Gross water requirements (75% overall efficiency):	grapes	mm/mon	-	100	164	128
	peach & charry	mm/mon.	-	141	207	168
	grapes	mm/day.	-	3.3	5.3	4.1
	peach & cherry	mm/day	-	4.7	6.7	5.4

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Cemovsko Polje Subproject

Dressings of Fertilizers (kg/ha)

	Nitrogen			Phosphoric Acid			Potash		
	Vines	Peaches	Cherries	Vines	Peaches	Cherries	Vines	Peaches	Cherries
Initial dressing									
1st year	27	40	55	240	240	240	360	360	360
2nd year	27	60	60	80	80	80	120	120	120
Total									
Total first two years	54	100	115	320	320	320	480	480	480
Annual dressing									
3rd year	54	80	80	40	50	50	60	75	75
4th year	108	108	108	70	80	80	105	120	120

ANNEX 4
Table 2

ANNEX 4
Table 3

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Air Temperatures in °C for Titograd (1)

J	F	M	A	M	J	J	A	S	O	N	D	Annual Mean
Mean Monthly Temperature												
4.9	6.3	9.6	14.4	18.9	23.3	26.4	26.1	21.7	16.0	11.0	7.4	15.5
Absolute Maximum												
18.0	20.4	26.2	31.0	35.4	39.8	40.8	41.2	39.6	36.6	23.6	19.4	
Absolute Minimum												
-15.6	-9.7	-8.8	-0.5	4.2	8.0	11.0	10.0	5.2	1.5	-5.4	-11.0	

Rainfall in mm for Titograd

J	F	M	A	M	J	J	A	S	O	N	D	TOTAL
Mean Monthly rainfall												
167	167	154	107	97	60	42	58	103	212	229	234	1,630
Rainfall during a wet year												
332	262	144	72	150	25	52	24	136	522	317	189	2,225
Rainfall during a dry year												
162	89	14	61	117	46	55	4	50	115	66	4	783
Mean monthly rainfall during summer growing season												
			107	97	60	42	58	103				467

Relative Humidity of Air (%) in Titograd

	J	F	M	A	M	J	J	A	S	O	N	D	Mean
Mean Monthly	74	71	65	66	65	59	51	51	61	71	79	77	66
Mean Maximum	90	84	87	86	78	76	68	70	80	87	93	89	79
Mean Minimum	62	51	43	52	52	44	39	35	44	56	62	63	57

(1) Years 1931-40 and 1946-68

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES PROJECT

YUGOSLAVIA

Cemovsko Polje Sub-project

Water Quality of Lake Skadar and River Moraca

Source	Date	Water temp. °C	Air temp. °C	E.c. mmhos/cm	pH	Dissolved O_2 mg/l	TDS mg/l	Total Alkalinity mg/l	SO. mg/l	Cl mg/l
Lake Skadar (Vranjina)	31.8.72	21.0	23.5	3.28×10^{-4}	7.6	13.4	170	125	-	-
	12.9.72	19.1	20.0	4.70×10^{-4}	7.5	10.7	164	120	11.5	-
	21.5.73	20.0	22.8	-	8.0	13.2	166	121	10.9	9
	16.7.73	28.4	33.8	5.5×10^{-4}	8.3	10.7	183	126	11.3	8
	20.8.73	27.6	30.0	-	8.3	8.7	165	111	13.0	11
	28.5.74	18.6	22.0	2.51×10^{-4}	7.6	11.4	158	130	18.6	6
	18.6.74	22.8	23.4	2.62×10^{-4}	8.2	10.5	210	131	10.9	5
	17.9.74	24.8	25.8	2.73×10^{-4}	8.4	10.5	162	146	14.1	9
	26.8.75	19.0	25.0	1.27×10^{-4}	8.1	8.7	170	125	14.1	7
River Moraca (Titograd)	31.8.72	15.4	20.5	8.53×10^{-4}	7.6	10.6	172	140	-	-
	12.9.72	12.4	16.5	5.25×10^{-4}	7.5	11.0	194	135	19.2	4
	21.5.73	11.4	20.6	-	8.0	13.3	174	111	8.6	11
	16.7.73	21.0	30.6	5.30×10^{-4}	8.2	13.8	174	131	10.9	8
	20.8.73	19.0	31.5	-	8.1	12.3	195	111	15.4	8
	28.5.74	13.8	20.8	2.38×10^{-4}	7.5	13.3	152	121	17.3	6
	18.7.74	17.6	28.2	3.10×10^{-4}	7.9	12.5	180	140	15.4	9
	17.9.74	20.0	27.0	2.82×10^{-4}	8.3	10.9	156	109	10.9	9
	18.6.75	19.2	33.2	2.07×10^{-4}	8.2	11.4	170	130	9.0	6
	24.7.75	19.0	27.8	2.47×10^{-4}	8.2	10.7	179	140	9.6	10
	25.8.75	19.2	30.2	2.28×10^{-4}	8.0	10.6	176	130	11.9	5

ANNEX 4
Table 4

ANNEX 4
Table 5

APPRAISAL OF

AGRICULTURAL AND AGROINDUSTRIES PROJECT

YUGOSLAVIA

Cemovsko Polje Sub-project

Water Temperatures in ^{o}C of Lake Skadar and River Moraca

	May		June		July		August	
	Average	Min.	Average	Min.	Average	Min.	Average	Min.
Lake Skadar								
1971	19.6	15.4	21.6	19.8	22.8	20.8	23.5	22.2
1972	16.9	13.0	20.6	17.8	21.6	20.4	19.9	14.2
1973	17.5	13.0	20.1	18.6	22.9	20.4	21.9	16.4
1974	15.6	13.0	21.1	18.4	21.5	19.2	31.7	19.8
1975	16.4	13.4	19.5	15.2	22.6	20.0	21.5	20.4
River Moraca								
1971	11.9	11.0	14.9	13.0	18.3	15.0	19.1	17.8
1972	13.1	11.4	16.0	12.8	17.4	16.0	16.7	13.6
1973	11.1	10.0	11.7	8.0	18.5	16.0	18.7	17.0
1974	11.6	9.4	13.9	12.4	17.5	16.0	19.7	18.0
1975	13.6	12.0	16.0	13.8	18.6	15.0	18.6	17.2
Moraca Avg.	12.2	10.7	14.5	12.0	18.1	15.6	18.5	16.7
Lake Avg.	17.2	13.5	20.6	18.0	22.3	20.2	21.7	18.6
Difference	5.0	2.8	6.1	6.0	4.2	4.6	3.2	1.9
Lake Abs. Min.	-	13.0	-	15.2	-	19.2	-	14.2
Moraca Abs. Min.	-	9.4	-	8.0	-	15.0	-	13.6
Difference	-	3.6	-	7.2	-	4.2	-	0.6
Average air temp.	18.9	-	23.3	-	26.4	-	26.1	-

January 1977

APPRAISAL OF

AGRICULTURE AND AGRO-INDUSTRIES II PROJECT

YUGOSLAVIA

MONTENEGRO-CEMOVSKO POLJE PROJECT

Projected Investments, Operating and Financial Results

A. Summary of Financial Results

1. The projected investments, income and cash flow statements for the Montenegrin project as shown in detail in Tables 1 to 14. The financial rates of return including those for the sensitivity tests are summarized below:

	Base Case	Investments Costs	Operating Costs	Revenues Revenues
Plantation and Winery	13.0	11.6	11.7	10.1
Cold Store	17.7	16.2	15.9	14.2

All prices and technical coefficients are based on information recieved at the time of appraisal (June 1976). A physical contingency of 15% for the irrigation facilities and 5% for the other components has been included. All rate of return calculations are based on projections in real terms. Particular assumptions made for each subcomponent are listed in the footnotes of the respective tables.

B. List of Tables

Table 1 Investment Costs.

2 Winery and Vineyards; Income and Operating Cost Projections.

3 Fruit Orchards, Cold Store and Packing Plant; Income and Operating Projections.

4 Cash Flow Projections.

5 Winery; Investment Cost Projections.

6 Cold Store and Packing Plant; Investment Cost Projections.

7 Plantation Establishment; Investment Cost Model.

8 Irrigation Vacilities; Investment Cost Model.

Table 9 List and Procurement Schedule of Agricultural Equipment.

10 Infrastructure investment Cost Model.

11 Replacement Schedule of Irrigation Facilities and Infrastructure Components with Lifetime Shorter Than 30 Years.

12 Agricultural Equipment Replacement Costs.

13 Operating and Maintenance Costs.

14 Plantation Schedule, Yield Assumptions and Production Timetable for Grapes, Peaches and Cherries.

Appraisal of
Agriculture and Agroindustries II Project
YUGOSLAVIA
Montenegro - Cemovsko Polje Project
Investment Costs 1/

in Din'000

	Years						
	1	2	3	4	5	6	Total
A. WINERY COMPONENT (1300 ha)							
Winery	--	64,008	116,922	--	--	--	180,930
Vineyards	11,458	27,771	48,465	65,737	49,470	--	202,901
Irrigation facilities	8,762	22,000	21,107	12,338	5,971	--	70,178
Infrastructure	--	3,105	2,365	5,921	2,644	--	14,035
Agricultural equipment	2,319	2,817	2,810	3,224	2,527	599	14,296
Subtotal	22,539	119,701	191,669	87,220	60,612	599	482,340
B. FRUIT ORCHARDS, COLD STORE AND PACKING PLANT (700 ha)							
Cold store and packing plant	--	23,470	39,510	--	--	--	62,980
Plantations	1,168	12,753	20,026	22,683	18,408	--	75,038
Irrigation facilities	4,718	11,846	11,366	6,644	3,215	--	37,798
Infrastructure	--	1,672	1,273	3,188	1,424	--	7,557
Agricultural equipment	1,249	1,517	1,513	1,736	1,361	323	7,698
Subtotal	7,135	51,258	73,688	34,251	24,408	323	190,963
TOTAL	29,674	170,959	265,357	121,471	85,020	922	673,403

1/ Investment costs are based on Tables 5 to 10 of Annex 5.
Irrigation, infrastructure and Ag machinery costs have been apportioned between winery and cold store components in 65:35 ratio.

ANNEX 5
Table 1

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Winery and Vineyards (Montenegro)
Income and Operating Cost Projections

	Yield or number of units at full development	Cost or Price per Unit	Years 4	5	6	7	8	9	10-20
Volume 1/									
Wine Grapes crushed, m tons /2			3,600	7,300	11,900	19,700	19,700	19,700	19,700
Wine Produced, million liters	65%		2.34	4.75	7.74	9.56	9.56	9.56	9.56
Wine (Second Press) for distallation, million liters	5% - Brandy produced 0.2 l/l wine		0.04	0.07	0.12	0.15	0.15	0.15	0.15
Pomace	25%) sold								
Lees	5%) unprocessed								
Work schedule	(crushing: 10 wk/yr (bottling:250 days/yr								
			----------Din million----------						
A. Income									
Wine in bottles sold for export (Appellation controlee)	in 0.7 l bottles - 10%	Din 20/l at winery	4.7	9.5	15.5	19.1	19.1	19.1	19.1
Wine in bottles sold locally	in 0.7 l bottles - 50%	Din 15/l at winery	17.6	35.6	58.1	71.7	71.7	71.7	71.7
Wine in bulk for blending sold locally	40%	Din 12/l at winery	11.2	22.8	37.2	45.9	45.9	45.9	45.9
Brandy sold locally	in 1 liter bottles	Din 40/l at winery	1.4	2.9	4.8	5.9	5.9	5.9	5.9
By-product sold	1% of total sales		0.3	0.7	1.1	1.4	1.4	1.4	1.4
Sale of surplus grapes /6			-	-	-	-	9.5	15.5	17.5
Subtotal			35.2	71.5	116.7	144.0	153.5	159.5	161.5
B. Operating Cost									
1.Winery:									
a. Direct Costs									
Direct Labor	Skilled:25 x 12 mth/yr	Din 3,000/mth + 50%	1.4	1.4	1.4	1.4	1.4	1.4	1.4
	Unskilled:15 x 12 mth/yr) 10C x 3 mth/yr)	Din 2,200/mth + 50%	0.5	0.8	1.2	1.5	1.5	1.5	1.5
Purchased Power	150 KwH/1,000 liter wine	Din 0.8/KwH	0.3	0.6	0.9	1.1	1.1	1.1	1.1
Fuel, lubricants	1 kg/l brandy	Din 5/kg	0.2	0.4	0.6	0.8	0.8	0.8	0.8
Bottles, cartons, labels	(70% reused)	Din 2/l bottled	0.8	1.8	2.9	3.5	3.5	3.5	3.5
Miscellaneous materials	-	Din 0.2/l wine	0.5	1.0	1.5	1.9	1.9	1.9	1.9
Transportation of grapes to winery	Radius 30 km	Din 200/ton	0.7	1.5	2.4	2.9	2.9	2.9	2.9
Marketing Expenses	-	Din 1/liter bottled wine	1.4	2.9	4.8	5.8	5.8	5.8	5.8
Taxes /3	Federal Tax on brandy	20%	0.2	0.4	0.7	0.9	0.9	0.9	0.9
Subtotal			6.0	10.8	16.4	19.8	19.8	19.8	19.8
b. Overhead Costs									
Maintenance, incl. materials	10 persons	Din 3,000/mth + 50%	0.9	1.0	1.1	1.1	1.1	1.1	1.1
Administration expenses, incl. insurance	-	Din 150,000/month	1.2	1.5	1.8	1.8	1.8	1.8	1.8
Technical, administrative and Supervisory Personnel	18 persons	Din 3,500/mth + 50%	0.8	0.9	1.1	1.1	1.1	1.1	1.1
Management	3 persons	Din 5,000/mth + 50%	0.2	0.3	0.3	0.3	0.3	0.3	0.3
Subtotal			3.1	3.7	4.3	4.3	4.3	4.3	4.3
Subtotal for Winery	171 persons		9.1	14.5	20.7	24.3	24.3	24.3	24.3
2.Vineyards, 1,300 ha /4					33.0	38.9	39.3	37.5	37.5
3.Irrigation and Infrastructure /5					6.0	6.0	6.0	6.0	6.0
Total Operating Cost /7			9.1	14.5	59.7	69.2	69.6	69.8	69.8
Net Income Before Taxes			25.3	44.7	57.0	74.8	83.9	89.7	91.7
Less: Taxes			1.3	2.2	2.9	3.7	4.2	4.5	4.6
Net Income			24.0	42.5	54.1	71.1	79.7	84.9	87.1

/1 The plant would be built in years 2 - 3 and commence operations in year 4
/2 From Annex 5, Table 14
/3 Sales taxes paid directly by consumers have not been included in prices
/4 From Annex 5, Table 13
/5 From Annex 5, Table 13
/6 In year 8- 1900 tons; year 9 - 3,100 tons and year 10 onwards - 3,500 tons, sold at Din 5/kg wholesale
/7 Working capital for years 4 - 5 Din 20.7 million assuming a turnover of 6 months

ANNEX 5
Table 2

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Fruit Orchards, Cold Store and Packing Plant (Montenegro)
Income and Operating Cost Projections

	Yield or number of units at full development	Cost or Price per unit	Years 1/ 4	5	6	7	8	9	10-20
			m tons						
Volume /2									
Chilled Produce:									
Peaches (own production)	0.5 month storage	Din 5/kg at plant	200	700	1,300	2,000	2,000	2,000	2,000
Table grapes (own production)	3.5 months storage	Din 4.5/kg at plant	-	200	700	1,000	1,000	1,000	1,000
Other (Purchased)	3 months storage	-	300	400	500	600	600	600	600
Subtotal	Avg.1.8 mths. storage	-	500	1,300	2,500	3,600	3,600	3,600	3,600
Frozen Produce:									
Sour Cherries (own production)	4 months storage	Din 5/kg at plant	200	500	1,200	2,000	2,000	2,000	2,000
Peppers (purchased)	4 months storage	-	500	800	1,200	1,500	1,500	1,500	1,500
Carrots (purchased)	2 months storage	-	300	500	800	1,000	1,000	1,000	1,000
Other (purchased)	4 months storage	-	100	200	200	300	300	300	300
Subtotal	Avg.3.6 mths storage	-	1,100	2,000	3,400	4,800	4,800	4,800	4,800
Fresh Produce: /3									
Peaches sold in bulk			100	200	300	600	1,200	1,200	1,200
Table grapes sold in bulk			-	400	900	1,500	2,100	2,200	2,200
Sour cherries sold in bulk			-	200	300	500	1,300	1,800	1,900
Income			Din millions						
Chilled Packed Produce Sold:									
Peaches	2,000 m tons/yr	Din 8/kg at plant	1.6	5.6	10.4	16.0	16.0	16.0	16.0
Table Grapes	1,000 m tons/yr	Din 6/kg at plant	-	1.2	4.2	6.0	6.0	6.0	6.0
Other	600 m tons/yr	Din 4/kg at plant	1.2	1.6	2.0	2.4	2.4	2.4	2.4
Frozen Packed Produce Sold:									
Sour cherries	2,000 m tons/yr	Din 11/kg at plant	2.2	5.5	13.2	22.0	22.0	22.0	22.0
Peppers	1,500 m tons/yr	Din 9/kg at plant	4.5	7.2	10.8	13.5	13.5	13.5	13.5
Carrots	1,000 m tons/yr	Din 8/kg at plant	2.4	4.0	6.4	8.0	8.0	8.0	8.0
Other	300 m tons/yr	Din 8/kg at plant	0.8	1.6	1.6	2.4	2.4	2.4	2.4
Fresh Produce: /4									
Peaches sold in bulk			0.5	1.0	1.5	3.0	6.0	6.0	6.0
Table Grapes sold in bulk			-	1.8	4.1	6.8	9.5	9.9	9.9
Sour cherries sold in bulk			-	1.0	1.5	2.5	6.5	9.0	9.5
Total Income			13.2	30.5	55.7	82.6	92.3	95.2	95.7
Operating Cost									
Cold Store and Packing Plant:									
a. Direct Costs:									
Direct Labor: Skilled	40 persons x 12mt/yr	Din 2,800/mth + 50%	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Unskilled	80 persons x 9 mth/yr	Din 2,200/mth + 50%	0.8	1.4	1.8	2.1	2.1	2.1	2.1
Purchased Power	(Fresh Produce: 150 KWH/ton) (Frozen Produce: 200 KWH/ton)	Din 0.8/KwH	0.2	0.5	0.8	1.2	1.2	1.2	1.2
Cartons & liners	20 kg/ea (80% of vol.)	Din 15/carton at plant	1.0	2.0	3.6	5.0	5.0	5.0	5.0
Crates	20 kg/ea (20% of vol.)	Din 10/crate at plant	0.2	0.3	0.6	0.8	0.8	0.8	0.8
Refrigerant, Miscl. materials	-	US$10/ton at plant	0.3	0.6	1.1	1.5	1.5	1.5	1.5
Raw Material Purchases:									
Peppers	1,500 m tons/yr	Din 3/kg at plant	1.5	2.4	3.6	4.5	4.5	4.5	4.5
Carrots	1,000 m tons/yr	Din 2/kg at plant	0.6	1.0	1.6	2.0	2.0	2.0	2.0
Other (onions, leeks)	900 m tons/yr	Din 2/kg at plant	0.8	1.2	1.4	1.8	1.8	1.8	1.8
Taxes /5			-	-	-	-	-	-	-
Subtotal			5.5	9.6	14.7	19.1	19.1	19.1	19.1
b. Overhead Cost									
Maintenance, incl. materials	10 persons	Din 3,000/mth + 50%	0.9	1.0	1.1	1.1	1.1	1.1	1.1
Administration expenses, incl. insurance		Din 100,000/mth	0.8	1.0	1.2	1.2	1.2	1.2	1.2
Technical, Administrative and Supervisory Personnel	15 persons	Din 3,500/mth + 50%	0.7	0.8	0.9	0.9	0.9	0.9	0.9
Management	3 persons	Din 5,000/mth + 50%	0.2	0.3	0.3	0.3	0.3	0.3	0.3
Subtotal			2.6	3.1	3.5	3.5	3.5	3.5	3.5
Subtotal for Cold Store & Packing Plant	151 persons		8.1	12.7	18.2	22.6	22.6	22.6	22.6
Orchards, 700 ha: /6					18.6	19.9	19.9	19.9	19.9
Irrigation and Infrastructure: /7					3.3	3.3	3.3	3.3	3.3
Total Operating Cost /8			8.1	12.7	40.1	45.8	45.8	45.8	45.8
Net Income before Tax (loss)			5.1	17.8	15.6	36.8	46.5	49.4	49.9
Less: Taxes			.3	.9	.78	1.84	2.32	2.47	2.50
Net Income (loss)			4.8	16.9	14.82	34.96	44.18	46.93	47.40

/1 The plant would be built in years 2 - 3 and commence operations in year 4
/2 Based on Annex 5, Table 14 and adjusted for estimated demand of chilled and frozen produce - volumes net of loss
/3 Represents project produce not kept in cold store but sold in bulk during season
/4 Peaches: Din 5/kg, Table grapes Din 4.5/kg
/5 Sales taxes paid directly by consumers have not been included in prices
/6 From Annex 5, Table 13
/7 From Annex 5, Table 13
/8 Working capital for years 4-5, Din 8.0 million assuming an average turnover of 3 months.

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES PROJECT

YUGOSLAVIA

MONTENEGRO

CEMOVSKO POLJE PROJECT CASH FLOW PROJECTIONS
(Din Million)

	YEAR																				
	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Cash In-Flow																					
Returns	.0	.0	.0	48.4	102.0	172.4	226.6	245.8	254.7	257.2	257.2	257.2	257.2	257.2	257.2	257.2	257.2	257.2	257.2	257.2	257.2
Own Funds	7.3	44.4	2.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
IBRD Loan[1]	14.5	85.8	148.1	63.9	49.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
FNP Loan[2]	14.5	91.7	83.8	10.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
IBT Loan[3]	.0	.0	153.2	126.2	104.7	1.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Short-Term Loan	.0	.0	.0	8.6	13.6	49.9	57.5	57.7	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8
Government of Montenegro Loan[4]	.0	.0	.0	.0	.0	10.0	55.9	58.1	61.1	47.9	37.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SUB-TOTAL	36.3	221.9	387.4	257.1	269.5	233.9	340.0	361.6	373.6	362.9	352.3	315.0	315.0	315.0	315.0	315.0	315.0	315.0	315.0	315.0	315.0
Cash Outflow																					
Investment Cost	36.3	221.9	387.4	200.1	153.9	1.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Operating Cost	.0	.0	.0	17.2	27.2	99.8	115.0	115.4	115.6	115.6	115.6	115.6	115.6	115.6	115.6	115.6	115.6	115.6	115.6	115.6	115.6
Taxes	.0	.0	.0	1.6	3.7	3.7	5.5	6.5	7.0	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
SUB-TOTAL	36.3	221.9	387.4	218.9	184.8	105.1	120.5	121.9	122.6	122.7	122.7	122.7	122.7	122.7	122.7	122.7	122.7	122.7	122.7	122.7	122.7
Surplus Cash for Debt Service	.0	.0	.0	38.2	84.7	128.8	219.5	239.7	251.0	240.2	229.6	192.3	192.3	192.3	192.3	192.3	192.3	192.3	192.3	192.3	192.3
Loan Repayments																					
IBRD Loan	.0	.0	.0	19.5	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	18.8	.0	.0	.0	.0	.0
FNP Loan	.0	.0	.0	.0	.7	4.8	8.8	9.7	10.2	10.6	11.2	11.8	12.3	13.0	13.6	14.3	15.0	15.8	16.6	17.4	18.2
IBT Loan	.0	.0	.0	.0	.0	.0	30.6	55.7	76.6	76.9	76.9	46.3	19.3	.3	.0	.0	.0	.0	.0	.0	.0
Short-Term Loan	.0	.0	.0	8.6	13.6	49.9	57.5	57.5	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8
SUB-TOTAL	.0	.0	.0	28.1	53.4	93.8	136.0	162.0	183.7	184.4	185.0	155.0	128.5	110.2	110.5	90.9	72.8	73.6	74.4	75.2	76.0
Interest Payments																					
IBRD Loan	.0	.0	.0	.0	.0	.0	42.4	38.0	33.5	29.1	24.6	20.2	15.7	11.3	6.9	.0	.0	.0	.0	.0	.0
FNP Loan	.0	.0	.0	.0	.9	6.1	10.7	10.9	10.4	9.9	9.3	8.8	8.2	7.6	6.9	6.3	5.5	4.8	4.0	3.2	2.3
IBT Loan	.0	.0	.0	12.1	22.4	30.8	29.7	26.1	21.0	14.8	8.7	3.6	.9	.0	.0	.0	.0	.0	.0	.0	.0
SUB-TOTAL	.0	.0	.0	12.1	23.3	36.9	82.8	75.0	64.9	53.8	42.6	32.6	24.8	18.9	13.8	6.3	5.5	4.8	4.0	3.2	2.3
Annuity Payments																					
Government of Montenegro	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	30.1	30.1	30.1	30.1	30.1	30.1	30.1	30.1	30.1
TOTAL DEBT SERVICE	.0	.0	.0	40.2	76.7	130.7	218.8	237.0	248.6	238.2	227.6	187.6	183.4	159.2	154.4	127.3	108.4	108.5	108.5	108.5	108.4
Net Cash Flow																					
Annual	.0	.0	.0	(2.0)	8.0	(1.9)	.7	2.7	2.4	2.0	2.0	4.7	8.9	33.1	37.9	65.0	83.9	83.8	83.8	83.8	83.9
Cumulative	.0	.0	.0	(2.0)	6.0	4.1	4.8	7.5	9.9	11.9	13.9	18.6	27.5	60.6	98.5	163.5	247.4	331.2	416.0	499.8	583.7
Memo Items:																					
Interest on IBRD Loan (Capitalized)	.0	1.6	11.2	28.8	38.9	48.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Interest on FNP Loan (Capitalized)	.0	.7	5.4	9.8	10.0	5.1	0.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—

1/ Total loan Din 361.5 million (US$20.1 Million), 15 years maturity with a three year grace period, lent to AK at 11% p.a. with level payments of principal; interest capitalized during construction period of six years up to Din 108 Million (US$6 million).

2 Total loan Din 200 million (US$11.1 million), 20 years maturity with three years grace counted for each disbursed tranche separately from end of year of disbursement, lent to AK at 5% p.a. with level annuity payments; interest capitalized during grace periods.

3/ Total Loan Din 385.7 million (US$21.4 million), eight years maturity with three years grace period counted for each disbursed tranche from end of year of disbursement, lent to AK at 8% p.a. with level payments of principal; no interest payable during year of disbursement; interest not capitalized.

4/ Total loan Din 323.3 million (US$18.0 million) with 20 years maturity and grace periods of six to nine years and repayment periods of 14 to 19 years for the first to sixth disbursed tranche, respectively; interest rate 5% p.a. with level annuity payments, interest capitalized during grace periods.

ANNEX 5
Table 5

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Cemovsko Polje Sub-Project

Winery
Investment Cost Projections

	Capacity or Total Units	Cost per unit US$	Total Investment Cost			Investment Costs	
			Total	Local	Foreign Exchange	Year 2 /1	Year 3 /1
			----------Din '000----------				
Plant Capacity:							
Grinding (Harvest Peak)	600 tons grapes/day						
Wine Holding	10 million liters						
Investment Items: /2							
Land & Site Preparation	2 ha	0.5/m^2	180	180	-	180	-
Civil Works:							
Access roads and plant yards	4,000m^2	20/m^2	1,440	1,440	-	1,010	430
Fencing and infrastructure	600m_2	15/m_2	160	152	8	160	-
Hall for grape reception & crushing	2,300m_2	110/m_2	4,550	4,095	455	3,190	1,360
Hall for fermentation & stabilization	2,900m_2	180/m_2	9,400	7,990	1,410	6,580	2,820
Building for ripening and storage tanks	1,300m_2	190/m_2	4,450	4,005	445	3,120	1,330
Building for bottling and storage	1,900m_2	220/m_2	7,520	6,392	1,128	5,260	2,260
Building for by-product distillery	600m_2	200/m_2	2,160	1,836	324	1,510	650
Office, laboratory, amenities	900m_2	300/m_2	4,860	4,131	729	3,400	1,460
Garage, store, utilities, aux.buildings	900m^2	150/m^2	2,430	2,187	243	1,700	730
Effluent Treatment	200m^3/day	500/m^3/day	1,800	1,260	540 *	900	900
Subtotal			38,770	33,488	5,282	26,830	11,940
Utilities:							
Water wells, pumps, storage tank, chlorinator	2 x 15m^3/hr	1,500/m^3/hr	810	486	324	320	490
Power substation, transformers, switchgear controls	2 x 200kVa	150/kVa	1,080	432	648	430	650
Package steam generator, fuel tank, water treatment	2 x 3,000kg/hr	20,000/ ton/hr	2,160	1,296	864	860	1,300
Service Lines	-	10%	410	246	164	-	410
Crating, freight, insurance	-	5%	220	132	88	-	220
Installation	-	15%	700	630	70	-	700
Subtotal			5,380	3,222	2,158	1,610	3,770
Machinery & Equipment:							
Weighbridge	20 tons	25,000	450	135	315 *	180	270
Grape crushing, pressing & thermovinification	600 tons grapes/ day	480,000	8,640	864	7,776 *	3,460	5,180
Fermentation, ripening, blending and storage	75 x 50m^3)	2,100,000	37,800	3,780	34,020 *	15,120	22,680
Stainless steel tanks	60 x 125m^3)						
Stabilization plant, heat exchangers, filters insulated vats	2,500 l/day	210,000	3,780	378	3,402 *	1,510	2,270
Bottle washing, filling, labelling & packing line	2,500 l/day	250,000	4,500	450	4,050 *	1,800	2,700
By-product distillation equipment	3,000 l/day	320,000	5,760	576	5,184 *	2,300	3,460
Office, laboratory, spares, tools, miscl.	-	100,000	1,800	540	1,260 *	720	1,080
Crating, freight, insurance	-	5%	3,140	942	2,198 *	-	3,140
Installation	-	15%	9,880	6,916	2,964	-	9,880
Subtotal			75,750	14,581	61,169	25,090	50,660
Transportation Equipment: /3							
Tanker Trucks	2 x 10,000 l	45,000/ea	1,620	972	648	-	1,620
Flat Trucks	2 x 5 ton	20,000/ea	720	432	288	360	360
Pick Ups	2	8,000/ea	290	174	116	290	-
Subtotal			2,630	1,578	1,052	650	1,980
Engineering & Overhead /4							
Organizational expenses		1%	1,200	1,200	-	1,200	-
Consultants (Specs. bids, supervision)		4%	4,800	3,360	1,440	2,400	2,400
Contractors (Design, implementation)		5%	6,000	3,000	3,000	3,000	3,000
Subtotal			12,000	7,560	4,440	6,600	5,400
Import Duties /6			17,620	17,620	-	-	17,620
Technical and Management Services	1 expert/6 mths	30,000/yr	270	54	216	-	270
Total investment without contingencies			152,600	78,283	74,317	60,960	91,640
Physical Contingencies		5%	7,630	3,914	3,716	3,048	4,582
Total with Physical contingency			160,230	82,197	78,033	64,008	96,222
Working Capital /5			20,700	19,665	1,035		20,700
Price Contingencies			70,890	42,894	27,996	17,314	53,576
GRAND TOTAL			251,820	144,756	107,064	81,322	170,498

/1 The plant will be built in years 2 - 3 and commence operations in year 4
/2 One plant would be financed, it would be located near the existing winery and owned by 13 July Kombinat
/3 Hired trucks would also be used
/4 On items Civil Works, Utilities, Machinery & Equipment
/5 From Annex 5, Table 2. Din 9.5 million in year 4 and Din 11.2 million in year 5
/6 30% import duty on items marked *

ANNEX 5
Table 6

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Cemovsko Polje Sub-Project

Cold Store and Packing Plant
Investment Cost Projections

	Capacity or Total Units	Cost per Unit US$	Total Investment Cost Total	Local	Foreign Exchange	Investment Cost Year 2 /1	Year 3 /1
			Din '000				
Coldstore Capacity,							
Cold Store	3,000 m tons						
Packing Plant	3,000 boxes(20kg)/shift						
Investment Items /2							
Land and Site Preparation	2 ha	0.5/m^2	180	180		180	-
Civil Works:							
Access Roads and Plant Yards	3,000 m^2	20/m^2	1,080	1,080		760	320
Fencing and Infrastructure	600 m	15/m	160	152	8	160	-
Insulated Cold Store & Blast Freezer	2,000 m^2	300/m^2	10,800	8,100	2,700 *	7,560	3,240
Main Fruit & Vegetable Packing Shed	1,000 m^2	150/m^2	2,700	2,295	405	1,890	810
Office, amenities	500 m^2	250/m^2	2,250	1,913	337	1,580	670
Garage, Store, Engine Room, auxilliary buildings	400 m^2	150/m^2	1,080	972	108	760	320
Effluent Treatment	100m^3/day	500/m^3/day	900	675	225 *	450	450
Subtotal			18,970	15,187	3,783	13,160	5,810
Utilities:							
Water wells, pumps, tank, chlorinator	2 x 10m^3/hr	1,500/m^3/hr	540	324	216	220	320
Power substation, transformer, switchgear controls	2 x 300 kVa	150/kVa	1,620	648	972	650	970
Refrigerating equipment, evaporators, and aux.	4 x 75 tons	1,200/ ton	6,480	1,296	5,184 *	2,590	3,890
Service lines	-	10%	860	516	344	-	860
Crating, freight, insurance	-	5%	480	288	192	-	480
Installation	-	15%	1,500	1,200	300	-	1,500
Subtotal			11,480	4,272	7,208	3,460	8,020
Machinery and Equipment:							
Weigh bridge	20 tons	25,000	450	135	315 *	180	270
Wooden bins & pallets	2,500(400kg ea.)	15/ea	680	680	-	-	680
Receiving & washing equipment	3,000 boxes/shift	130,000	2,340	468	1,872 *	940	1,400
Grading and Packing lines	3,000 boxes/shift	200,000	3,600	720	2,880 *	1,440	2,160
Blast Freezer Equipment	50 tons/shift	80,000	1,440	864	576 *	580	860
Office Equip., spares, tools, miscellaneous	-	30,000	540	216	324	-	540
Crating, freight, insurance	-	5%	450	180	270 *	-	450
Installation	-	15%	1,430	858	572	-	1,430
Subtotal			10,930	4,121	6,809	3,140	7,790
Transportation Equipment 3/	2 lift trucks	16,000/ea	580	58	522 *	-	580
	2 pick ups	8,000/ea	280	168	112	140	140
Subtotal			860	226	634	140	720
Engineering and Overhead 4/							
Organizational Expenses	-	1%	410	410	-	410	-
Consultant (Specs.,bids, supervision)	-	4%	1,660	1,162	498	830	830
Contractors (Design,implementation)	-	5%	2,070	1,449	621	1,030	1,040
Subtotal			4,140	3,021	1,119	2,270	1,870
Import Duties 5/			3,820	3,820	-	-	3,820
Collection Centre	-	-	1,980	1,683	297	-	1,980
Total without contingencies			52,360	32,510	19,850	22,350	30,010
Physical Contingencies		5%	2,619	1,626	993	1,120	1,500
Total with physical contingencies			54,979	34,136	20,843	23,470	31,510
Working Capital			8,000	7,600	400	-	8,000
Price Contingencies			23,970	16,635	7,335	6,349	17,620
GRAND TOTAL			86,949	58,371	28,578	29,819	57,130

/1 One year would elapse in hiring consultant, preparing specs, and requesting and evaluating bids
/2 One Plant would be financed, it would be located between zones "B" and "C" and by th 13 July Kombinat
/3 Hired trucks would also be used
/4 On items Civil Works, Utilities and Machinery and equipment
/5 30% import duty on items marked *
/6 From Annex 5, Table 3 Din 8.0 million assuming an average turnover of 3 mths

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Cemovsko Polje Sub-Project

Plantation Establishment
Investment Cost Model
('000 Din)

ANNEX 5
Table 7

Cost Item	Investment Costs								
	Total								
	Total	Local	Foreign Exchange	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Vineyards (1,500 ha net)									
Fertilizers	9,186.0	3,086.0	6,100.0	909.6	1,679.5	2,746.8	3,062.0	788.0	-
Pesticides	1,027.5	385.5	642.0	46.4	160.2	251.9	342.5	226.5	-
Animal Manure	10,800.0	10,800.0	-	1,440.0	2,160.0	3,600.0	3,600.0	-	-
Seeds for Green Manure	2,000.0	2,000.0	-	160.0	400.0	640.0	400.0	400.0	-
Plantation Materials	49,344.9	24,672.9	24,672.0	6,303.6	9,731.1	16,172.6	16,448.3	689.3	-
Cordons	56,928.0	39,808.0	17,080.0	-	7,590.4	11,385.6	18,936.0	18,976.0	-
Machinery & Equipment 1/	10,072.5	5,036.5	5,036.0	979.0	1,832.5	2,993.5	3,357.5	910.0	-
Labor	33,360.0	33,360.0	-	2,432.0	5,664.0	2,104.0	11,120.0	5,040.0	-
Subtotal	172,678.9	119,148.9	53,530.0	12,270.6	29,217.8	46,894.4	57,266.3	27,029.8	
Peach Trees (200 ha)									
Fertilizers	1,259.0	423.0	836.0	-	459.0	629.5	170.5	-	-
Pesticides	267.0	91.0	176.0	-	30.0	133.5	103.5	-	-
Animal Manure	1,200.0	1,200.0	-	-	600.0	600.0	-	-	-
Seeds for Green Manure	320.0	320.0	-	-	80.0	160.0	80.0	-	-
Plantation Materials	2,234.0	1,564.0	670.0	-	894.0	1,117.0	223.0	-	-
Machinery & Equipment	1,174.0	589.0	585.0	-	440.0	587.0	147.0	-	-
Labor	2,304.0	2,304.0	-	-	672.0	1,152.0	480.0	-	-
Subtotal	8,758.0	6,491.0	2,267.0	-	3,175.0	4,379.0	1,204.0	-	
Sour Cherry Trees (300 ha)									
Fertilizers	1,915.5	647.5	1,268.0	-	468.0	638.5	638.5	170.5	-
Pesticides	441.0	149.0	292.0	-	36.0	147.0	147.0	111.0	-
Animal Manure	2,250.0	2,250.0	-	-	750.0	750.0	750.0	-	-
Seeds for Green Manure	480.0	480.0	-	-	80.0	160.0	160.0	80.0	-
Plantation Materials	4,047.0	2,833.0	1,214.0	-	1,324.0	1,349.0	1,349.0	25.0	-
Machinery & Equipment	1,845.0	920.0	925.0	-	475.0	615.0	615.0	140.0	-
Labor	3,456.0	3,456.0	-	-	992.0	1,152.0	1,152.0	160.0	-
Subtotal	14,434.5	10,735.5	3,699.0	-	4,125.0	4,811.5	4,811.5	686.5	
Windbreaks (60 ha)									
Fertilizers	36.0	12.0	24.0	2.4	6.6	10.5	10.8	3.9	1.8
Plantation Materials	330.0	230.0	100.0	30.0	77.4	111.6	99.9	9.3	1.8
Machinery & Equipment	246.0	123.0	123.0	21.0	54.3	79.8	73.8	11.7	5.4
Labor	528.0	528.0	-	33.6	96.0	154.8	160.8	61.2	21.6
Supervision 2/	36.0	36.0	-	1.8	5.7	9.9	11.1	5.7	1.8
Subtotal	1,176.0	929.0	247.0	88.8	240.0	366.6	356.4	91.8	32.4
Total	197,047.4	137,304.4	59,743.0	12,359.4	36,757.8	56,451.5	63,638.2	27,808.1	32.4
Administration, Management and Supervision, 5%	9,852.3	6,815.3	3,037.0	618.0	1,837.9	2,822.6	3,181.9	1,390.4	1.6
Total fixed investment	206,899.7	144,119.7	62,780.0	12,977.4	38,595.7	59,274.1	66,820.1	29,198.5	34.0
Physical Contingency 5%	10,345.0	7,156.0	3,189.0	648.9	1,929.8	2,963.7	3,341.0	1,459 9	1.7
Working Capital	61,723.0	45,292.0	16,431.0	-	-	6,250.0	18,255.3	37,217.7	-
Total with physical contingencies	278,967.7	196,567.7	82,400.0	13,626.3	52,550.5	68,487.8	88,416.4	67,876.1	35.7
Price Contingencies	160,520.0	113,149.0	47,371.0	2,551.0	13,361.0	32,505.0	56,585.0	55,483.0	35.0
GRAND TOTAL	439,487.7	309,716.7	129,771.0	16,177.3	53,886.5	100,992.8	145,001.4	123,359.1	70.7

1/ Does not include depreciation and replacement costs
2/ Forestry Consultant

ANNEX 5
Table 8

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Cemovsko Polje Sub-Project

Irrigation Facilities
Investment Cost Model
('000 Din)

Investment Items	Investment Costs							
	Total			Year 1	Year 2	Year 3	Year 4	Year 5
	Total	Local	Foreign Exchange					
Groundwater System								
.Headworks								
Well drilling & casing	2,520.0	1,663.2	856.8	840.0	1,680.0	-	-	-
Civil Works	810.0	680.4	129.6	270.0	540.0	-	-	-
Pump Units & Hydromec. Equipment	3,150.0	1,638.0	1,512.0	1,050.0	2,100.0	-	-	-
Transformers & Electrical Equipment	2,460.0	590.4	1,869.6	820.0	1,640.0	-	-	-
Power Lines	830.0	498.0	332.0	270.0	560.0	-	-	-
Subtotal	9,770.0	5,070.0	4,700.0	3,250.0	6,520.0			
Main Pressure Lines								
Civil Works	490.0	411.6	78.4	165.0	325.0	-	-	-
Pipes & fittings	930.0	427.8	502.2	310.0	620.0	-	-	-
Hydraulic Equipment	60.0	31.2	28.8	20.0	40.0	-	-	-
Subtotal	1,480.0	870.6	609.4	495.0	985.0			
Distribution Networks								
Civil Works	2,110.0	1,772.4	337.6	605.0	1,505.0	-	-	-
Pipes & fittings	2,835.0	1,304.0	1,531.0	810.0	2,025.0	-	-	-
Hydraulic Equipment	725.0	377.0	348.0	205.0	520.0	-	-	-
Subtotal	5,670.0	3,453.4	2,216.6	1,620.0	4,050.0			
Movable Equipment	1,440.0	230.4	1,209.6	280.0	860.0	300.0	-	-
Total Groundwater System	18,360.0	9,624.4	8,735.6	5,645.0	12,415.0	300.0		
Lake Skadar System								
Headworks								
Civil Works	4,500.0	3,780.0	720.0	1,200.0	1,200.0	1,500.0	600.0	-
Lifting Steel Pipe	2,625.0	1,207.6	1,417.4	-	1,000.0	1,625.0	-	-
Pump Units & Hydromec. Equipment	5,635.0	-3,381.0	9,016.0	-	1,500.0	4,000.0	135.0	-
Transformers & Electrical Equipment	3,700.0	888.0	2,812.0	-	1,500.0	2,000.0	200.0	-
Powerlines	1,750.0	1,050.0	700.0	750.0	-	1,000.0	-	-
Subtotal	18,210.0	3,544.6	14,665.4	1,950.0	5,200.0	10,125.0	935.0	
Main pressure lines								
Civil works	4,985.0	4,187.4	797.6	785.0	1,300.0	1,850.0	1,050.0	-
Pipes & Fittings	15,025.0	6,911.4	8,113.6	2,000.0	4,000.0	5,500.0	3,525.0	-
Hydraulic equipment	690.0	358.8	331.2	-	230.0	250.0	210.0	-
Subtotal	20,700.0	11,457.6	9,242.4	2,785.0	5,530.0	7,600.0	4,785.0	
Distribution Networks								
Civil Works	3,925.0	3,297.0	628.0	-	940.0	1,565.0	1,420.0	-
Pipes & fittings	5,265.0	2,422.0	2,843.0	-	1,260.0	2,100.0	1,905.0	-
Hydraulic Equipment	1,340.0	696.8	643.2	-	320.0	535.0	485.0	-
Subtotal	10,530.0	6,415.8	4,114.2	-	2,520.0	4,200.0	3,810.0	
.Movable Equipment	2,700.0	432.0	2,268.0	-	-	980.0	1,470.0	250.0
Total Movable Equipment	52,140.0	21,850.0	30,290.0	4,735.0	13,250.0	22,905.0	11,000.0	250.0
TOTAL	70,500.0	31,474.4	39,025.6	10,380.0	25,665.0	23,205.0	11,000.0	250.0
Administration, Management & Supervision, 5%	3,525.0	1,573.8	1,951.2	519.0	1,283.2	1,160.2	550.0	12.5
Final Design & Technical Assistance, 5%	3,525.0	1,573.8	1,951.2	519.0	1,283.3	1,160.3	550.0	12.5
TOTAL + %	77,550.0	34,621.0	42,929.0	11,418.0	28,231.5	25,525.5	12,100.0	275.0
Physical Contingency 15%	11,632.5	5,193.5	6,439.0	1,712.7	4,234.7	3,828.8	1,815.0	41.3
Working Capital	18,785.0	14,090.0	4,695.0	349.4	1,379.7	3,118.9	5,066.6	8,870.4
Total with physical cont.	107,967.5	53,904.5	54,063.0	13,480.1	33,845.9	32,473.2	18,981.6	9,186.7
Price Contingencies	49,460.0	26,039.0	23,421.0	2,523.0	11,158.0	15,885.0	12,384.0	7,510.0
GRAND TOTAL	157,427.5	79,943.5	77,484.0	16,003.1	45,003.9	48,358.2	31,365.6	16,696.7

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Cemovsko Polje Sub-Project

List and Procurement Schedule
of Agricultural Equipment
(Dinars)

Item	Unit Cost	Total Investment Cost			Investment Cost					
		Total	Local	Foreign Exchange	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Equipment for Plantation Establishment (no replacement)										
Heavy Tractors (180 HP)	860,000	1,720,000	1,307,200	412,800	860,000	860,000				
Plough for deep ploughing	210,000	420,000	84,000	336,000	210,000	210,000				
Subtotal		2,140,000	1,391,200	748,800	1,070,000	1,070,000				
Equipment for Cultivation (Replacement 5 to 6 years from purchasing)										
Small Tractors (58HP)	147,300	2,062,200	1,567,272	494,928	294,600	441,900	441,900	441,900	441,900	
Medium Tractors (75HP)	208,500	5,629,500	4,278,420	1,351,080	834,000	1,042,500	1,459,500	1,459,500	834,000	
Trailers (5 m ton)	49,000	1,323,000	1,005,480	317,520	196,000	245,000	343,000	343,000	196,000	
Disc Plough	75,500	151,000	114,760	36,240	75,500	-	75,500	-	-	
Plough for Seedbed Preparation	91,000	182,000	36,400	145,600	91,000	-	91,000	-	-	
Hole-auger	30,900	61,800	12,380	49,520	30,900	-	30,900	-	-	
Small Disc Plough	13,500	94,500	71,820	22,680	27,000	27,000	27,000	13,500	-	
Plough	9,200	64,400	48,944	15,456	18,400	18,400	18,400	9,200	-	
Seeder for Green Manure	21,500	150,500	114,380	36,120	21,500	43,000	43,000	43,000	-	
Hoe for small tractor	9,600	67,200	51,072	16,128	9,600	19,200	19,200	19,200	-	
Dusters	17,900	250,600	190,456	60,144	35,800	53,700	53,700	53,700	53,700	
Deep application of fertilizers	20,475	286,650	57,330	229,320	40,950	81,900	81,900	81,900	-	
Plough for vineyards	27,170	407,550	81,510	326,040	54,340	81,510	135,850	135,850	-	
Hoe for heavy tractor	19,000	266,000	53,200	212,800	38,000	57,000	57,000	95,000	19,000	
Hoe for medium tractor	13,620	190,680	38,136	152,544	27,240	40,860	40,860	68,100	13,620	
Disc Plough for Green Manure	33,250	465,500	93,100	372,400	66,500	133,000	133,000	133,000	-	
Machine for Pruning Vines	22,150	332,250	66,450	265,800	-	22,150	44,300	88,600	88,600	88,600
Machine for Grinding Vinecanes	77,300	1,159,500	231,900	927,600	-	77,300	154,600	309,200	309,200	309,200
Platform for Picking Peaches	163,000	326,000	65,200	260,800	-	-	-	163,000	163,000	-
Atomizer 1,000 liters	119,650	1,794,750	478,600	1,914,400	239,300	239,300	239,300	478,600	598,250	-
Atomizer 1,500 liters	129,600	1,296,000	362,880	1,451,520	129,600	259,200	259,200	259,200	388,800	-
Sprayers for Weed Killers	3,000	30,000	22,800	7,200	3,000	9,000	9,000	9,000	-	-
Minor Implements		70,170	53,329	16,841		23,390	23,390	23,390	-	-
Spare Parts		945,150	283,545	661,605	94,513	141,773	236,288	236,288	236,288	-
Subtotal		17,606,900	9,156,034	8,450,866	2,327,743	3,057,083	4,017,788	4,464,128	3,342,358	397,800
Plastic Boxes (proposed replacement in 8-10 years)		1,200,000	804,000	396,000	-	-	100,000	260,000	360,000	480,000
Total without contingencies		20,946,900	11,351,234	9,595,666	3,397,743	4,127,083	4,117,788	4,724,128	3,702,358	877,800
Physical Contingencies 5%		1,047,345	567,562	479,783	169,887	206,354	205,889	236,207	185,118	43,890
Total with physical contingencies		21,994,245	11,918,796	10,075,449	3,567,630	4,333,437	4,323,677	4,960,335	3,887,476	921,690
Price Contingencies		9,323	5,128	4,195	553,000	1,172,000	1,719,000	2,666,000	2,597,000	616,000
GRAND TOTAL		22,003,568	11,923,924	10,079,644	4,120,630	5,505,437	6,042,677	7,626,335	6,484,476	1,537,690

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Cemovsko Polje Sub-Project

Infrastructure
Investment Cost Model
('000 Din)

Investment Item	Investment Costs							
	Total Cost							
	Total	Local	Foreign Exchange	Year 1	Year 2	Year 3	Year 4	Year 5
Road System								
Macadam Roads (14km)	3,640.0	3,350.0	290.0	-	806.0	1,208.0	1,626.0	
Bridge on River Cjierna	5,000.0	4,600.0	400.0	-	-	2,000.0	3,000.0	-
Subtotal	8,640.0	7,950.0	690.0		806.0	3,208.0	4,626.0	
Farm Centers								
Buildings	2,900.0	2,668.0	232.0	-	906.3	-	906.3	1,087.4
Sheds	7,500.6	6,000.5	1,500.1	-	2,500.2	-	2,500.2	2,500.2
Subtotal	10,400.6	8,668.5	1,732.1		3,406.5		3,406.5	3,587.6
Subtotal Road System & Farm Centers	19,040.6	16,618.5	2,422.1		4,212.5	3,208.0	8,032.5	3,587.6
Design 3%	571.2	498.6	72.6		126.4	96.2	241.0	107.6
Management, Administration & Supervision 5%	952.0	830.9	121.1		210.6	160.4	401.6	179.4
Total	20,563.8	17,948.0	2,615.8		4,549.5	3,464.6	8,675.1	3,874.6
Physical Contingencies 5%	1,028.2	897.4	130.8		227.5	173.2	433.8	193.7
Total with Physical contingencies	21,592.0	18,845.4	2,746.6		4,777.0	3,637.8	9,108.9	4,068.3
Price Contingencies	12,621.0	10,980.0	1,641.0		1,575.0	1,780.0	5,941.0	3,325.0
GRAND TOTAL	34,213.0	29,825.4	4,387.6		6,352.0	5,417.8	15,049.9	7,393.3

ANNEX 5
Table 10

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Cemovsko Polje Sub-Project

Replacement Schedule of Irrigation Facilities and Infrastructure Components with Lifetime Shorter than 30 Years
('000 Din)

Item	Year of Replacement											
	Year 16	Year 17	Year 18	Year 19,20	Year 21-23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Total
Electric Lines								1,020.0	560.0	1,000.0		2,580.0
Tube Wells	840.0	1,680.0										2,520.0
Submersible Pumps 1/	960.0	1,920.0										2,880.0
Axial Centrifugal Pumps 2/						3,035.0	2,600.0					5,635.0
Gates, Gate Valves, Air-tanks, and similar devices								170.0	430.0	1,527.0	1,308.0	3,435.0
Transformers and Control Equipment	820.0	1,640.0	1,995.0	1,705.0								6,160.0
Hydrants	130.0	325.0	455.0	390.0								1,300.0
Road Asphalt Coat					3,250.0							3,250.0
TOTAL	2,750.0	5,565.0	2,450.0	2,095.0	3,250.0	3,035.0	2,600.0	1,190.0	990.0	2,527.0	1,308.0	27,760.0

1/ Wells
2/ Lake Skadar Pumping Station

ANNEX 5
Table 11

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Cemovsko Polje Sub-Project

Agricultural Equipment Replacement Costs
(Dinars)

Item	Unit Cost	Replacement Costs																	
		Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25
Equipment for Cultivation (Replacement in 5 to 6 years from purchasing)																				
Small Tractors (58HP)	147,300	294,600	441,900	441,900	441,900	441,900		294,600	441,900	441,900	441,900	441,900		294,600	441,900	441,900	441,900	441,900		294,600
Medium Tractors (75HP)	208,500	834,000	1,042,500	1,459,500	1,459,500	834,000		834,000	1,042,500	1,459,500	1,459,500	834,000		834,000	1,042,500	1,459,500	1,459,500	834,000		834,000
Trailers (5 m ton)	49,000	196,000	245,000	343,000	343,000	196,000		196,000	245,000	343,000	343,000	196,000		196,000	245,000	343,000	343,000	196,000		196,000
Disc Plough	75,500	75,500	-	75,500	-	-		75,500	-	75,500	-	-		75,500	-	75,500	-	-		75,500
Plough for Seedbed Preparation	91,000	91,000	- a	91,000	-	-		91,000	-	91,000	-	-		91,000	-	91,000	-	-		91,000
Hole-auger	30,900	30,900	-	30,900	-	-		30,900	-	30,900	-	-		30,900	-	30,900	-	-		30,900
Small Disc Plough	13,500	27,000	27,000	27,000	13,500	-		27,000	27,000	27,000	13,500	-		27,000	27,000	27,000	13,500	-		27,000
Plough	9,200	18,400	18,400	18,400	9,200	-		18,400	18,400	18,400	9,200	-		18,400	18,400	18,400	9,200	-		18,400
Seeder For Green Manure	21,500	21,500	43,000	43,000	43,000	-		21,500	43,000	43,000	43,000	-		21,500	43,000	43,000	43,000	-		21,500
Hoe for Small Tractor	9,600	9,600	19,200	19,200	19,200	-		9,600	19,200	19,200	19,200	-		9,600	19,200	19,200	19,200	-		9,600
Dusters	17,900	35,800	53,700	53,700	53,700	53,700		35,800	53,700	53,700	53,700	53,700		35,800	53,700	53,700	53,700	53,700		35,800
Deep Application of Fertilizers	20,475	40,950	81,900	81,900	81,900	-		40,950	81,900	81,900	81,900	-		40,950	81,900	81,900	81,900	-		40,950
Plough for Vineyards	27,170	54,340	81,510	135,850	135,850	-		54,340	81,510	135,850	135,850	-		54,340	81,510	135,850	135,850	-		54,340
Hoe for Heavy Tractor	19,000	38,000	57,000	57,000	95,000	19,000		38,000	57,000	57,000	95,000	19,000		38,000	57,000	57,000	95,000	19,000		38,000
Hoe for Medium Tractor	13,620	27,240	40,860	40,860	68,100	13,620		27,240	40,860	40,860	68,100	13,620		27,240	40,860	40,860	68,100	13,620		27,240
Disc Plough for Green Manure	33,250	66,500	133,000	133,000	133,000	-		66,500	133,000	133,000	133,000	-		66,500	133,000	133,000	133,000	-		66,500
Machine for Pruning Vines	22,150	-	22,150	44,300	88,600	88,600	88,600	-	22,150	44,300	88,600	88,600	88,600	-	22,150	44,300	88,600	88,600	88,600	-
Machines for Grinding Vinecanes	77,300	-	77,300	154,600	309,200	309,200	309,200	-	77,300	154,600	309,200	309,200	309,200	-	77,300	154,600	309,200	309,200	309,200	-
Platform for Picking Peaches	163,000	-	-	-	163,000	163,000	-	-	-	-	163,000	163,000	-	-	-	-	163,000	163,000	-	-
Atomizer 1,000 liters	119,650	239,300	239,300	239,300	478,600	598,250	-	239,300	239,300	239,300	478,600	598,250	-	239,300	239,300	239,300	478,600	598,250	-	239,300
Atomizer 1,500 liters	129,600	129,600	259,200	259,200	259,200	388,800	-	129,600	259,200	259,200	259,200	388,800	-	129,600	259,200	259,200	259,200	388,800	-	259,200
Sprayers for Weed Killers	3,000	3,000	9,000	9,000	9,000	-	-	3,000	9,000	9,000	9,000	-	-	3,000	9,000	9,000	9,000	-	-	3,000
Minor Implements		70,170	-	-	-	-	-	70,170	-	-	-	-	-	70,170	-	-	-	-	-	70,170
Plastic Boxes (proposed replacement in 8 - 10 years)	50							100,000	260,000	360,000	480,000					100,000	260,000	360,000	480,000	
GRAND TOTAL		2,303,400	2,891,920	4,658,110	4,204,450	3,106,070	397,800	2,403,400	3,151,920	4,118,110	4,684,450	3,106,070	397,800	2,303,400	2,891,920	3,858,110	4,464,450	3,466,070	877,800	2,433,000

ANNEX 5
Table 12

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Cemovsko Polje Sub-Project

Operating and Maintenance Costs 1/
('000 Din)

Physical Units	Year 6	Year 7	Year 8	Year 9-25
Vineyards(Table grapes) 200 ha	6,338.8	6,338.8	6,338.8	6,338.8
Vineyards (Wine) 1300 ha	33,042.6	38,866.2	39,289.4	39,539.8
Cherry, 300 ha	5,110.0	6,294.0	6,294.0	6,294.0
Peaches, 200 ha	7,112.3	7,255.4	7,255.4	7,255.4
Subtotal	51,603.7	58,754.4	59,177.6	59,428.0
Irrigation & Infrastructure				
General Expenses	1,300.0	1,300.0	1,300.0	1,300.0
Electric Energy	2,040.0	2,040.0	2,040.0	2,040.0
Sprinkler Equipment Displacements	3,840.0	3,840.0	3,840.0	3,840.0
Civil Works and Equipment	1,583.3	1,583.3	1,583.3	1,583.3
Movable Sprinkler Equipment	517.5	517.5	517.5	517.5
Subtotal	9,280.8	9,280.8	9,280.8	9,280.8
TOTAL	60,884.5	68,035.2	68,458.4	68,708.8

1/ Operating and maintenance costs for first 5 years have been treated as capital expenditures so that the income generated from assets created under the project reaches the financial equilibrium.

ANNEX 5
Table 13

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Cemovsko Polje Sub-Project

Plantation Schedule, Yield Assumptions
and Production Timetable for Grapes, Peaches and Cherries

	Project Year										
	1	2	3	4	5	6	7	8	9	10	11-18
Wine Grapes											
Plantation Schedule ha	200	300	400	400							
Yield Assumptions ton/ha (if established in year 1)	-	-	6	9	11	13	14	14	14	14	14
Production Tons	-	-	1,200	3,600	7,300	11,900	14,700	16,600	17,800	18,200	18,200
Table Grapes											
Plantation Schedule, ha	-	-	100	100							
Yield Assumptions ton/ha (if established in year 1)	-	-	6	10	15	16	16	16	16	16	16
Production tons	-	-	-	-	600	1,600	2,500	3,100	3,200	3,200	3,200
Peaches											
Plantation Schedule ha	-	100	100	-							
Yield Assumptions ton/ha (if established in year 1)	-	-	3	6	10	16	16	16	16	16	16
Production tons	-	-	-	300	900	1,600	2,600	3,200	3,200	3,200	3,200
Cherries											
Plantation Schedule, ha	-	100	100	100							
Yield Assumptions ton/ha (if established in year 1)	-	-	2	5	8	12	13	13	13	13	13
Production tons	-	-	-	200	700	1,500	2,500	3,300	3,800	3,900	3,900

ANNEX 5
Table 14

January 1977

APPRAISAL OF

AN AGRICULTURE AND AGRO-INDUSTRIES II PROJECT

YUGOSLAVIA

MACEDONIA PROJECT

Project Description

A. Project Components

Social Sector

(i) Dairy Plant

A new milk processing plant of a capacity of 40,000 liters/day would be built in Prilep in replacement of an existing obsolete plant of 10,000 liters/day. The facility would produce cream and butter and pasteurized milk from cows. The milk would be packed in one liter plastic bags. Equipment would also be provided to produce yoghurt and cheese, mostly from sheep milk. Milk collection would be organized and chilling centers and insulated tanker-trucks would be provided under the project. The lack of organized milk collection is the main disincentive to increased milk production in the Prilep valley.

(ii) Slaughtering Plant

A new slaughtering plant for an annual capacity of 300,000 lamb and sheep, and 12,000 cattle would be built in Gostivar in replacement of an existing obsolete abattoir. The new plant would represent an increase in capacity of about 30% over the existing facility which cannot provide the required standard of hygiene for slaughtering and chilling of the approximately 80,000 lambs exported annually. The new plant would also include chillrooms and facilities for processing edible and inedible by-products. It would be designed to allow slaughtering according to Moslem regulations.

(iii) Potato Cold Store

A new potato cold store of a capacity of 5,000 tons would be built in Delcevo. The facility would be built above ground, of the "door-per-bin" design, and would include temperature and humidity controls, and ventilation. An adjacent building with basic facilities for washing, grading, sizing and bagging the potatoes would also be provided. Included would be trucks for harvesting and marketing distribution, pilers for storing and scoop-trucks for transferring from storage to packing.

(iv) Fruit and Vegetable Processing Plant

The project would finance major improvements and expansion of the existing fruit and vegetable processing plant in Gevgelija. Present processing operations would be upgraded by reconditioning buildings to stricter sanitary standards and replacing obsolete and insanitary processing equipment. The present annual capacity of about 12,000 m tons would be expanded to a total 20,000 m tons. This expansion would involve the construction of a new building with a new line for processing tomatoes, and also increasing the capacity of the existing lines for processing fruits.

(v) Dehydrated Vegetable Plant

The project would finance a new plant for producing tomato paste and dehydrating such vegetables as onions, peppers, carrots, leeks and parsley. The capacity of the plant would be about 50,000 m tons of vegetables annually, of which 30,000 m tons would be tomatoes. The other vegetables would be processed on conventional lines including vegetable preparation, conveyorized drying tunnels, packing and storage. The tomato processing facilities would allow for the installation at a later date of a tomato spray drying cone to produce tomato powder.

(vi) Apple Processing Plant

A new processing plant for apples of an annual capacity of 10,000 m tons would be built near Resen. The plant would have the necessary facilities to process reject grade apples into such products as apple juice concentrate, pure nectar, concentrated aroma and distilled alcohol. No cold store facilities are envisaged as a new unit of 6,000 m ton capacity would be available to the plant for storing raw material.

Private Sector

(vii) Fruit Production

Subloans would be provided to about 220 private farmers for on-farm development of about 1 ha each of orchards and vineyards. Included would be such fruits for which the domestic or export demand is strong, e.g. peaches, apples, apricots and sour cherries. Investments would include land preparation, planting materials, fertilizer and labor.

(viii) Vegetable Production

About 20 farmers would receive subloans for the construction of plastic greenhouses to develop labor intensive, early vegetable production, mainly tomatoes, peppers and cucumbers. Investments would include tubing, plastic for covering and other construction items. Increased production would predominantly supply the domestic market.

(ix) On-Farm Mechanization

About 120 subloans would be made to private farmers to finance tractors and implements such as trailors, ploughs, tillers, rollers and harrows, as illustrated in the mechanization model, Annex 7, Table 29. Farmers are expected to cultivate, apart from their own land, neighboring farms against service charges. Mechanization combined with increased use of fertilizer and protective agents are one of the most effective measure to improve productivity in the private sector.

(x) Livestock Production

The project would provide for the purchase of about 300 in-calf heifers and dairy cows, primarily Simmenthal, Montafon and Friesian breeds, and about 20,000 ewes of Zcabatsha, Pcowidizka and Merino breeds. The private farmer subborrowers would purchase the animals from social sector enterprises. Investments would also include construction of winter housing, feeding facilities and pasture improvement to increase fodder production.

(xi) Tobacco Drying Facilities

Credit would be provided for the construction of four tobacco drying sheds of 200 m ton drying capacity each of Virginia tobacco. The single story building would be divided into a receiving area, drying chambers and humidifying room. Hot air would be forced through sub-floor ducts from the furnaces to the drying chambers. Investments would be phased over two years.

Market Center Feasibility Study

The marketing study undertaken under the First Agroindustries Project-Macedonia (894-YU) recommended the establishment of a wholesale market center for agricultural products. The Government of Macedonia has accepted the proposal and intends to build a marketing center in or near Skopje. The center would collect from various parts of Macedonia mostly fruits, vegetables, meat and dairy products, process the produce and market

it in Yugoslavia and abroad. Under the project US$100,000 would be provided to finance the foreign exchange cost of the feasibility study for the construction and operation of the market center.

B. Detailed Description of Agroindustries Sub-Projects

Prilep - Dairy Plant

1. With some fluctuations, milk production, in Yugoslavia and Macedonia, has been increasing gradually as can be seen in the following table:

Milk Production (lts '000)

	Yugoslavia	Macedonia
1960	2,434	91
1965	2,400	75
1970	2,655	95
1971	2,650	93
1972	2,879	97
1973	-	105
1974	-	112

Source: Statistical Yearbooks of Yugoslavia and Macedonia, 1975.

The share of sheep milk has dropped from about 8% in 1960 to 5% in 1972 for all of Yugoslavia, however for Macedonia it remains high although it has also dropped from 43% in 1960 to 39% in 1972.

2. The Macedonian social sector operates dairy farms mostly with exotic breed (Holstein) yielding 2,100/3,900 lts/lactation and therefore account for over 30% of the production. The private farmers own mostly cows of indigenous breed (busha) yielding only about 1,000/1,200 lts per lactation. Yugoslavia is a net importer of fresh milk, which is acquired mostly from Bulgaria. Macedonia is also a deficit milk producer, situation which has been aggravated by a growing demand of milk and dairy products. In fact the demand is projected to increase from 75 lts annually per capita in 1970 to 110 in 1980. Milk prices in Macedonia are comparatively high (Din 3.50/lt equivalent to US$0.19/lt) by world standards and allow the farmer to buy feed and concentrate which is available at about Din 2.4/kg. Artificial insemination is generally available through the extension services of the Ministry of Agriculture, however the main constraints to increased milk production are the low yielding cows in the private sector and the lack of organized collection of the milk from the numerous small producers in this sector.

3. In the valley of the city of Prilep in Macedonia, there are about 12,000 cows and 120,000 ewes. The total average daily milk production can be estimated at about 35/40,000 lts. At present, the Prilep Agro-Industrial Kombinat operates only one small dairy plant of a capacity of about 8,000 lts a day. This plant is obsolete and unhygienic and too small to be expanded effectively. In view of the foregoing, the project would finance the construction of a new dairy plant to be operated and owned by the Prilep Kombinat. The plant would have a capacity of 40,000 lts a day and facilities to produce pasteurized milk, butter, cream, yoghurt and cheese. The financial rate of return would be about 17%. The new plant would give permanent employment to about 57 persons. The existing plant would be closed down.

Gostivar - Cattle and Sheep Slaughtering Plant

4. Yugoslavia's and Macedonia's cattle population declined in the late sixties. However since 1971 there has been a gradual increase in this sector which is over 90% in private hands.

TOTAL CATTLE (Head '000)

	Yugoslavia	Macedonia	Macedonia as percent of Yugoslavia
1960	5709	336	(5.9%)
1965	-	290	
1970	-	282	
1971	-	288	
1972	-	302	
1973	5681	320	(5.6%)
1974	-	334	

5. The offtake is high: 25%, and close to 50% of the stock slaughtered are males up to six months of age. Nearly 40% of the cattle are of the Simmenthal breed, the balance is a mixture of indigenous breeds, with predominance of the Bosnian "Busha" type. Yugoslavia and Macedonia, both show a trend toward increasing the proportion of dairy cattle (dual purpose) at the expense of strictly beef cattle. Lack of feed has been the main constraint to livestock growth in general. However, with funds being channelled into irrigation and to the private sector, more fodder is expected to be made available for breeding dairy cows and fattening males. The financial incentives for this are expected to come from increased demand of milk, dairy products, and meat, mainly in the local market of Macedonia. Consumption of beef and veal, in Yugoslavia, increased from 6.7 kg/capita in 1960 to 8.5 kg/ capita in 1972. Macedonia has no surplus cattle for export, either on-the-hoof or as beef, and does not share in Yugoslavia's beef and veal exports which in 1972 amounted to 90,000 tons or 37% of the total production. Yugoslavia is also an important exporter of live cattle, however exports, mostly to the EEC countries, have declined during the recent years.

6. The sheep population in Yugoslavia has declined slightly, however, in Macedonia it has remained stationary with some fluctuation over the years as can be seen from the following statistics:

TOTAL SHEEP AND LAMB (Head '000)

	Yugoslavia		Macedonia
1960	10,842	1960	1,802
1961/64	10,090	1965	1,804
1965/68	10,068	1970	1,863
1969/72	8,444	1971	1,828
		1972	1,903
1973	7,852	1973	1,810
1974	-	1974	1,859

The main constraint to increased production has been the decreasing areas available for grazing. With increased areas under irrigation, flocks have to move further up on the mountain slopes and trek longer distances to graze. Increased demand with escalating prices have been strong incentives for the private sector to keep up production. The private farmers account for over 90% of the total flock. Mutton and lamb retail prices increased from Din 15.40/kg in 1970 to Din 30/kg in 1973, and are currently up to Din 45/kg.

EXPORTS (Tons)

	Live sheep and lamb	Mutton and lamb
1960	9,324	2,174
1965	1,884	4,301
1970	3,703	3,001
1971	5,329	2,677
1972	2,035	3,426
1973	44	2,923

7. Most exports from Macedonia are in the form of frozen spring lambs slaughtered at the plant owned and operated by the GORNI POLOG Agro-Industrial Kombinat in the city of Gostivar. The plant at Gostovar is obsolete and unhygienic by modern sanitary standards. In fact under the present unhygienic working conditions it risks loosing its export markets. The main markets for mutton and lamb in the world are as follows:

MUTTON AND LAMB MARKETS (Tons '000)

	1970	1980
United Kingdom	333	359
Japan	111	220
Greece	24	80
USA	38	75
Canada	32	40
France	32	70
Italy	7	20

Source: Conrad Jameson and Associates, Marketing Study of Agricultural Products.

From this table it may be concluded that the present markets for the Macedonian lamb will probably remain open.

8. In view of the foregoing, the project would finance the construction of a new cattle and sheep slaughtering plant with a moderate increase in capacity by means of an extended second shift, to slaughter annually up to 12,000 head of cattle and 300,000 sheep and lamb. This would allow to continue yearly exports valued at about US$1.7 million and retain employment of about 138 persons. The financial rate of return is estimated to be 17%.

Dolcevo - Potato Cold Store and Packing Plant

9. Dolcevo is in the extreme eastern part of Macedonia near the Bulgarian border. It is linked with the rest of Macedonia by a paved road, however, the region has no significant industries and job opportunities are scarce. Comparatively it is one of the least developed regions in the Republic. The region has good potential for growing potato, however, lack of storage and marketing facilities have been a strong disincentive. Most farmers grow, therefore, wheat as best alternative crop. With a yield of 5 tons/ha and at Din 2,300/ton the gross income from wheat is about Din 1,500/ha, whereas for potato if would be Din 26,000/ha, on the basis of a yield of 20 ton/ha at a price of Din 1,300/ton.

10. The Ovce Pole Kombinat which has a branch in Delcevo has also 300 ha under wheat which would be switched to potato, on a normal 4 year rotation basis, if the marketing facilities were available. The whole region has about 14,000 ha of arable land and currently only 250 ha are under potato. Yugoslavia's production of potatoes has dropped over the last decade: with Macedonia's share slowly growing to over 3%.

PRODUCTION OF POTATO (Tons)

	Yugoslavia	Share of Macedonia
1960	3,272,000	2.5%
1965	2,383,000	2.3%
1970	2,963,000	2.8%
1972	2,406,000	3.2%

Source: Marketing Study of Agricultural Products, loc. cit.

In Yugoslavia, 90% of the potato production is retained by the producers and used as follows: for the producers own consumption: 50%; for cattle feed: 20%; and to be used as seed: 20%. Only about 10% reaches the market. Yugoslavia has basically been self sufficient in potato production. Imports have been negligible but in 1970 exports reached 70,000 tons and 33,200 tons in 1972. Exports are expected to reach 50,000 tons in 1980, mostly to Czechoslovakia, Greece and Italy.

11. By providing a 6,000 ton potato cold store at Delcevo with a potato washing, grading and bagging line and trucks to deliver the produce to the Macedonian markets on a year-round basis, an additional 350/400 ha could be grown under potato which could benefit about 700/800 farmers. Assuming that each farmer would grow an average 1/2 ha on a 4 year rotational basis. The plant itself would employ about 85 persons including seasonal and permanent staff. The cold store would be of conventional design, so other produce could also be stored. Movable pilers and scoop trucks, for transferring potato from storage to packing, would be included. The cold store would be equipped with temperature and humidity controls and ventilation. As a commerical enterprise the cold store would be owned and operated by the Agro-Industrial Kombinat Ovce Pole. The financial rate of return would be about 13%.

Gevgelija - Expansion of Fruit and Vegetable Processing Plant

12. With increased areas under irrigation, and other incentives, production of vegetables increased considerably during the last years, as has been indicated in Annex 2. Increased production of vegetables also warrants increased capacity for processing. There are only eight fruit and vegetable processing plants in Macedonia and most of them process only fruit. One of these plants is owned and operated by the Agroindustrial Kombinat Interpirex Gora and is located in the city of Gevgelija. Gevgelija is located in the south eastern part of Macedonia and is a rich fruit and vegetable producing area, particularly of melons, tomatoes, paprika, onions and carrots. The total current production is estimated at about 65,000 tons annually. The plant in Gevgelija has a capacity for processing annually up to 12,000 tons of fruits and vegetables. Tomato concentrate accounts for more than 50% of the production and the balance are mostly preserved and frozen vegetables and processed fruits.

13. The plant is 20 years old and shows evident signs of neglected maintenance. In fact unless some major repairs are carried out to both buildings and equipment, production would suffer. On the other hand the domestic and export market for processed fruits and vegetables appear promising for Macedonia. The natural export market for Yugoslavia are the industrial countries of Western Europe with the German Federal Republic as the foremost importer of most types of processed and frozen fruits and vegetables. Following is a brief analysis of the imports of the Western European nations during the recent years and the forecast up to 1980.

14. Processed vegetables: In spite of strong competition from frozen and dehydrated products, the consumption of canned and bottled vegetables has tended to increase and is expected to grow in the forseeable future.

CANNED VEGETABLES (Tons '000)
Importing Countries

	1970	1972	1975	1980 (estimated)
German F.R.	412	520	737	917
U.K.	212	240	260	300
France	75	87	-	-
Holland	60	78	82	97
Belgium	44	71	-	-
Switzerland	39	44	52	63
Sweden	21	25	29	38
Austria	4	6	9	13

Source: Marketing Study of Agricultural Products, loc. cit.

In 1972, processed tomato represented 34% of all imports followed by beans: 15% and peas: 10%, vinegar-pickled vegetables in cans and jars represented 8.5% or a total 91,000 tons.

15. West European imports of brine-pickled vegetables have also grown from 15,900 tons in 1960 to 33,000 tons in 1972 and are expected to continue such a trend. The main importing countries are listed below:

BRINE-PICKLED VEGETABLES (Tons '000)
Importing Countries

	1970	1972	1975	1980 (estimated)
U.K.	13.0	12.4	13.5	14.5
German F.R.	7.5	9.0	10.5	13.0
France	4.5	6.4	5.5	7.0
Switzerland	2.9	2.6	3.0	3.0
Belgium	1.4	2.4	2.5	3.0
Austria	0.2	0.4	0.5	0.8
Sweden	0.5	0.3	0.5	0.5

Source: Marketing Study of Agricultural Products loc. cit.

Pickled vegetables are mostly cucumbers and onions but include also other vegetables.

16. Frozen vegetables: trade in frozen vegetables in Macedonia and Yugoslavia is limited by inadequate storage and transport facilities. Shop storage in particular is lacking, and retail sales are almost entirely restricted to self-service food stores. Frozen vegetable consumption is therefore very low in Yugoslavia, it is estimated at between 1,000 and 2,000 tons/year. However by 1980 this could well reach about 5,000 tons/year. Exports markets offer great potential however.

FROZEN VEGETABLES (Tons '000)
Importing Countries

	1970	1972	1975	1980
Germany F.R.	23.4	32.3	45	70
U.K.	41.1	32.7	45	60
France	4.4	8.0	12	15
Belgium	6.6	6.7	8	12
Holland	7.5	9.0	12	18
Italy	6.9	7.5	90	12
Sweden	5.6	5.1	75	11
Total W. Europe	103.7	108.6	-	-

Source: Marketing Study of Agricultural Products, loc. cit.

The European trade in frozen vegetables has been increasing at a fast rate. Total annual imports doubled between 1965 to 1970. Most of the industrial nations in Western Europe are expected to offer market potential for exports

of Macedonian frozen vegetables. The frozen vegetables consumed in Western Europe are mostly peas, spinach, beans, brussel sprouts, however other types such as carrots, leeks, paprika, sweetcorn, mushroom and asparagus are becoming increasingly popular, particularly in the German Federal Republic.

17. In view of the foregoing, the project would finance the expansion of the fruit and vegetable plant in Gevgelija to an annual capacity of 20,000 tons of raw fruits and vegetable, including major repairs to the buildings and equipment of the existing plant. The construction of a new plant is not considered justified. The financial rate of return would be about 17%. The expansion of the plant would give employment to 65 persons on a permanent basis and 20 seasonally.

Sveti Nikole - Vegetable Drying Plant

18. The Agro-Industrial Kombinat Ovce Pole owns 28,000 ha near the city of Sveti Nikole in Central Macedonia. About 18,000 ha are arable land of which 10,000 ha are under irrigation mostly for production of such vegetable as tomato, onion, leek, paprika, carrot, and parseley. Other crops are peas, late sunflower, barley and corn for silage. The potential for vegetable production is considerable. The objective of this sub-project is to process annually about 40,000 tons of vegetables into tomato paste and produce dehydrated onion, leek, paprika, carrot and parsley, all strongly oriented to the export market.

19. Although there is strong competition for the market of tomato concentrate, the demand by the main importing countries is expected to increase substantially as shown in the following table, which would assure a market for Macedconia's production of tomato concentrate:

IMPORTING COUNTRIES OF PROCESSED TOMATO (Tons '000)

	1970	1972	1975	1980 (estimated)
German F.R.	51	70	110	170
U.K.	159	184	200	230
Holland	11	15	17	30
Switzerland	24	28	33	40
Sweden	6	8	11	14

Source: Marketing Study of Agricultural Products, loc. cit.

20. In the last few years there has been a growing demand for dehydrated vegetables, mainly from the institutional trade and the soup and ready made meal industries. As stated the Macedonian production would be oriented mainly to the export market and here also the industrial countries of Western Europe would offer the best marketing prospects. Following are the past and projected demand of dehydrated vegetables of the main importing nations:

IMPORTING COUNTRIES OF DEHYDRATED VEGETABLES (Tons '000)

	1970	1972	1975	1980
German F.R.	13	12	14	17
U.K.	8	6	15	16
Holland	6.7	5.8	6.4	7.5
France	1.8	1.9	2.2	2.4
Switzerland	2.4	2.8	2.6	2.9
Belgium	0.4	2.9	1.5	2.5
Sweden	1.1	0.9	1.0	1.2
Austria	1.1	0.9	1.2	1.4

Source: Marketing Study of Agricultural Products, loc. cit.

In 1972, the main product was dehydrated onion which accounted for 40% of all imports.

21. In view of the foregoing, the project would finance the construction of a new plant for producing tomato concentrate and dehydrated vegetables with a total annual capacity of 45,000 tons of raw material. The layout would allow installation of spray drying facilities for production of tomato powder in the future. The plant would be located near the city of Sveti Nikole and would be owned and operated by the Agro-Industrial Kombinat Ovce Pole. The permanent staff would be about 201 persons and the seasonally employed, approximately 60 persons. The financial rate of return would be about 17%.

Resen - Apple Processing Plant

22. Production of apples has been increasing in Yugoslavia and also in Macedonia according to the following statistics:

PRODUCTION OF APPLES (Tons)

Year	Yugoslavia	Macedonia
1960	158,000	22,700 ton
1965	135,000	25,200
1970	277,000	49,800
1972	309,000	54,300
1973	-	76,200
1974	-	53,800

Source: Marketing of Agricultural Products, loc. cit.

Total production is predicted to reach 450,000 tons in 1980. Exports of fresh apples have been insignificant reaching only 9,500 tons in 1972, however the market for processed apples and apple products is good with the German Federal Republic appearing as the main potential importer. Relevant statistics are as follows:

GERMAN FEDERAL REPUBLIC

Total Imports of Unconcentrated Apple and Pear Juice (Tons)

1970	8,600
1971	11,300
1972	14,100

Total Imports of Unconcentrated Apple and Pear Juice (Tons)

1970	14,500
1971	16,500
1972	17,600

Source: Jabolko Agro-Industrial Kombinat.

23. The south western area of Macedonia is the main apple producing region of the Republic. There are a total 3,000 ha under apples in the region including 600 ha of the Prespansko Jabolko Agro-Industrial Kombinat (social Sector). The yield in the social sector averages 30 tons/ha and in the private sector 15 tons/ha, the overall annual production can therefore be estimated around 54,000 tons. The Kombinat owns a 9,000 ton cold store and has just completed an additional unit of 6,000 tons. There are also four more refrigerated depots in the nearby cities of Struga, Ohrid, Bitola and Kicev with a total capacity of 17,000 tons. The region has however no facilities for processing the industrial grade of apples that come off the packing lines of the cold stores and constitutes about 20/25% of the volume. These apples are generally sold in bulk and command a low price due to lack of a market. In fact the nearest important apple processing plant is located in Serbia and this plant is well supplied for apples within that Republic and seldom requires to pay for the extra freight in procuring raw material all the way from Resen.

24. In view of the foregoing, the project would finance the construction of a new apple processing plant to be built near the city of Resen owned and operated by the Prespansko Jabolko Kombinat and located near their existing cold stores. The plant would have a capacity to process 12,000 tons annually into apple sauce, juice and concentrate, obtaining also alcohol and aromatic concentrate as by products. The production would be predominantly for export to the German Federal Republic which is a growing market for processed fruits and vegetables in general. The financial rate of return would be about 14%. The plant is expected to employ 71 persons permanently and 60 in a seasonal basis.

APPRAISAL OF

AGRICULTURE AND AGRO-INDUSTRIES II PROJECT

YUGOSLAVIA

Macedonia Project

Projected Investments, Operating and Financial Results

A. Summary of Financial Results

The projected investment, income and cash-flow statements for six social sector investment models and seven representative investment models in private sector are shown in detail in Tables 1 to 43. The financial rates of return including those from sensitivity tests are summarized in the following Table. All prices, yields and other technical coefficients used in the models are based on information received at the time of appraisal (June 1976). A physical contingency of 5% has been included in the investment costs. All rate of return calculations are based on projections in real terms. Particular assumptions made for each model are listed in the footnotes of the respective Tables.

All cash-flow projections have been made on the basis of 11% on IBRD funds and 7.25% on local funds. Interest during construction is financed under the loan loans and the loans are amortizied by annuities.

Projected Financial Rates of Return

Social Sector	Base Case	Investment costs + 10%	Net Revenue - 10%
Dairy Plant	17.35	15.25	15.35
Cattle/Sheep Slaughtering Plant	17.05	14.95	14.75
Potato Cold Store and Packing Plant	14.35	12.55	12.65
Expansion of Vegetable Processing Plant	17.25	15.15	15.25
Vegetable Drying Plant	16.75	14.75	14.55
Apple Processing Plant	14.05	12.15	11.95

Private Sector	Base Case	Investment cost + 10%	Operating costs + 10%	Revenues - 10%
Vineyards	20.15	18.85	19.25	17.75
Peach Orchards	23.65	22.25	22.65	21.05
Plastic Houses	28.05	23.75	24.85	20.25
Farm Mechanization	17.45	15.35	10.65	7.95
Cows	19.05	17.15	16.65	14.45
Sheep	25.95	23.55	21.75	19.15
Tobacco Drying Station	16.85	13.55	-	13.25 /1

/1 Financial rate of return relates to -10% net Revenue in view of processing nature of the facility.

B. List of Tables

Table 1 Investment Costs.

Table 2 Dairy Plant; Investment Projections.

Table 3 Dairy Plant; Income and Operating Cost Projections.

Table 4 Dairy Plant; Cash Flow Projections.

Table 5 Cattle and Sheep Slaughtering Plant; Investment Projections.

Table 6 Cattle and Sheep Slaughtering Plant; Income and Operating Cost Cost Projections.

Table 7 Cattle and Sheep Slaughtering Plant; Cash Flow Projections.

Table 8 Potato Cold Store and Packing Plant; Investment Projections.

Table 9 Potato Cold Store and Packing Plant; Income and Operating Cost Projections.

Table 10 Potato Cold Store and Packing Plant; Cash Flow Projections.

Table 11 Expansion of Vegetable Processing Plant; Investment Projections.

Table 12 Expansion of Vegetable Processing Plant; Income and Operating Cost Projections.

Table 13 Expansion of Vegetable Processing Plant; Cash Flow Projections.

Table 14 Vegetable Drying Plant; Investment Projections.

Table 15 Vegetable Drying Plant; Income and Operating Cost Projections.

Table 16 Vegetable Drying Plant; Cash Flow Projections.

Table 17 Apple Processing Plant; Investment Projections.

Table 18 Apple Processing Plant; Income and Operating Cost Projections.

Table 19 Apple Processing Plant; Cash Flow Projections.

Table 20 Farm Model: Vineyard; Investment Costs.

Table 21 Farm Model: Vineyard; Development of Yield.

Table 22 Vineyard; Cash Flow Projections.

Table 23 Farm Model: Peaches; Investment Costs.

Table 24 Farm Model: Peaches; Development of Yields. Projected Income and Operating Costs.

Table 25 Peaches; Cash Flow Projections.

Table 26 Farm Model: Plastic House; Investment Cost. Development of Yield.

Table 27 Farm Model: Plastic House; Projected Income and Operating Costs.

Table 28 Plastic House; Cash Flow Projection.

Table 29 Farm Model: Mechanization; Investment Projections.

Table 30 Mechanization; Cash Flow Projection.

Table 31 Farm Model: Mechanization; Development of Yields. Income and Operating Costs Projections.

Table 32 Farm Model: Mechanization; Projection of Land Use and Number of Cows.

Table 33 Farm Model: Dairy Farm; Investment Costs. Development of Yields.

Table 34 Farm Model: Dairy Farm; Herd Projection.

Table 35 Farm Model: Dairy Farm; Income and Operating Costs P Projections.

Table 36 Dairy; Cash Flow Projection.

Table 37 Farm Model: Private Sector, Sheep; Investment Costs.

Table 38 Farm Model: Private Sector, Sheep; Development of Yields.

Table 39 Farm Model: Private Sector, Sheep; Flock Projection.

Table 40 Sheep; Cash Flow Projection.

Table 41 Tobacco Drying Station; Investment Projection.

Table 42 Tobacco Drying Station; Income and Operating Costs Projections.

Table 43 Tobacco Drying Station; Cash Flow Projection.

ANNEX 7
Table 1

Appraisal of
Agriculture and Agroindustries II Project
YUGOSLAVIA 1/
Macedonia - Investment Costs
(in Din'000)

	Years					
Social Sector	1	2	3	4	5	Total
Dairy plant	-	-	15,466	29,180	-	44,646
Cattle & sheep slaughtering plant	-	34,250	49,359	-	-	83,609
Potato cold storage	-	-	26,000	31,210	-	57,210
Expansion - vege. processing plant	-	29,120	62,856	-	-	91,976
Vegetable drying plant	-	56,360	121,057	-	-	177,417
Apple processing plant	-	48,920	101,964	-	-	150,884
Subtotal	-	168,650	376,702	60,390	-	605,742
Private Sector						
Vineyards	701	2,548	4,139	3,183	890	11,461
Fruit orchards	2,424	4,081	1,114	1,159	735	9,513
Plastic houses	2,696	5,392	5,391	-	-	13,479
Mechanization	5,175	13,711	14,872	9,698	1,161	44,617
Cows	1,958	3,916	3,917	-	-	9,791
Sheep	7,088	14,175	14,175	-	-	35,438
Tobacco drying facilities	10,305	20,610	10,305	-	-	41,220
Irrigation study	1,800	-	-	-	-	1,800
Subtotal	32,147	64,433	53,913	14,040	2,786	167,319
Grand Total	32,147	233,083	430,615	74,430	2,786	773,061

1/ Detailed investment costs given in constant 1976 prices are based on Tables 5 to 10 of Annex 5. each sub-project are given in Annex 7 in the tables numbered 2, 5, 8, 11, 14, 17, 20, 23, 26, 29, 33, 37, 41.

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Dairy Plant (Macedonia)
Investment Projections

		Capacity or Total Units	Cost per Unit US$	Years 1/ 3	Years 1/ 4	Investment Cost Total	Investment Cost Local	Investment Cost Foreign Exchange
	Plant Capacity	40,000 lt/2 shifts						
	Investment Items 2/			Din '000				
1	Land and Site Preparation	1 ha	0.5/m^2	90	-	90	90	-
2	Civil Works							
	Access roads and plant yards	1,500 m^2	20/m^2	380	160	540	540	-
	Fencing and infrastructure	500 m_2	15/m	140	-	140	133	7
	Processing Bldg., cooler, cheese storage	1,000 m_2	300/m_2	3,780	1,620	5,400	4,320	1,080
	Office, Lab, amenities	400 m^2	250/m^2	1,260	540	1,800	1,530	270
	Garage, store, auxiliary Bldgs.	200 m^2	150/m_2	380	160	540	486	54
	Chilling center Bldgs. and sites	2x100 m^2	200/m_2	220	500	720	648	72
	Effluent treatment	3m^3/day/ton milk	500/m^3/day	540	540	1,080	756	324
	Subtotal	-	-	6,700	3,520	10,220	8,413	1,807
3	Utilities							
	Water wells, pumps, storage tank, chlorinator	2x15 m^3/hr	1,500/m^3/hr	320	490	810	486	324
	Power substation, transformers, switch-gear, controls	2x200 kva	150/kva	430	650	1,080	432	648
	Package steam generator, fuel tank, water treatment	2x1,000 kg/hr	20,000/ton/hr	290	430	720	432	288
	Refrigerating Equipment and Aux.	2x40 tons	1,500/ton	860	1,300	2,160	432	1,728
	Service lines	-	10%	-	480	480	288	192
	Crating, freight, insurance	-	5%	-	260	260	156	104
	Installation	-	15%	-	830	830	664	166
	Subtotal	-	-	1,900	4,440	6,340	2,890	3,450
4	Machinery and Equipment							
	Chilling center Equip. incl. can washer, water well	2x20,000 lt/ea	50,000	720	1,080	1,800	540	1,260
	Bulk milk receiving Equip.	20,000 lt/shift	30,000	220	320	540	108	432
	Pasteurizing, homogenizing, chilling, C.I.P.	4,000 lt/hr	100,000	720	1,080	1,800	360	1,440
	Plastic Bag filling equipment, crates	2x3,000 lt/hr	120,000	860	1,300	2,160	432	1,728
	Milk silos and tanks	40,000 lt	40,000	290	430	720	432	288
	Butter making and packaging Equip.	130 kg/batch	60,000	430	650	1,080	216	864
	Cheese vats, presses, tanks, shelves	10,000 lt/day	50,000	360	540	900	180	720
	Cream and yoghurt making, packaging Equip.	5,000 lt/day	60,000	430	650	1,080	216	864
	S.s. piping and fittings	-	5%	-	540	540	108	432
	Office, Lab Equip. misc., spares, tools	-	30,000	-	540	540	108	432
	Crating, freight, insurance	-	5%	-	560	560	112	448
	Installation	-	15%	-	1,760	1,760	1,232	528
	Sub	-	-	4,030	9,450	13,480	4,044	9,436
5	Transportation Equipment 3/							
	Milk cans	500 x 40 hr/ea	40/ea	-	360	360	216	144
	Flat trucks 3/	2 x 5 tons	20,000/ea	360	360	720	432	288
	Insulated tank-trucks	2x10,000 lt	45,000/ea	-	1,620	1,620	972	648
	Subtotal	-	-	360	2,340	2,700	1,620	1,080
6	Engineering and Overhead 4/							
	Organizational expenses	-	1%	300	-	300	300	-
	Consultants (specs, Bids, supervision)	-	4%	600	600	1,200	840	360
	Contractors (design, implementation)	-	5%	750	750	1,500	750	750
	Subtotal	-	-	1,650	1,350	3,000	1,890	1,110
7	Import Duties 5/	-	-	-	3,643	3,643	3,643	-
8	Technical and Management Services	-	-	-	-	-	-	-
	Total Fixed Investment w/o Contingencies	-	-	14,730	24,743	39,473	22,590	16,883
9	Contingencies, Physical	-	5%	736	1,237	1,973	1,129	844
10	Working Capital 6/	1 month turnover	-	-	3,200	3,200	3,040	160
	Total Investment with physical contingencies	-	-	15,466	29,180	44,646	26,759	17,887
	Price Contingency			4,903	12,314	17,217	10,330	6,887
	GRAND TOTAL			20,369	41,494	61,863	37,089	24,774

1/ Two years would elapse in hiring consultant, preparing specs and requesting and evaluating Bids.
2/ One plant would be financed; it would be located in the city of Prilep and owned by Agro-Industrial-Kombinat (ZIK) Prilep - it would also replace a smaller, existing obsolete plant (capacity 8-10,000 lt/day)
3/ Hired vehicles would also be used.
4/ On items 2, 3 and 4.
5/ Import Duty on Direct imports, shown in brackets.
6/ From Annex 7, Table 3

7-20-76
Rate of Exchange: Din 18: US$ 1.

APPRAISAL OF
AGRICULTURE AND AGROINDUSTRIES II PROJECT
YUGOSLAVIA
Dairy Plant (Macedonia)
Income and Operating Cost Projections

		Yield or Number of Units at Full Development	Cost or Price Per Unit	1/ Years 1 - 4	5	6	7 - 20
2/ Volume							
Total Raw Milk Processed, Million lts.		(Winter: 30,000 lt./day (Summer: 40,000 lt./day	--	--	7.0	10.0	12.8
Work Schedule:		1-2 Shifts, 365 days/yr.					
Income				-------Din Million----------			
Pastuerized Milk Sold in 1 lt. plastic bags (Std. 3.8% Fat)	70% of Vol.	1	Din 4.40/lt. Wholesale	--	21.6	30.8	39.4
Butter Sold	--	0.012	Din 4.5 /kg Wholesale		3.6	5.4	6.8
Yoghurt Sold, in 0.5 lt. plastic bags	10% of Vol.	1	Din 12. /kg Wholesale	--	8.4	12.0	15.4
Cheese Sold	20% of Vol.	0.20	Din 36. /kg Wholesale	--	10.1	14.4	18.4
Total Income	--	--	--	--	43.7	62.6	80.0
Operating Cost							
Direct Costs							
Raw Milk Purchases	(Cow Milk: 80% :	3.9% Butterfat	Din 3.5/lt. At Farm				
	(Sheep Milk: 20%:	7.7% Butterfat	Din 6.9/lt. At Farm	--	29.3	41.8	53.5
Direct Labor	(Skilled:	20 Persons	Din 3,000/ mo + 50%				
	(Unskilled:	20 Persons	Din 2,200/mo + 50%	--	1.5	1.7	1.9
Purchased Power		80 kWh/1,000 lt.	Din 0.8/kWh	--	0.4	0.6	0.8
Fuel Lubricants		80 kg F. O./1,000 lt.	Din 2/kg	--	1.1	1.6	2.0
General Materials		--	Din 0.05/lt.	--	0.4	0.5	0.6
Packaging Materials		--	Din 0.3 /lt.	--	2.1	3.0	3.8
Milk Collection Expenses		Radius: 50 km	Din 0.1/lt.	--	0.7	1.0	1.3
Milk Marketing Expenses		Radius: 50 km	Din 0.1/lt.	--	0.7	1.0	1.3
Subtotal		--	--	--	36.2	51.2	65.2
Overhead Costs							
Maintenance, incl. Materials		5 Persons	Din 3,000/mo + 50%	--	0.5	0.5	0.5
Administration Expenses, incl. Insurance		--	Din 100,000/mo	--	1.0	1.1	1.2
Technical, Administrative and Supervisory Personnel		10 Persons	Din 3,500/mo + 50%	--	0.6	0.6	0.6
Management		2 Persons	Din 4,500/mo + 50%	--	0.2	0.2	0.2
Subtotal		--	--	--	2.3	2.4	2.5
Total Operating Cost		57 Persons	--	--	38.5	53.6	67.7
Net Income before Taxes		--	--	--	5.2	9.0	12.3
Less Taxes:					.3	.5	.6
Net Income					4.9	8.5	11.7

1/ The plant would be built in Years 2-3 and commence operations in Year 4.
2/ Includes volume of existing plant, about 8,000 lt./day.
3/ Working Capital Year 4: Din 3.2 Million, assuming an average turnover of 1 month.

ANNEX 7
TABLE 3

APPRAISAL OF
AGRICULTURE AND AGROINDUSTRIES II PROJECT
YUGOSLAVIA

MACEDONIA
DAIRY PLANT
CASH FLOW PROJECTIONS
(DIN MILLION)

	YEAR (01)	(02)	(03)	(04)	(05)	(06)	(07)	(08)	(09)	(10)	(11)	(12)	(13)	(14)
CASH INFLOW														
RETURNS	.0	.0	.0	43.7	62.6	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
OWNED FUNDS	.0	4.4	8.5	5.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
IBRD LOAN	.0	7.5	15.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SBS LOAN	.0	8.5	17.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SHORT TERM LOAN	.0	.0	.0	19.3	26.8	33.9	33.9	33.9	33.9	33.9	33.9	33.9	33.9	33.9
SUB TOTAL	.0	20.4	41.5	68.0	90.4	113.9	113.9	113.9	113.9	113.9	113.9	113.9	113.9	113.9
CASH OUTFLOW														
INVESTMENT COST	.0	20.4	41.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
OPERATING COSTS	.0	.0	.0	38.5	53.6	67.7	67.7	67.7	67.7	67.7	67.7	67.7	67.7	67.7
TAXES	.0	.0	.0	.3	.5	.6	.6	.6	.6	.6	.6	.6	.6	.6
SUBTOTAL	.0	20.4	41.5	38.8	54.1	68.3	68.3	68.3	68.3	68.3	68.3	68.3	68.3	68.3
SURPLUS CASH FOR DEBT SERVICE	.0	.0	.0	29.1	36.3	45.6	45.6	45.6	45.6	45.6	45.6	45.6	45.6	45.6
LOAN REPAYMENTS														
ANNUITY ,IBRD LOAN	.0	.0	.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
ANNUITY, SBS LOAN	.0	.0	.0	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
SHORT TERM LOAN	.0	.0	.0	19.3	26.8	33.9	33.9	33.9	33.9	33.9	33.9	33.9	33.9	33.9
SUBTOTAL DEBT SERVICE	.0	.0	.0	27.0	34.5	41.6	41.6	41.6	41.6	41.6	41.6	41.6	41.6	41.6
NET CASH INFLOW														
ANNUAL	.0	.0	.0	2.2	1.8	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
CUMULATIVE	.0	.0	.0	2.2	4.0	8.0	12.0	16.0	20.0	24.0	28.0	32.0	36.0	40.0
ALLOCATED TO														
DEPRECIATION	.0	.0	.0	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
BUSINESS AND RESERVE FUNDS	.0	.0	.0	.1	.2	.3	.3	.3	.3	.3	.3	.3	.3	.3
REMAINING FOR DISTRIBUTION	.0	.0	.0	.0	.0	.4	.4	.4	.4	.4	.4	.4	.4	.4

Financial Rate of Return

Base Case		= 17.35
Investment Costs	+10%	= 15.25
Net Benefit	-10%	= 15.35

ANNEX 7
Table 4

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Cattle and Sheep Slaughtering Plant (Macedonia)
Investment Projections

	Capacity or Total Units	Cost per Unit US$	Years 1/ 2	Years 1/ 3	Investment Costs Total	Investment Costs Local	Investment Costs Foreign Exchange
Plant Capacity 2/	Cattle: 50 head/1 shift Sheep: 3,500 head/2 shifts						
			Din '000				
Investment Items							
1 Land and Site Preparation	2 ha	2/m^2	720	-	720	720	-
2 Civil Works							
Access roads and plant yards	5,000 m^2	20/m^2	1,260	540	1,800	1,800	-
Fencing and infrastructure	600 m	20/m	220	-	220	209	11
Cattle, sheep pens (1 shift rill), isolation pen	2,000 m^2	60/m^2	1,510	650	2,160	1,728	432
Main Slaughtering and processing Bldg.	1,000 m^2	280/m^3	3,530	1,510	5,040	4,032	1,008
Chillrooms, freezer, railage, loading dock	800 m^2	350/m^2	3,530	1,510	5,040	3,276	1,764
By products processing Bldg., hide-skin shed	700 m^2	200/m^2	1,760	760	2,520	2,016	504
Emergency slaughter, autopsy room	200 m^2	280/m^2	710	300	1,010	808	202
Office, Lab, amenities, infirmary	600 m^2	250/m^2	1,890	810	2,700	2,295	405
Garage, store, engine room, laundry, Aux. bldgs.	800 m^2	150/m^2	1,510	650	2,160	1,944	216
Effluent treatment (screen, trickling filter (sedimentation)(50% of total flow)	300 m^3/day	500/m^3/day	1,350	1,350	2,700	1,890	810
Subtotal	-	-	17,270	8,080	25,350	19,998	5,352
3 Utilities							
Water wells, pumps, storage tank, filters chlorinator	2x50 m^3/hr	1,400/m^3/hr	1,010	1,510	2,520	1,260	1,260
Power substation, transformer, switch-gear, controls	3x250 kva	150/kva	810	1,220	2,030	812	1,218
Package steam generators, fuel tank, water treatment	2x3,000 kg/hr	20,000/ton/hr	860	1,300	2,160	1,080	1,080
Refrigerating Equip., evaporators and Aux.	3x50 tons	1,500/ton	1,620	2,430	4,050	810	3,240
Service lines	-	10%	-	1,080	1,080	648	432
Crating, freight, insurance	-	5%	-	590	590	354	236
Installation	-	15%	-	1,860	1,860	1,488	372
Subtotal	-	-	4,300	9,990	14,290	6,452	7,838
4 Machinery and Equipment							
Cattle killing floor equipment incl. Railace	10 head/hr	9,000/head/hr	650	970	1,620	324	1,296
Sheep killing floor equipment, on-the-rail dressing, viscera conveyor, incl. railage	300 head/hr	900/head/hr	1,940	2,920	4,860	972	3,888
Edible product handling equipment (tables, trays, trucks)	-	80,000	580	860	1,440	432	1,008
Edible by-product processing equipment	-	150,000	1,080	1,620	2,700	540	2,160
Inedible by-product rendering equip.	Equiv.40 cattle/hr	6,000/head/hr	1,730	2,590	4,320	864	3,456
Office, lab, workshop, laundry Equip., spares, misc.	-	120,000	860	1,300	2,160	432	1,728
Crating, freight, insurance	-	5%	-	860	860	258	602
Installation	-	20%	-	3,590	3,590	2,154	1,436
Subtotal	-	-	6,840	14,710	21,550	5,976	15,574
5 Transportation Equipment 3/							
Livestock trucks	4	20,000 ea	-	1,440	1,440	864	576
Insulated meat delivery truck	4x10 tons	25,000 ea	-	1,800	1,800	1,080	720
Pick-up trucks	2	7,000	130	130	260	156	104
Subtotal	-	-	130	3,370	3,500	2,100	1,400
6 Engineering and Overhead 4/							
Organizational expenses	-	1%	610	-	610	610	-
Consultants fees (specs, Bids, supervision)	-	4%	1,220	1,230	2,450	1,225	1,225
Contractors fees	-	5%	1,530	1,530	3,060	1,530	1,530
Subtotal	-	-	3,360	2,760	6,120	3,365	2,755
7 Import Duties 5/	-	-	-	6,480	6,480	6,480	-
8 Technical and Management Services	-	-	-	-	-	-	-
Total Fixed Investment w/o Contingencies	-	-	32,620	45,390	78,010	45,091	32,919
9 Contingencies, Physical	-	5%	1,630	2,269	3,899	2,253	1,646
10 Working capital 6/ Incremental	1 month turnover	-	-	-	1,700	1,615	85
Total Investment with physical contin.	-	-	34,250	49,359	83,609	48,959	34,650
Price Contingencies			7,501	15,647	23,148	13,556	9,592
GRAND TOTAL			41,751	65,006	106,757	62,515	44,242

1/ One year would elapse in hiring consultant, preparing specs, and requesting and evaluating Bids.
2/ One plant would be financed, it would be located in the city of Gostivar and owned by Agro-Kombinat (ZK) Gorni Polog. It would also replace a slightly smaller existing plant which is obsolete, unhygienic and unfit for processing lambs for export.
3/ Hired vehicles would also be used.
4/ On items 2, 3 and 4.
5/ Import duty on direct imports shown in brackets.
6/ From Annex 7, Table 6

7-26-76
Rate of Exchange: Din 18: US$1.

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Cattle and Sheep Slaughtering Plant (Macedonia)
Income and Operating Cost Projections

	Yield or Number of Units at full Development	Cost or Price per Unit	Years 1-2-3	Years 4	Years 5	Years 6-20
			Head			
Volume 1/						
Cattle: culled cows	60%	-	-	5,800	6,500	7,200
Male calves	40%	-	-	3,800	4,300	4,800
Sheep:	-	-	-	30,000	35,000	40,000
Lambs: Spring (Jan-June)	60%	-	-	120,000	140,000	160,000
Fall (June-Dec)	40%	-	-	80,000	90,000	100,000
Income			Din Million			
Beef (Carcass) sold	Domestic 100% 168 kg/head	Din 29/kg at plant	-	28.3	31.7	35.1
Veal (Carcass) sold	Domestic 100% 72 kg/head	Din 34/kg at plant	-	9.3	10.6	11.8
Cattle hides sold	Domestic 100% 20 kg/head	Din 13/kg at plant	-	2.5	2.8	3.1
Inedible by-Product sold	Domestic 100% 8 kg/head	Din 10/kg at plant	-	0.8	0.9	1.0
Mutton (Carcass) sold	Domestic 100% 13 kg/head	Din 30/kg at plant	-	11.7	13.7	15.6
Lamb (Carcass) (Spring) sold	Export 80%	Din 62/kg at Adriatic port	-	41.7	48.7	55.6
	Domestic 20%	Din 45/kg at plant	-	7.5	8.8	10.0
Lamb (carcass) (fall) sold	Domestic 100% 10 kg/head	Din 37/kg at plant	-	29.6	33.3	37.0
Pelts (Mutton) sold	Domestic 100% 1.8 kg/head	Din 50/kg at plant	-	12.2	14.2	16.2
Pelts (lamb) sold	Domestic 100% 0.9 kg/head	Din 80/kg at plant	-	5.7	6.4	7.1
Inedible by-product sold	Domestic 100% 0.5 kg/head	Din 10/kg at plant	-	1.1	1.3	1.5
Total Income	-	-	-	150.4	172.4	194.0
Operating Cost						
Direct Costs						
Purchase of livestock:						
Cattle	350 kg/head	Din 12/kg at plant	-	24.3	27.3	30.2
Calves	150 kg/head	Din 14/kg at plant	-	8.0	9.0	10.1
Sheep	30 kg/head	Din 11/kg at plant	-	9.9	11.6	13.2
Spring	15 kg/head	Din 26/kg at plant	-	43.7	50.9	58.2
Lambs fall	20 kg/head	Din 20/kg at plant	-	32.0	36.0	40.0
Livestock buying expenses and freight	-	2% of livestock cost	-	2.4	2.7	3.0
Direct labor skilled:	60 persons x 12 mo	Din 3,000/mo + 50%	-	2.8	3.0	3.2
unskilled:	40 persons x 12 mo	Din 2,200/mo + 50%	-	1.4	1.5	1.6
Purchased power	0.1 kwh/kg liveweight	Din 1.20/kwh	-	0.7	0.9	1.1
Fuel, lubricants	0.05 kg/kg liveweight	Din 2.0/kg fuel oil	-	0.6	0.8	0.9
Wrapping Materials	-	Din 1.0/kg Export	-	0.7	0.8	0.9
Cleaning, miscellaneous materials	Salt 0.1 kg salt/kg hide/pelt	Din 5/kg salt, etc.	-	0.3	0.4	0.4
Freight to Adriatic port incl. Insurance	Distance = 500 km	Din 1,000/ton export	-	0.6	0.8	0.9
Marketing expenses	-	2% of total sales	-	3.0	3.4	3.9
Taxes	-	-	-	-	-	-
Subtotal	-	-	-	130.4	149.1	167.6
Overhead Costs						
Maintenance, Incl. materials	20 persons	Din 3,000/mo + 50%	-	1.8	2.0	2.2
Administration Expenses, Incl. insurance		Din 200,000/mo	-	2.0	2.2	2.4
Technical, Administrative and supervisory personnel	15 persons	Din 3,500/mo + 50%	-	0.7	0.8	0.9
Management	3 persons	Din 5,000/mo + 50%	-	0.3	0.3	0.3
Subtotal	-	-	-	3.8	5.5	5.8
Total Operating Cost 2/	138 persons	-	-	134.2	154.6	173.4
Net Operating Surplus	-	-	-	16.2	17.8	20.6
Less: Taxes				.8	.9	1.0
Net Income				15.4	16.9	19.6

1/ The new plant would be built in years 2-3 and commence operations in year 4 with the current volume of the existing plant it will replace.

2/ Working capital for the incremental volume in year 5: Din 1.7 million assuming an average turnover of one month

APPRAISAL OF
AGRICULTURE AND AGROINDUSTRIES II PROJECT
YUGOSLAVIA

MACEDONIA
CATTLE AND SHEEP SLAUGHTERING PLANT
CASH FLOW PROJECTIONS
(DIN MILLION)

	YEAR													
	(01)	(02)	(03)	(04)	(05)	(06)	(07)	(08)	(09)	(10)	(11)	(12)	(13)	(14)
CASH INFLOW														
RETURNS	.0	.0	.0	150.4	172.4	194.0	194.0	194.0	194.0	194.0	194.0	194.0	194.0	194.0
OWNED FUNDS	.0	8.7	13.0	5.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
IBRD LOAN	.0	15.5	24.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SBS LOAN	.0	17.5	27.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SHORT TERM LOAN	.0	.0	.0	67.1	77.3	86.7	86.7	86.7	86.7	86.7	86.7	86.7	86.7	86.7
SUB TOTAL	.0	41.7	65.0	223.2	249.7	280.7	280.7	280.7	280.7	280.7	280.7	280.7	280.7	280.7
CASH OUTFLOW														
INVESTMENT COST	.0	41.7	65.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
OPERATING COSTS	.0	.0	.0	134.2	154.6	173.4	173.4	173.4	173.4	173.4	173.4	173.4	173.4	173.4
TAXES	.0	.0	.0	.8	.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
SUBTOTAL	.0	41.7	65.0	135.0	155.5	174.4	174.4	174.4	174.4	174.4	174.4	174.4	174.4	174.4
SURPLUS CASH FOR DEBT SERVICE	.0	(.0)	.0	88.2	94.2	106.3	106.3	106.3	106.3	106.3	106.3	106.3	106.3	106.3
LOAN REPAYMENTS														
ANNUITY, IBRD LAON	.0	.0	.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
ANNUITY,SBS LOAN	.0	.0	.0	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
SHORT TERM LOAN	.0	.0	.0	67.1	77.3	86.7	86.7	86.7	86.7	86.7	86.7	86.7	86.7	86.7
SUBTOTAL DEBT SERVICE	.0	.0	.0	80.6	90.8	100.2	100.2	100.2	100.2	100.2	100.2	100.2	100.2	100.2
NET CASH INFLOW														
ANNUAL	.0	(.0)	.0	7.6	3.4	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
CUMULATIVE	.0	(.0)	(.0)	7.6	11.0	17.1	23.2	29.3	35.4	41.5	47.6	53.7	59.8	65.9
ALLOCATED TO														
DEPRECIATION	.0	.0	.0	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
BUSINESS AND RESERVE FUNDS	.0	.0	.0	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
REMAINING FOR DISTRIBUTION	.0	.0	.0	1.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

Financial Rate of Return

Base Case		= 17.05
Investment Costs	+10%	= 14.95
Net Benefit	-10%	= 14.75

ANNEX 7
Table 7

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Potato Cold Store and Packing Plant (Macedonia)
Investment Projections

	Capacity or Total Units	Cost per Unit US$	Years 1/ 3	Years 1/ 4	Investment Costs Total	Investment Costs Local	Investment Costs Foreign Exchange
Plant Capacity: Cold store	5,000 tons						
Packing plant	50 tons/shift						
Investment Items 2/					Din '000		
1 Land and Site Preparation	2 ha	0.5/m^2	180	-	180	180	-
2 Civil Works							
Access roads and plant yards	3,000 m^2	20/m^2	760	320	1,080	1,080	-
Fencing and infrastructure	600 m	15/m	160	-	160	152	8
Insulated cold store w/air distribution	3,000 m^2	300/m^2	11,340	4,860	16,200	12,150	4,050
Main potato packing shed	700 m^2	150/m^2	1,320	570	1,890	1,606	284
Office, amenities	500 m^2	250/m^2	1,580	670	2,250	1,912	338
Garage, store, engine room, Aux. Bldgs.	600 m^2	150/m^2	1,130	490	1,620	1,458	162
Effluent treatment	100 m^3/day	300/m^3/day	270	270	540	432	108
Subtotal	-	-	16,560	7,180	23,740	18,790	4,950
3 Utilities							
Water wells, pumps, storage tank, chlorinator	2x10m^3/hr	1,500/m^3/hr	220	320	540	324	216
Power substation, transformers, switchgear, controls	2x300 kva	150/kva	650	970	1,620	648	972
Refrigerating Equip., evaporators, and Aux.	4x75 tons	1,200/ton	2,590	3,890	6,480	1,296	5,184
Service lines	-	10%	-	860	860	516	344
Crating, freight, insurance	-	5%	-	480	480	288	192
Installation	-	15%	-	1,500	1,500	1,200	300
Subtotal	-	-	3,460	8,020	11,480	4,272	7,208
4 Machinery and Equipment							
Weigh bridge	20 tons	25,000	180	270	450	135	315
Portable conveyors and scoop trucks	4 : 2	50,000	360	540	900	180	720
Washing, sizing, grading line	50 tons/8 hrs.	150,000	1,080	1,620	2,700	540	2,160
Bagging line	50 tons/8 hrs	40,000	290	430	720	144	576
Office Eqip, spares, tools, Misc.	-	30,000	-	540	540	216	324
Crating, freight, insurance	-	5%	-	270	270	108	162
Installation	-	15%	-	840	840	504	336
Subtotal	-	-	1,910	4,510	6,420	1,827	4,593
5 Transportation Equipment 3/	2 lift trucks	16,000/ea	-	580	580	116	464
	3x5 ton trucks	20,000/ea	360	720	1,080	648	432
			360	1,300	1,660	764	896
6 Engineering and Overhead 4/							
Organizational expenses	-	1%	420	-	420	420	-
Consultants fees (specs, Bids, supervision)	-	4%	830	830	1,660	1,162	498
Contractors fees	-	5%	1,040	1,040	2,080	1,040	1,040
Subtotal	-	-	2,290	1,870	4,160	2,622	1,538
7 Import Duties 5/	-	5/	-	4,273	4,273	4,273	-
8 Technical and Management Services	-	-	-	-	-		
Total Fixed Investment w/o Contingencies	-	-	24,760	27,153	51,913	32,728	19,185
9 Contingencies, Physical	-	5%	1,240	1,357	2,597	1,638	959
10 Working Capital 6/	-	-	-	2,700	2,700	2,565	135
Total Investment with physical contingencies	-	-	26,000	31,210	57,210	36,931	20,279
Price Contingencies			8,242	13,170	21,412	13,822	7,590
Grand Total			34,242	44,380	78,622	50,753	27,869

1/ One year elapse in hiring consultant, preparing specs, and requesting and evaluating Bids.
2/ One plant would be financed, it would be located near the city of Delcevo and owned by the Agro-Industries Kombinat (ZIK) Ovce Pole.
3/ Hired vehicles would also be used
4/ On items 2, 3 and 4
5/ Import duty on direct imports, shown in brackets
6/ From Annex 7, Table 9

7-23-76
Rate of Exchange: Din 18: US$1.

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Potato Cold Store and Packing Plant (Macedonia)
Income and Operating Cost Projections

	Yield or Number of Units at full Development	Cost or Price per Unit	Years 1/ 1-4	5	6	7-20
Volume 2/				Tons		
Potatoes in storage	Up to 8 mo- vg. 4 mo	--	--	2,500	4,000	5,500
Potatoes graded and bagged	Up to 8 mo-	--				
Other Produce (fruits, vegetables)	Up to 3 mo- v . 3 mo	--	--	-	1,000	2,000
				Din Million		
Income						
Graded and bagged potatoes, sold.	45 kg. burlap bags-80%	Din. 4.0 /Bag delivered	--	8.0	12.8	17.6
Graded and bagged potatoes, sold	5 kg paper bags-20%	Din 4.50/Bag delivered	--	2.3	3.6	5.0
Storage fees for other produce	Loading/storage/unloading/washing	Din 2/kg.	--	-	2.0	4.0
Total Income	--	--	--	10.3	18.4	26.6
Operating Cost						
Direct Costs						
Potato purchases	5,500 tons/yr	Din 1,000/ton at farm	--	2.5	4.0	5.5
Direct labor: skilled	20 persons x 12 mo/yr	Din 2,800/mo + 50%	--	0.6	0.8	1.0
unskilled	50 persons x 8 mo/yr	Din 2,200/mo + 50%	--	0.7	1.0	1.3
Purchased power	3,500 kWh/ x 365 days/yr	Din 0.8/kWh	--	0.6	0.8	1.0
Burlap bags	45 kg/ea	Din 8/ea	--	0.4	0.6	0.8
Paper bags	5 Kg/ea	Din 1/ea	--	0.1	0.2	0.3
Refrigerant, Misc. materials	--	Din 0.1/kg.	--	0.3	0.4	0.6
Potato collection expenses	Radius 50 km.	Din 0.15/kg.	--	0.4	0.6	0.8
Potato marketing expenses	Distance 500 km.	Din 0.1/kg	--	0.3	0.4	0.6
Taxes	--	--	--	-	-	-
Subtotal	--	--	--	5.9	8.8	11.9
Overhead Costs						
Maintenance, Incl. materials	6 persons	Din 3,000/mo + 50%	--	0.4	0.5	0.6
Administration expenses	--	Din 50,000/mo	--	0.4	0.5	0.6
Technical, Administrative, and supervisory personnel	8 persons	Din 3,500/mo + 50%	--	0.4	0.5	0.5
Management	1 persons	Din 5,000/mo + 50%	--	0.1	0.1	0.1
Subtotal	--	--	--	1.3	1.6	1.8
Total Operating Cost 3/	85 persons	--	--	7.2	10.4	13.7
Net Operating Surplus	--	--	--	3.1	8.0	12.9
Less: Taxes				.2	.4	.6
Net Income				2.9	7.6	12.3

1/ The plant would be built in years 2 and 3 and commence operations in year 4.
2/ Based on Annex Para.
3/ Working capital year 4, Din 2.6 million assuming an Avg. storage period of 4 months.

ANNEX 7
TABLE 9

APPRAISAL OF
AGRICULTURE AND AGROINDUSTRIES II PROJECT
YUGOSLAVIA

MACEDONIA
POTATO COLD STORE AND PACKING PLANT
CASH FLOW PROJECTIONS
(DIN MILLION)

	YEAR													
	(01)	(02)	(03)	(04)	(05)	(06)	(07)	(08)	(09)	(10)	(11)	(12)	(13)	(14)
CASH INFLOW														
RETURNS	.0	.0	.0	10.3	18.4	26.6	26.6	26.6	26.6	26.6	26.6	26.6	26.6	26.6
OWNED FUNDS	.0	7.2	9.4	10.0	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
IBRD LOAN	.0	12.7	16.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SBS LOAN	.0	14.3	18.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SHORT TERM LOAN	.0	.0	.0	3.6	5.2	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9
SUB TOTAL	.0	34.2	44.4	23.9	27.6	33.5	33.5	33.5	33.5	33.5	33.5	33.5	33.5	33.5
CASH OUTFLOW														
INVESTMENT COST	.0	34.2	44.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
OPERATING COSTS	.0	.0	.0	7.2	10.4	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7
TAXES	.0	.0	.0	.2	.4	.6	.6	.6	.6	.6	.6	.6	.6	.6
SUBTOTAL	.0	34.2	44.4	7.4	10.8	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3
SURPLUS CASH FOR DEBT SERVICE	.0	.0	.0	16.5	16.8	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2
LOAN REPAYMENTS														
ANNUITY, IBRD LOAN	.0	.0	.0	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
ANNUITY, SBS LOAN	.0	.0	.0	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
SHORT TERM LOAN	.0	.0	.0	3.6	5.2	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9
SUBTOTAL DEBT SERVICE	.0	.0	.0	13.5	15.1	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8
NET CASH INFLOW														
ANNUAL	.0	.0	.0	3.0	1.7	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
CUMULATIVE	.0	.0	.0	3.0	4.7	7.1	9.5	11.9	14.3	16.7	19.1	21.5	23.9	26.3
ALLOCATED TO														
DEPRECIATION	.0	.0	.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
BUSINESS AND RESERVE FUNDS	.0	.0	.0	.0	.1	.3	.3	.3	.3	.3	.3	.3	.3	.3
REMAINING FOR DISTRIBUTION	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

Financial Rate of Return

Base Case = 14.35
Investment Costs +10% = 12.55
Net Benefit -10% = 12.65

ANNEX 7
Table 10

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Expansion of Vegetable Processing Plant (Macedonia)
Investment Projections

		Capacity or Total Units	Cost per Unit US$	Years 1/ 2	Years 1/ 3	Investment Costs Total	Investment Costs Local	Investment Costs Foreign Exchange
	Plant Capacity	Present: 12,000 tons/yr Incremental: 12,000 tons/yr						
				---------- Din '000 ----------				
	Investment Items 2/							
1	Land and Site Preparation	0.5 ha	3/m^2	270	-	270	270	-
2	Civil Works							
	Plant yards	2,000 m^2	20/m^2	500	220	720	720	-
	Fencing and infrastructure	200 m	20/m	70	-	70	66	4
	Major repairs to existing Bldgs.	2,000 m^2	50/m^2	1,260	540	1,800	1,620	180
	Processing Bldg.	1,000 m^2	250/m^2	3,150	1,350	4,500	3,600	900
	Finished product storage	400 m^2	200/m^2	1,010	430	1,440	1,152	288
	Office, Lab, Amenities	300 m^2	250/m^2	950	400	1,350	1,147	203
	Auxiliary Bldgs.	300 m^2	150/m^2	570	240	810	729	81
	Effluent treatment (screen, trickling Filter, sedimentation) (50% of total flow)	500 m^3	450/m^3/day	2,020	2,030	4,050	2,835	1,215
	Subtotal	-	-	9,530	5,210	14,740	11,869	2,871
3	Utilities							
	Water wells, pumps, storage tank, filters, chlorinator	2x70 m^3	1,300/m^3/hr	1,310	1,970	3,280	1,640	1,640
	Power substation, transformers, switchgear controls	2x500 kva	130/kva	940	1,400	2,340	936	1,404
	Package steam generator, fueltank water treatment	2x4,000 kg/hr	18,000/ton/hr	1,040	1,550	2,590	1,295	1,295
	Refrigerating Equip, evaporating and auxi.	2x50 tons	1,500/ton	1,080	1,620	2,700	540	2,160
	Service lines	-	10%	-	1,090	1,090	654	436
	Crating, freight, insurance	-	5%	-	600	600	360	240
	Installation	-	15%	-	1,890	1,890	1,512	378
	Subtotal	-	-	4,370	10,120	14,490	6,937	7,553
4	Machinery and Equipment							
	Major repairs to existing equipment	-	50,000	360	540	900	540	360
	Renovation of obsolete processing equip.	-	100,000	720	1,080	1,800	720	1,080
	Renovation of obsolete filling, packing Equip.	-	100,000	720	1,080	1,800	720	1,080
	Complete tomato paste processing line	5,000 tons	500,000	3,600	5,400	9,000	1,800	7,200
	Vegetable freezing and packing line	2,000 tons	300,000	2,160	3,240	5,400	1,080	4,320
	Fruit processing and packing line	2,000 tons	250,000	1,800	2,700	4,500	900	3,600
	Office, lab, workshop, spares, misc. equip.	-	100,000	720	1,080	1,800	360	1,440
	Crating, freight, insurance	-	10%	-	2,520	2,520	1,008	1,512
	Installation	-	15%	-	4,160	4,160	2,496	1,664
	Subtotal	-	-	10,080	21,800	31,880	9,624	22,256
5	Transportation Equipment 3/							
	Flat trucks	2x5 tons	20,000 ea	-	720	720	432	288
	Pick-up trucks	2	8,000 ea	140	140	280	168	112
	Lift trucks	2	16,000 ea	-	580	580	116	464
	Subtotal	-	-	140	1,440	1,580	716	864
6	Engineering and Overhead 4/							
	Organizational expenses	-	1%	610	-	610	610	-
	Consultant fees (specs, Bids, supervision)	-	4%	1,220	1,220	2,440	1,220	1,220
	Contractors fees	-	5%	1,520	1,530	3,050	1,525	1,525
	Subtotal			3,350	2,750	6,100	3,355	2,745
7	Import Duties 5/	-	-	-	8,543	8,543	8,543	-
8	Technical and Management Services	-	-	-	-	-	-	-
	Total Fixed Investment w/o Contingencies	-		27,740	49,863	77,603	41,314	36,289
9	Contingencies, Physical	-	5%	1,380	2,493	3,873	2,059	1,814
10	Working Capital 6/, Incremental	-	-	-	10,500	10,500	9,975	525
	Total Investment with physical conts.	-	-	29,120	62,856	91,976	53,348	38,628
	Price Contingencies			6,377	19,925	26,302	15,255	11,047
	GRAND TOTAL			35,497	82,781	118,278	68,603	49,675

1/ One year would elapse in hiring consultant, preparing specs, and requesting and evaluating Bids.
2/ One plant would be financed, it would be an expansion of an existing fruit and vegetable plant located near the city of Gevgeliva, owned by Agro-Industrial Kombinat (ZIK) Interimpeles Zora. The project would also provide for major repairs and renovations to the existing plant.
3/ Hired vehicles would also be used.
4/ On Items 2, 3 and 4
5/ Import duty on direct imports shown in brackets
6/ From Annex 7, Table 12

7-31-76
Rate of Exchange: Din 18: US$ 1.-

Expansion of Vegetable Processing Plant (Macedonia)
Income and Operating Cost Projections

	Yield or Number of Units at full Development	Cost or Price per Unit	Years 1-2-3	4	5	6-20
Volume [1]	Harvest season		Tons			
Incremental: Tomato	August-September	-	-	5,000	6,000	7,000
Paprika	August-October	-	-	1,200	1,400	1,600
Carrot	February-April	-	-	700	800	900
Fruit (apples, quince, plums)	August-October	-	-	300	400	500
Part of current: Tomato	-	-	-	2,000	2,000	2,000
Volume (that Paprika	-	-	-	1,000	1,000	1,000
would be lost if Carrot	-	-	-	700	700	700
Equipment were Fruit(apples, quince, plums)	-	-	-	300	300	300
not replaced)						
Total			-	11,200	12,600	14,000
Income	**Market**	**Yield**				
Tomato concentrate sold (28-30%)	Export 60%, Domestic 40%	0.155	Din 15,000/ton at border; Din 18,000/ton at plant	-	9.8	11.2	12.6
				-	7.8	8.9	10.0
Paprika (pickled, canned) sold 75%	Export 100%, Domestic -	1.2	Din 5,000/ton at border; -	-	9.9	10.8	11.7
				-	-	-	-
Paprika frozen sold 25%	Export 90%, Domestic 10%	1.0	Din 9,000/ton at plant	-	5.0	5.4	5.9
Carrot juice sold	Export 25%, Domestic 75%	2.0	Din 4,000/ton at plant	-	11.2	12.0	12.8
Fruit marmalade sold	Export -, Domestic 100%	0.6	- ; Din 13,000/ton at plant	-	-	-	-
				-	4.7	5.4	6.2
Total Income	-		-	-	48.4	53.7	59.2
Operating Cost							
Direct costs							
Purchase of raw materials at(peak of season)							
Tomato	9,000 tons		Din 1,000/ton at plant	-	7.0	8.0	9.0
Paprika	2,600 tons		Din 1,800/ton at plant	-	4.0	4.3	4.7
Carrot	1,600 tons		Din 800/ton at plant	-	1.1	1.2	1.3
Fruit	800 tons		Din 2,000/ton at plant	-	1.2	1.4	1.6
Direct Labor skilled:	20 persons x 12 mo		Din 3,000/mo + 50%	-	0.9	1.0	1.1
unskilled:	30 pers x 12 mo + 20 perx2mo		Din 2,200/mo + 50%	-	1.1	1.2	1.3
Purchased power	50 kwh/ton		Din 0.8/kwh	-	0.5	0.5	0.6
Fuel, lubricants	100 kg/ton		Din 1.5/kg fuel oil	-	1.7	1.9	2.1
Packing materials: in cans of 5kg/ea, in jars, various sizes, in cartons	Average cost		Din 1.2/kg product	-	7.8	8.7	9.7
Cleaning, miscellaneous materials	-		Din 50/ton raw material	-	0.6	0.6	0.7
Transportation to border, incl. insurance	Distance = 1,200 km		Din 500/ton exported	-	1.8	2.1	2.3
Marketing Expenses			5% of total sales	-	2.4	2.7	3.0
Taxes	-		-	-	-	-	-
Subtotal	-		-	-	30.1	33.6	37.4
Overhead Costs							
Maintenance, incl. materials	6 persons		Din 3,000/mo + 50%	-	0.6	0.6	0.6
Administration expenses, incl. insurance			Din 100,000/mo	-	1.2	1.2	1.2
Technical, Administrative and supervisory personnel	8 persons		Din 3,500/mo + 50%	-	0.5	0.5	0.5
Management	1 persons		Din 5,000/mo + 50%	-	0.1	0.1	0.1
Subtotal	-		-	-	2.4	2.4	2.4
Total Operating Cost [2]	85 persons		-	-	32.5	36.0	39.8
Net Operating Surplus	-		-	-	15.9	17.7	19.4
Less: Taxes					.9	1.0	1.1
Net Income					15.0	16.7	18.4

1/ The expansion and renovation would take place in years 2-3 and commence operations in year 4.
2/ Working capital for the incremental volume in year 4: Din 10.5 million, assuming an average turnover of six months.

APPRAISAL OF
AGRICULTURE AND AGROINDUSTRIES II PROJECT
YUGOSLAVIA

MACEDONIA
EXPANSION OF VEGETABLE PROCESSING PLANT
CASH FLOW PROJECTIONS
(DIN MILLION)

	YEAR													
	(01)	(02)	(03)	(04)	(05)	(06)	(07)	(08)	(09)	(10)	(11)	(12)	(13)	(14)
CASH INFLOW														
RETURNS	.0	.0	.0	48.4	53.7	59.2	59.2	59.2	59.2	59.2	59.2	59.2	59.2	59.2
OWNED FUNDS	.0	7.5	16.8	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
IBRD LAON	.0	13.1	31.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SBS LOAN	.0	14.9	35.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SHORT TERM LOAN	.0	.0	.0	16.3	18.0	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9
SUB TOTAL	.0	35.5	82.8	68.7	71.7	79.1	79.1	79.1	79.1	79.1	79.1	79.1	79.1	79.1
CASH OUTFLOW														
INVESTMENT COST	.0	35.5	82.8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
OPERATING COSTS	.0	.0	.0	32.5	36.0	39.8	39.8	39.8	39.8	39.8	39.8	39.8	39.8	39.8
TAXES	.0	.0	.0	.9	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
SUBTOTAL	.0	35.5	82.8	33.4	37.0	40.9	40.9	40.9	40.9	40.9	40.9	40.9	40.9	40.9
SURPLUS CASH FOR DEBT SERVICE	.0	.0	.0	35.3	34.7	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2
LOAN REPAYMENTS														
ANNUITY, IBRD LOAN	.0	.0	.0	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
ANNUITY,SBS LOAN	.0	.0	.0	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
SHORT TERM LOAN	.0	.0	.0	16.3	18.0	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9
SUBTOTAL DEBT SERVICE	.0	.0	.0	31.1	32.8	34.7	34.7	34.7	34.7	34.7	34.7	34.7	34.7	34.7
NET CASH INFLOW														
ANNUAL	.0	.0	.0	4.2	1.9	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
CUMULATIVE	.0	.0	.0	4.2	6.1	9.6	13.1	16.6	20.1	23.6	27.1	30.6	34.1	37.6
ALLOCATED TO														
DEPRECIATION	.0	.0	.0	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
BUSINESS AND RESERVE FUNDS	.0	.0	.0	.3	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4
REMAINING FOR DISTRIBUTION	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

Financial Rate of Return

Base Case		= 17.25
Investment Costs	+10%	= 15.15
Net Benefit	-10%	= 15.25

ANNEX 7
Table 13

APPRAISAL OF
AGRICULTURE AND AGROINDUSTRIES II PROJECT
YUGOSLAVIA

Vegetable Drying Plant (Macedonia)
Investment Projections

		Capacity or Total Units	Cost per Unit US$	Years 1/ 2	Years 1/ 3	Investment Costs Total	Local	Foreign Exchange
	Plant Capacity	Vegetables: 45,000 Tons/yr 220 days/yr				----------Din '000----------		
	Investment Items 2/							
1	Land and Site Preparation	3 ha	3/m^2	1,620	-	1,620	1,620	-
2	Civil Works							
	Access roads and plant yards	5,000 m^2	20/m^2	1,260	540	1,800	1,800	-
	Fencing and infrastructure	800	20/m^2	200	90	290	275	15
	Main building:							
	Tomato concentrate production	900 m^2						
	Vegetable preparation and drying	900 m^2						
	Packaging	800 m^2	230/m^2	13,910	5,960	19,870	15,896	3,974
	Finished product storage	1,400 m^2						
	Raw material storage	800 m^2						
	Office, Lab, amenities	800 m^2	250/m^2	2,520	1,080	3,600	3,060	540
	Garage, store, boiler room, Aux. Bldgs.	800 m	150/m	1,510	650	2,160	1,944	216
	Effluent treatment (screen, trickling filter, sedimentation) (50% of total flow)	600 m^3/day	400/m^3/day	2,160	2,160	4,320	3,024	1,296
	Subtotal	-	-	21,560	10,480	32,040	25,999	6,041
3	Utilities							
	Water wells, pumps, storage tank filters, chlorinator	3x70 m^3/hr	1,300/m^3/hr	1,960	2,950	4,910	2,455	2,455
	Power substation, transformers, switch-Gear, controls	3x500 kva	130/kva	1,400	2,110	3,510	1,404	2,106
	Package steam generators, fuel tank, water treatment and Aux.	3x10,000 kg/hr	15,000/ton/hr	3,240	4,860	8,100	4,050	4,050
	Service lines	-	10%	-	1,650	1,650	990	660
	Crating, freight, insurance	-	5%	-	910	910	364	546
	Installation	-	15%	-	2,860	2,860	2,002	858
	Subtotal	-	-	6,600	15,340	21,940	11,265	10,675
4	Machinery and Equipment							
	Vegetable preparation, drying, and packing comprising:	raw basis:						
	1 preparation line for paprika	3,000 tons						
	1 preparation line for leeks and parseley	4,000 tons						
	1 preparation line for carrots	1,600 tons	600.000	4,320	6,480	10,800	2,160	8,640
	1 preparation line for onions	5,000 tons						
	2 belt drying tunnels	15,000 tons	250.000	1,800	2,700	4,500	900	3,600
	Milling screening and packaging Equip.		150.000	1,080	1,620	2,700	540	2,160
	Complete tomato concentrate processing line	25,000 tons	1.200.000	8,600	13,000	21,600	4,320	17,280
	Office, Lab. workshop, spares, misc. Equip.		250,000	1,800	2,700	4,500	900	3,600
	Crating, freight, insurance		10%	-	4,410	4,410	1,323	3,087
	Installation		20%	-	9,700	9,700	4,850	4,850
	Subtotal			17,600	40,610	58,210	14,993	43,217
5.	Transportation Equipment 3/							
	Flat trucks	5x10 tons	25,000 ea	-	2,250	2,250	1,350	900
	Pick-up trucks	2	8,000 ea	140	140	280	168	112
	Lift-trucks	4	16,000 ea	-	1,150	1,150	230	920
	Subtotal			140	3,540	3,680	1,748	1,932
6	Engineering and Overhead 4/							
	Organizational expenses	-	1%	1,120	-	1,120	1,120	-
	Consultant fees (specs, Bids, supervision)	-	4%	2,240	2,250	4,490	1,796	2,694
	Contractor's fees	-	5%	2,800	2,810	5,610	2,244	3,366
	Subtotal			6,160	5,060	11,220	5,160	6,060
7	Import Duties 5/	-	-	-	16,277	16,277	16,277	-
8	Technical and Management Services	1 Expertx6 mo.	30,000	-	270	270	54	216
	Total Fixed Investment w/o Contingencies			53,680	91,578	145,258	77,117	68,141
9	Contingencies, Physical	-	5%	2,680	4,579	7,259	3,852	3,407
10	Working Capital 6/	6 months turnover	-	-	24,900	24,900	23,655	1,245
	Total Investment with physical conting.	-	-	56,360	121,057	177,417	104,624	72,793
	Price Contingencies			12,343	38,375	50,718	29,924	20,794
	GRAND TOTAL			68,703	159,432	228,135	134,548	93,587

1/ One year would elapse in hiring consultant, preparing specs, and requesting and evaluating bids.
2/ One plant would be financed, it would be located near the city of Sveti Nikole and owned by the Agro-Industrial Kombinat (ZIK) Ovce Pole.
3/ Hired vehicles would also be used.
4/ On items 2, 3 and 4
5/ Import duty on direct imports shown in brackets
6/ From Annex 7, Table 15

7-31-76
Rate of exchange: Din 18: US$ 1.-

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Vegetable Drying Plant (Macedonia)
Income and Operating Cost Projections

	Yield or Number of Units at full Development	Cost or Price Per Unit	Years 1-2-3	4	5	6	7-20
Volume: 1/	Harvest season:		Tons				
Tomato	August-September	-	-	16,000	19,000	22,000	25,000
Onion	August-April	-	-	3,700	4,500	5,200	6,000
Leek	November-February	-	-	1,700	2,100	2,600	3,000
Paprika	August-October	-	-	1,700	2,100	2,600	3,000
Carrot	February-April	-	-	1,200	1,500	1,700	2,000
Parseley	July	-	-	700	800	900	1,000
Total	Plant would operate 210 days/yr	-	-	25,000	30,000	30,000	40,000
Income	Market / Yield		Din Million				
Tomato concentrate sold (28-30%solids)	Export 60% / Domestic 40% — 0.155	Din 15,000/ton at Border Din 18,000/ton at plant	-	22.3	26.5	30.7	34.9
			-	17.9	21.2	24.6	27.9
Dehydrated Onions sold	Export 80% / Domestic 20% — 0.110	Din 28,000/ton at border Din 32,000/ton at plant	-	9.1	11.1	12.8	14.8
			-	2.6	3.2	3.6	4.2
Dehydrated leek sold	Export 80% / Domestic 20% — 0.083	Din 34,200/ton at Border Din 38,000/ton at plant	-	3.9	4.8	5.9	6.8
			-	1.1	1.3	1.6	1.9
Dehydrated paprika sold	Export 80% / Domestic 20% — 0.103	Din 43,200/ton at border Din 48,000/ton at plant	-	6.1	7.5	9.3	10.7
			-	1.7	2.1	2.6	3.0
Dehydrated carrot sold	Export 80% / Domestic 20% — 0.105	Din 27,000/ton at border Din 30,000/ton at plant	-	2.7	3.4	3.8	4.5
			-	0.8	1.0	1.1	1.3
Dehydrated parseley sold	Export 80% / Domestic 20% — 0.112	Din 36,000/ton at border Din 44,000/ton at plant	-	2.2	2.6	2.9	3.2
			-	0.7	0.8	0.9	1.0
Total Income	-	-	-	71.1	85.5	99.8	114.2
Operating Cost							
Direct Costs							
Purchase of vegetables (at peak of season)							
Tomato	25,000 tons	Din 1,000/ton at plant	-	16.0	19.0	22.0	25.0
Onions	6,000 tons	Din 700/ton at plant	-	2.6	3.2	3.6	4.2
Leek	3,000 tons	Din 1,500/ton at plant	-	2.6	3.2	3.9	4.5
Paprika	3,000 tons	Din 1,800/ton at plant	-	3.1	3.8	4.7	5.4
Carrot	2,000 tons	Din 800/ton at plant	-	1.0	1.2	1.4	1.6
Parseley	1,000 tons	Din 1,000/ton at plant	-	0.7	0.8	0.9	1.0
Direct Labor — skilled	to persons x 12 mo	Din 3,000/mo + 50%	-	2.9	3.2	3.5	3.8
unskilled	100 pers x 12 mo-60 pers x 2mo	Din 2,200/mo + 50%	-	3.5	3.8	4.1	4.4
Purchased power	50 kwh/ton	Din 0.8/kwh	-	1.0	1.2	1.4	1.6
Fuel, lubricants	100 kg/ton	Din 1.5/kg fuel oil	-	3.8	4.5	5.3	6.0
Packing materials: (dried vegetables)	1 poly liner + Bag/25kg	Din 10/25 kg product	-	0.4	0.5	0.5	0.6
(tomato concentrate)	90% in 5kg cans; 10% in 100 gr tubes	Din 1/kg product	-	2.5	2.9	3.4	3.9
Cleaning, miscellaneous materials	-	Din 50/ton raw material	-	1.3	1.5	1.8	2.0
Transportation to border, incl. insurance	Distance = 1,000 km	Din 400/ton exported	-	1.0	1.2	1.4	1.6
Marketing expenses	-	5% of total sales	-	3.6	4.3	5.0	5.7
Taxes	-	-	-	-	-	-	-
Subtotal	-	-	-	46.0	54.3	62.9	71.3
Overhead Costs							
Maintenance, incl. materials	10 persons	Din 3,000/mo + 50%	-	0.9	1.0	1.1	1.1
Administration expenses, incl. insurance	-	Din 200,000/mo	-	1.8	2.0	2.2	2.4
Technical, Administrative and supervisory personnel	18 persons	Din 3,500/mo + 50%	-	0.8	0.9	1.1	1.1
Management	3 persons	Din 5,000/mo + 50%	-	0.2	0.3	0.3	0.3
Subtotal	-	-	-	3.7	4.2	4.7	4.9
Total Operating Cost 2/	261 persons	-	-	49.7	58.5	67.6	76.2
Net Operating Surplus	-	-	-	21.4	27.0	32.2	38.0
Less: Taxes				1.1	1.4	1.6	1.9
Net Income				20.3	25.6	30.6	36.1

1/ The plant would be built in years 2-3 and commence operations in year 4.
2/ Working capital year 4: Din 24.9 million assuming an average turnover of six months.

APPRAISAL OF
AGRICULTURE AND AGROINDUSTRIES II PROJECT
YUGOSLAVIA

MACEDONIA
VEGETABLE DRYING PLANT
CASH FLOW PROJECTIONS
(DIN MILLION)

	YEAR													
	(01)	(02)	(03)	(04)	(05)	(06)	(07)	(08)	(09)	(10)	(11)	(12)	(13)	(14)
CASH INFLOW														
RETURNS	.0	.0	.0	71.7	85.5	99.8	114.2	114.2	114.2	114.2	114.2	114.2	114.2	114.2
OWNED FUNDS	.0	13.7	32.4	14.7	10.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
IBRD LOAN	.0	25.8	59.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SBS LOAN	.0	29.2	67.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SHORT TERM LOAN	.0	.0	.0	24.9	29.3	33.8	38.1	38.1	38.1	38.1	38.1	38.1	38.1	38.1
SUB TOTAL	.0	68.7	159.4	111.3	124.8	133.6	152.3	152.3	152.3	152.3	152.3	152.3	152.3	152.3
CASH OUTFLOW														
INVESTMENT COST	.0	68.7	159.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
OPERATING COSTS	.0	.0	.0	49.7	58.5	67.6	76.2	76.2	76.2	76.2	76.2	76.2	76.2	76.2
TAXES	.0	.0	.0	1.1	1.4	1.6	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
SUBTOTAL	.0	68.7	159.4	50.8	59.9	69.2	78.1	78.1	78.1	78.1	78.1	78.1	78.1	78.1
SURPLUS CASH FOR DEBT SERVICE	.0	.0	.0	60.5	64.9	64.4	74.2	74.2	74.2	74.2	74.2	74.2	74.2	74.2
LOAN REPAYMENTS														
ANNUITY, IBRD LOAN	.0	.0	.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
ANNUITY, SBS LOAN	.0	.0	.0	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8
SHORT TERM LOAN	.0	.0	.0	24.9	29.3	33.8	38.1	38.1	38.1	38.1	38.1	38.1	38.1	38.1
SUBTOTAL DEBT SERVICE	.0	.0	.0	53.7	58.1	62.6	66.9	66.9	66.9	66.9	66.9	66.9	66.9	66.9
NET CASH INFLOW														
ANNUAL	.0	.0	.0	6.8	6.8	1.8	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3
CUMULATIVE	.0	.0	.0	6.8	13.6	15.4	22.7	30.0	37.3	44.6	51.9	59.2	66.5	73.8
ALLOCATED TO														
DEPRECIATION	.0	.0	.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
BUSINESS AND RESERVE FUNDS	.0	.0	.0	.3	.5	.6	.8	.8	.8	.8	.8	.8	.8	.8
REMAINING FOR DISTRIBUTION	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

Financial Rate of Return

Base Case		= 16.75
Investment Costs	+10%	= 14.75
Net Benefit	-10%	= 14.55

ANNEX 7
Table 16

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Apple Processing Plant (Macedonia)
Investment Projections

		Capacity or Total Units	Cost per Unit US $	Years 1/ 2	Years 1/ 3	Investment Costs Total	Investment Costs Local	Investment Costs Foreign Exchange
	Plant Capacity Work schedule	Apples: 10 tons/hr; 12,000 tons/yr 8 hrs/dmy; 210 days/yr						
	Investment Items 2/			Din '000				
1	Land and Site Preparation	2 ha	2/m^2	720	-	720	720	-
2	Civil Works 3/							
	Access Roads and plant yards	4,000 m^2	20/m^2	1,260	540	1,800	1,800	-
	Fencing and infrastructure	600 m_2	20/m_2	220	-	220	209	11
	Main processing Bldg.	1,600 m_2	250/m_2	5,040	2,160	7,200	5,760	1,440
	Finished products storage	800 m_2	200/m_2	2,020	860	2,880	2,304	576
	Office, Lab., Amenities	800 m^2	250/m^2	2,520	1,080	3,600	3,060	540
	Garage, store, engine room, laundry, Aux. Bldgs.	800 m^2	150/m^2	1,510	650	2,160	1,944	216
	Effluent treatment (screen, trickling filter sedimentation) (50% of total flow)	400 m^3/day	450/m^3/day	1,620	1,620	3,240	2,268	972
	Subtotal	-	-	14,190	6,910	21,100	17,345	3,755
3	Utilities							
	Water wells, pumps, storagetank, filters, chlorinator	3x70 m^3/hr	1,300/m^3/hr	1,970	2,940	4,910	2,455	2,455
	Power substation, transformers, switchgear, controls	3x500 kva	130/kva	1,400	2,110	3,510	1,404	2,106
	Package steam generators, fuel tank, water treatment	3x4,000 kg/hr	18,000/ton/hr	2,720	1,170	3,890	1,945	1,945
	Service lines	-	10%	-	1,230	1,230	738	492
	Crating, freight, insurance	-	5%	-	680	680	408	272
	Installation	-	15%	-	2,130	2,130	1,704	426
	Subtotal	-	-	6,090	10,260	16,350	8,654	7,696
4	Machinery and Equipment							
	Washing, sorting, peeling, coring Equip.		400,000	2,880	4,320	7,200	1,440	5,760
	Cutting, precooking, pulping Equip.		300,000	2,160	3,240	5,400	1,080	4,320
	Cloth pressing, de-pulping, filter pressing Equip.	10 Tons/hr	300,000	2,160	3,240	5,400	1,080	4,320
	Concentrating and Distilling Equip.		1.000,000	7,200	10,800	18,000	3,600	14,400
	Filling, closing, cooling, labelling casing		500,000	3,600	5,400	9,000	1,800	7,200
	Office, Lab, workshop, spares laundry, Misc. Equip.	-	250,000	1,800	2,700	4,500	900	3,600
	Crating, freight, insurance	-	10%	-	4,950	4,950	1,485	3,465
	Installation	-	20%	-	10,890	10,890	5,445	5,445
	Subtotal	-	-	19,800	45,540	65,340	16,830	48,510
5	Transportation Equipment 4/							
	Flat trucks, for transferring from cold store and marketing	2x5 Tons	20,000 ea	-	720	720	432	288
	Pick-up trucks	2	8,000 ea	140	140	280	168	112
	Lift-trucks	2	16,000 ea	-	580	580	116	464
	Subtotal			140	1,440	1,580	716	864
6	Engineering and Overhead 5/							
	Organizational Expenses	-	1%	1,030	-	1,030	1,030	-
	Consultants fees (specs, Blds, supervision)	-	4%	2,050	2,060	4,110	822	3,288
	Contractors fees	-	5%	2,570	2,570	5,140	2,056	3,084
	Subtotal			5,650	4,630	10,280	3,908	6,372
7	Import Duties 6/	-	-	-	15,392	15,392	15,392	-
8	Technical and Management Services	Expert x 6 mo.	30,000/yr	-	270	270	54	216
	Total Fixed Investment w/o Contingencies			46,590	84,442	131,032	63,619	67,413
9	Contingencies, Physical	-	5%	2,330	4,222	6,552	3,182	3,370
10	Working Capital 7/	6 Month turnover	-	-	13,300	13,300	12,635	665
	Total Investment with physical cont.	-	-	48,920	101,964	150,884	79,436	71.448
	Price Contingencies			10,713	32,322	43,035	22,658	20,377
	GRAND TOTAL			59,633	134,286	193,919	102,094	91,825

1/ One year would elapse in hiring consultant, preparation of specs invitation to tendering and evaluation of Bids.
2/ One plant would be financed, it would be located near the city of Resen and owned by Agro-Kombinat (ZK) Prespansko.
3/ A cold store for holding the supply of apples has not been included as the Agro-Kombinat has two cold stores of a total 15,000 tons capacity, there is additional 18,000 tons cold store capacity in the cities of Ohria, Strvga, Bitola and Kičevo and marginal space required could be rented.
4/ Hired vehicles would also be used.
5/ On items 2,3 and 4
6/ Import duty on direct imports shown in brackets.
7/ From Annex 7, Table 18

7-28-76
Rate of exchange: Din 18: US$ 1.-

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

ANNEX 7
Table 18

Apple Processing Plant (Macedonia)
Income and Operating Cost Projections

	Yield or Number of Units at Full Development	Cost or Price per Unit	Years 1-2-3	Years 4	Years 5	Years 6-20
Volume,[1] Apples	Industries grade			Tons		
	20% of harvest	-				
For Production of concentrate	Harvest season: Sept-Oct		-	4,200	5,600	7,200
For Production of sauce	Plant would operate 210 days/yr	-	-	900	1,200	1,500
For production of juice	By drawing apples from cold-store	-	-	900	1,200	1,500
Total	-	-	-	6,000	8,000	10,000
By products: Alcohol	-	-	-	220	300	370
Aromatic concentrate	-	-	-	15	20	25
Income	Market / Yield			Din Million		
Apple concentrate sold (72° brix)	Export 100% / 0.156	Din 33,000/ton at Border	-	21.6	28.8	36.0
	Domestic -	at Plant	-	-	-	-
Apple sacue sold (24° brix)	Export 50% / 0.5	Din 14,000/ton at Border	-	6.3	8.4	10.5
	Domestic 50%	at Plant	-	-	-	-
Apple Juice sold (16° brix)	Export 50% / 0.8	Din 10,500/ton at Border	-	7.6	10.1	12.6
	Domestic 50%	at Plant				
Alcohol sold	Export - / 0.037	Din 15/lt at Border	-	3.3	4.5	5.6
	Domestic 100%	at Plant	-	-	-	-
Aromatic concentrate sold	Export 100% / 0.200	Din 315/kg at Border	-	4.7	6.3	7.9
	Domestic -	at Plant				
Total Income	-	-	-	43.5	58.1	72.6
Operating Cost						
Direct Costs						
Purchase of apples	10,000 tons	Din 1,800/ton at plant	-	7.6	10.1	18.0
Direct labor	Skilled 40 persons x 12 mo	Din 3,000/mo + 50%	-	1.8	2.0	2.2
	Unskilled 60 persons x 10 mo	Din 2,200/mo + 50%	-	1.6	1.8	2.0
Purchased power	100 kwh/ton	Din 0.8/kwh	-	4.8	6.4	0.8
Fuel, lubricants	100 kgs/ton	Din 1.5/kg Fuel oil	-	0.9	1.2	1.5
Packing materials in cans of	in cans of 5kg ea	-	-	-	-	-
	in jars, various sizes average cost in cartons	Din 12/kg product	-	2.5	3.3	4.1
Cleaning, miscellaneous materials		Din 100/ton raw material	-	0.6	0.8	1.0
Transportation to border, incl. insurance	distance = 1200 km	Din 500/ton exported	-	0.7	0.9	1.1
Marketing expenses		5% of total sales	-	2.2	2.9	3.6
Taxes	-	-	-	-	-	-
Subtotal	-	-	-	22.7	29.4	34.3
Overhead Costs						
Maintenance, Incl. materials	10 persons	Din 3,000/mo + 50%	-	0.9	1.0	1.1
Administration expenses, Incl. Insurance	-	Din 200,000/mo	-	1.8	2.1	2.4
Technical Administrative and Supervisory Personnel	12 persons	Din 3,500/mo + 50%	-	0.9	1.0	1.1
Management	3 persons	Din 5,000/mo + 50%	-	0.2	0.3	0.3
Subtotal	-	-	-	3.8	4.4	4.9
Total Operating Cost[2]	131 persons	-	-	26.5	33.8	39.2
Net Operating Surplus	-	-	-	17.0	24.3	33.4
Less: Taxes				.8	1.2	1.7
Net Income				16.2	23.1	31.7

1/ The Plant would be built in years 2-3 and commence operations in year 4
2/ Working capital year 4: Din 13.3 million assuming an average turnover of six months.

APPRAISAL OF
AGRICULTURE AND AGROINDUSTRIES II PROJECT
YUGOSLAVIA

MACEDONIA
APPLE PROCESSING PLANT
CASH FLOW PROJECTIONS
(DIN MILLION)

	YEAR (01)	(02)	(03)	(04)	(05)	(06)	(07)	(08)	(09)	(10)	(11)	(12)	(13)	(14)
CASH INFLOW														
RETURNS	.0	.0	.0	43.5	58.1	72.6	72.6	72.6	72.6	72.6	72.6	72.6	72.6	72.6
OWNED FUNDS	.0	12.0	27.0	14.0	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
IBRD LOAN	.0	22.4	50.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SBS LOAN	.0	25.2	57.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SHORT TERM LOAN	.0	.0	.0	13.3	16.9	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6
SUB TOTAL	.0	59.6	134.4	70.8	80.5	92.2	92.2	92.2	92.2	92.2	92.2	92.2	92.2	92.2
CASH OUTFLOW														
INVESTMENT COST	.0	59.6	134.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
OPERATING COSTS	.0	.0	.0	26.5	33.8	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2
TAXES	.0	.0	.0	.8	1.2	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
SUBTOTAL	.0	59.6	134.3	27.3	35.0	40.9	40.9	40.9	40.9	40.9	40.9	40.9	40.9	40.9
SURPLUS CASH FOR DEBT SERVICE	.0	.0	.1	43.5	45.5	51.3	51.3	51.3	51.3	51.3	51.3	51.3	51.3	51.3
LOAN REPAYMENTS														
ANNUITY, IBRD LOAN	.0	.0	.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0
ANNUITY, SBS LOAN	.0	.0	.0	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8
SHORT TERM LOAN	.0	.0	.0	13.3	16.9	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6
SUBTOTAL DEBT SERVICE	.0	.0	.0	38.1	41.7	44.4	44.4	44.4	44.4	44.4	44.4	44.4	44.4	44.4
NET CASH INFLOW														
ANNUAL	.0	.0	.1	5.4	3.8	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9
CUMULATIVE	.0	.0	.1	5.5	9.3	16.2	23.1	30.0	36.9	43.8	50.7	57.6	64.5	71.4
ALLOCATED TO														
DEPRECIATION	.0	.0	.0	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2
BUSINESS AND RESERVE FUNDS	.0	.0	.0	.2	.4	.7	.7	.7	.7	.7	.7	.7	.7	.7
REMAINING FOR DISTRIBUTION	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

Financial Rate of Return

Base Case		= 14.05
Investment Costs	+10%	= 12.15
Net Benefit	-10%	= 11.95

ANNEX 7
Table 19

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Farm Model: Vineyard (1 ha)
A. Investment Cost

Investment Items	Capacity or total units	Costs per unit	Investment Costs				
			Year 1	Year 2	Local	Foreign Exchange	Total
			Din				
Land Preparation							
Deep ploughing	1 ha	5,000	5,000		4,500	500	5,000
Tractor Services	4 days	650	2,600		2,340	260	2,600
Manure	25 m ton	500	12,500		12,500	-	12,500
Fertilizer 1/			4,860	2,305	4,801	2,365	7,165
Water 2/			1,500	1,500	3,000	-	3,000
Subtotal			26,460	3,805	27,141	3,125	30,265
Planting							
Wine roots	3,740	7	26,180		11,257	14,923	26,180
Trellises 3/				33,100	22,177	10,923	33,100
Plant protection 4/			232	453	459	226	685
Hired labor	550 hours	12	6,000		6,000	-	6,000
Family labor	150 hours	12	1,800	1,200	3,000	-	3,000
Subtotal			34,212	34,753	42,893	26,072	68,965
Total Investments without contingencies			60,672	38,558	70,034	29,196	99,230
Physical contingencies 5%			3,034	1,928	3,502	1,460	4,962
Total Investment Cost			63,706	40,486	73,536	30,656	104,192

1/ 200 kg Nitrogen (27%) at 2.40 din/kg and 1200 kg complex fertilizer at 3.65 Din/kg in the first year and 200 kg N (27%) and 500 kg complex fertilizer 0:20:30 in the second year

2/ 500 Din variable and 1000 ha fixed water charge

3/ 480 concrete posts at 50 Din per piece and 650 kg wire at 14 Din/kg

4/ first year: 4 kg of Dithan at 55.5 Din/kg, 1 kg Kosan at 10 Din/kg
second year: 6 kg of Dithan and 12 kg of Kosan

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Farm Model: Vineyard (1 ha)

B. Development of Yield

	Yields or number of units at full development	Costs or prices	without project	Years 3	4	5	6-25
Grapes sold, kg	12,000			4,000	7,000	10,000	12,000

C. Projected Income and Operating Costs

			Din				
Income							
Grapes	12,000	4.4/1	8,500/3	14,000/2	24,500/2	44,000	52,800
Total Income			8,500	14,000	24,500	44,000	52,800
Operating Costs							
Seed			60/4				
Fertilizer			2,460/6	1,685	2,790/5	2,790	2,790
Plant Protection			525/9	453/7	1,729/8	1,729	1,729
Water /10			3,000	3,000	3,000	3,000	3,000
Hired Tractor Service	2.5 days	600	300	1,500	1,500	1,500	1,500
Hired unskilled labor	27 days/11	100		1,200	2,700	2,700	2,700
Maintenance of trellises							1,000
Insurance /12			255	420	735	1,320	1,584
Tax /13				1,400	1,400	1,400	1,400
Interest on seasonal credit /14			198	290	416	433	471
Total Operating Costs			6,798	9,948	14,270	14,872	16,174
Net Income			1,702	4,052	10,230	29,128	36,626

/1 50 % Vranac at 5 Din/kg, 20% Merlo at 5 Din/kg, 30% Smeberevka and Zilavka at 4 Din/kg
/2 3.50 Din/kg because of lower quality
/3 5000 kg corn at 1.70 Din/kg
/4 30 kg at 2 Din/kg
/5 grapes 600 kg complex fertilizer 0:20:30 at 3.65 and 250 kg Nitrogen (27%) at 2.40 Din/kg
/6 corn 500 kg complex fertilizer 0:20:30 and 265 kg Nitrogen (27%)
/7 see investment table, footnote 5
/8 6 kg of Dithan at 55.5 Din/kg, 13 kg of Kosan at 10 Din/kg, 13 kg of Fitoran at 20 Din/kg, 8 kg of Sandovit at 10 Din/kg, 20 kg of lime mixture at 22 Din/kg, 60 kg of Sumpor at 4.6 Din/kg and 6 kg of Diazinon at 35 Din/kg
/9 kg Gardona Sk 175 Din/kg
/10 2000 Din variable water costs + 1000 Din fixed water charge
/11 half of the labor for harvest and cutting
/12 3% of the production value
/13 contribution to the wine fund
/14 based on 50% of operating expenses for 6 months at an annual interest rate of 12%

APPRAISAL OF
AGRICULTURE AND AGROINDUSTRIES II PROJECT
YUGOSLAVIA

MACEDONIA
VINEYARD-CASH FLOW PROJECTIONS
(DIN 000)

	YEAR (01)	(02)	(03)	(04)	(05)	(06)	(07)	(08)	(09)	(10)
CASH INFLOW										
RETURNS	.0	.0	14.0	24.0	44.0	53.0	53.0	53.0	53.0	53.0
OWNED FUNDS	14.0	11.0	.0	.0	.0	.0	.0	.0	.0	.0
IBRD LOAN	28.2	18.8	.0	.0	.0	.0	.0	.0	.0	.0
SBS LOAN	31.8	21.2	.0	.0	.0	.0	.0	.0	.0	.0
SHORT TERM LOAN	.0	.0	5.0	7.0	8.0	8.0	8.0	8.0	8.0	8.0
SUB TOTAL	74.0	51.0	19.0	31.0	52.0	61.0	61.0	61.0	61.0	61.0
CASH OUTFLOW										
INVESTMENT AND REPLACEMENT COSTS	74.0	51.0	.0	.0	.0	.0	.0	.0	.0	.0
OPERATING COSTS	.0	.0	10.0	14.0	15.0	16.0	16.0	16.0	16.0	16.0
SUBTOTAL	74.0	51.0	10.0	14.0	15.0	16.0	16.0	16.0	16.0	16.0
SURPLUS CASH FOR DEBT SERVICE	.0	(.0)	9.0	17.0	37.0	45.0	45.0	45.0	45.0	45.0
LOAN REPAYMENTS										
ANNUITY, IBRD LOAN	.0	.0	.0	.0	.0	19.5	19.5	19.5	19.5	19.5
ANNUITY, SBS LOAN	.0	.0	.0	.0	.0	17.4	17.4	17.4	17.4	17.4
SHORT TERM LOAN	.0	.0	5.0	7.0	8.0	8.0	8.0	8.0	8.0	8.0
SUBTOTAL DEBT SERVICE	.0	.0	5.0	7.0	8.0	44.9	44.9	44.9	44.9	44.9
NET CASH INFLOW										
ANNUAL	.0	(.0)	4.0	10.0	29.0	.1	.1	.1	.1	.1
CUMULATIVE	.0	(.0)	4.0	14.0	43.0	43.1	43.2	43.3	43.4	43.5
INCREMENTAL CASH FLOW FOR FINANCIAL RATE OF RETURN	(65.0)	(42.0)	2.0	9.0	27.0	35.0	35.0	35.0	35.0	35.0

Financial Rate of Return

Base Case		= 20.15
Investment Costs	+10%	= 18.85
Operating Costs	+10%	= 19.25
Revenues	-10%	= 17.75

ANNEX 7
Table 22

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Farm Model: Peaches (1 ha)

A. Investment Costs

Investment Items	Capacity or total units	Costs per Unit	Investment Costs						
			Year 1	2	3	4	Local	Foreign Exchange	Total
			Din						
Land Preparation									
Deep Ploughing	1 ha	5,000	5,000				4,500	500	5,000
Tractor services/1	3 days	650	1,950	1,950	1,950	1,950	7,020	780	7,800
Manure	25 m ton	500	12,500				12,500	-	12,500
Fertilizer			5,340/2	2,660/3	2,660	3,630/4	9,574	4,716	14,290
Water /5			3,000	3,000	3,000	3,000	12,000	-	12,000
Subtotal			27,790	7,610	7,610	8,580	45,594	5,996	51,590
Planting									
Plants	889	25	22,225				22,225	-	22,225
Poles	889	0.5	445				298	147	445
Plant Protection			300/6	1,035/7	1,035	1,035	2,281	1,124	3,405
Hired Labor	3 days	100	300				300	-	300
Family Labor	14 days	100	1,400	1,000	1,000	1,000	4,400	-	4,400
Subtotal			24,670	2,035	2,035	2,035	29,504	1,271	30,775
Total Investments without contingencies			52,460	9,645	9,645	10,615	75,098	7,267	82,365
Physical contingency 5%			2,623	482	482	531	3,758	363	4,118
Total Investment			55,083	10,127	10,127	11,146	78,853	7,630	86,483

/1 Interrow cultivation
/2 400 kg Nitrogen (27%) at 2.40 DIn/kg and 1200 kg complex fertilizer 0:20:30 at 3.65 Din/kg
/3 500 kg Nitrogen (27%) and 400 kg complex fertilizer 0:20:30
/4 600 kg Nitrogen (27%) and 700 kg complex fertilizer
/5 fixed (1000 Din/ha) and variable water costs
/6 10 kg lime product at 30 Din/kg
/7 25 kg of copper mixture at 15 Din/kg, 10 kg of lime mixture at 30 Din/kg Bentox at 6 Din/kg
/8 Half of the labor for planting

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Farm Model: Peaches (1 ha)

B. Development of Yields (tons)

	Years		
	5	6	7-18
Peaches			
For fresh consumption	4	12	16
For Processing	1	2.5	4

C. Projected Income and Operating Costs

	Number of Units	Costs or Prices	Without Project	Years 5	6	7-18
			Din			
Income						
Peaches for fresh consumption		4,500	8,500/1	16,000	54,000	72,000
Peaches for processing		2,000		2,000	5,000	8,000
Total Income			8,500	18,000	59,000	80,000
Operating Costs						
Seed			60/2			
Fertilizer			2,460/4	3,630/3	3,630	3,630
Plant Protection			526/6	3,764/5	3,764	3,764
Water/7			3,000	3,000	3,000	3,000
Tractor Services	5 days	650	300	3,250	3,250	3,250
Wooden boxes	150	5		200	560	750
Hired labor/8	50 days	100		2,500	3,700	5,000
Insurance			255	1,400	4,720	6,400
Interest on seasonal credit			198	533	679	774
Total Operating Expenses			6,798	18,097	23,303	26,568
Net Income			1,702	97	35,697	53,432

1/ 5,000 kg corn at 1.7 Din/kg
2/ 30 kg at 2 Din/kg
3/ 600 kg Nitrogen (27%) at 2.4 Din/kg and 600 kg complex fertilizer 0:20:30 at 3.65 Din/kg
4/ 265 kg Nitrogen (27%), 500 kg complex fertilizer 0:20:30
5/ 12 kg of Kreozon at 19.5 Din/kg, 60kg of copper mixture at 12.5 Din/kg, 9 kg of Dithan at 55.5 Din/kg, 12 kg of Cosan at 10 Din/kg, 6 kg of Zolon at 25 Din/kg, 1 kg of Sandovit at 10 Din/kg + spraying at Din2000/ha
6/ 9 kg Gardona Sk 175 Din/kg
7/ Fixed charge 1000 Din/ha _ variable charge
8/ Pruning and half of the labor for harvesting
9/ 8% of the production value.

APPRAISAL OF
AGRICULTURE AND AGROINDUSTRIES II PROJECT
YUGOSLAVIA

MACEDONIA
PEACHES CASH FLOW PROJECTIONS
(DIN 000)

	YEAR (01)	(02)	(03)	(04)	(05)	(06)	(07)	(08)	(09)	(10)
CASH INFLOW										
RETURNS	.0	.0	.0	.0	18.0	59.0	80.0	80.0	80.0	80.0
OWNED FUNDS	13.0	3.0	3.0	4.0	.0	.0	.0	.0	.0	.0
IBRDLOAN	23.9	4.7	5.2	6.1	.0	.0	.0	.0	.0	.0
SBS LOAN	27.1	5.3	5.8	6.9	.0	.0	.0	.0	.0	.0
SHORT TERM LOAN	.0	.0	.0	.0	9.0	12.0	13.0	13.0	13.0	13.0
SUB TOTAL	64.0	13.0	14.0	17.0	27.0	71.0	93.0	93.0	93.0	93.0
CASH OUTFLOW										
INVESTMENT AND REPLACEMENT COSTS	64.0	13.0	14.0	17.0	.0	.0	.0	.0	.0	.0
OPERATING COSTS	.0	.0	.0	.0	18.0	23.0	27.0	27.0	27.0	27.0
SUBTOTAL	64.0	13.0	14.0	17.0	18.0	23.0	27.0	27.0	27.0	27.0
SURPLUS CASH FOR DEBT SERVICE	.0	(.0)	.0	.0	9.0	48.0	66.0	66.0	66.0	66.0
LOAN REPAYMENTS										
ANNUITY, IBRD LOAN	.0	.0	.0	.0	.0	15.9	15.9	15.9	15.9	15.9
ANNUITY, SBS LOAN	.0	.0	.0	.0	.0	13.8	13.8	13.8	13.8	13.8
SHORT TERM LOAN	.0	.0	.0	.0	9.0	12.0	13.0	13.0	13.0	13.0
SUBTOTAL DEBT SERVICE	.0	.0	.0	.0	9.0	41.7	42.7	42.7	42.7	42.7
NET CASH INFLOW										
ANNUAL	.0	(.0)	.0	.0	.0	6.3	23.3	23.3	23.3	23.3
CUMULATIVE	.0	(.0)	(.0)	(.0)	(.0)	6.3	29.6	52.9	76.2	99.5
INCREMENTAL CASH FLOW FOR FINANCIAL RATE OF RETURN	(57.0)	(12.0)	(12.0)	(13.0)	(2.0)	34.0	52.0	52.0	52.0	52.0

Financial Rate of Return

Base Case		= 23.65
Investment Costs	+10%	= 22.25
Operating Costs	+10%	= 22.65
Revenues	-10%	= 21.05

ANNEX 7
Table 25

ANNEX 7
Table 26

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Farm Model: Plastic House (1 ha)

A. Investment Cost

Investment Items	Capacity or total units	Costs per unit	Investment Costs, Year 1		
			Local	Foreign Exch.	Total
		---Din---	----------Din----------		
Aluminium tubes	800 pieces	700	364,000	196,000	560,000
Nozzles	1,476 pieces	20	19,013	10,238	29,250
Manila Hemp	1,000 kg	40	40,000	-	40,000
Plastic	3,600 kg	30	8,100	2,700	10,800
Services 1/			1,810		1,810
Subtotal			432,923	208,938	641,860
Physical Contingencies 5%			21,646	10,446	32,093
Total			454,569	219,384	673,953

B. Development of Yield

	Without project	Year 1	Year 2	Year 3-9	Year 10
Total Tomatoes produced, m tons	30	40	45	45	45

1/ ploughing, manure, spreading and transportation

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Farm model: Plastic House (1 ha)

C. Projected Income and Operating Costs

	Yields or Number of Units in full development	Costs or price per unit	Without project	Year 1	Year 2	Year 3-9	Year 10
			Din				
Income 1/							
Tomatoes sold							
May - June 10	10 m ton	14,000	40,000/2	128,000	140,000	140,000	140,000
June 10 - July 20	20 m ton	9,000	36,000/3	162,000	180,000	180,000	180,000
After July 20	15 m ton	3,500	60,000/4	50,750	52,500	52,500	52,500
Salvage Value of Plastic House							290,000
Total Income			136,000	340,750	372,500	372,500	662,500
Operating Costs							
Fertilizer 5/			3,800	5,400	5,400	5,400	5,400
Manure 6/	8 m ton /6	500	4,000	4,000	4,000	4,000	4,000
Irrigation 7/			1,000	1,500	1,500	1,500	1,500
Seedlings	40,000	0.2	8,000	8,000	8,000	8,000	8,000
Plant protection			1,600	2,300	2,300	2,300	2,300
Plastic 8/	1,800 kg	30			54,000	54,000	54,000
Maintenance 9/						29,600	29,600
Hired Unskilled Labor 10/	125 days	100	8,000	12,500	12,500	12,500	12,500
Services 11/			350	350	350	350	350
Insurance 12/			4,080	10,222	12,315	13,312	13,312
Interest on seasonal credit 13/			617	885	2,007	2,619	2,619
Total Operating Costs			31,447	45,157	102,372	133,581	133,581
Net Income			104,553	295,593	270,127	238,919	528,919

1/ Domestic sales only
2/ 4 m ton at 10,000 Din (lower quality later sales)
3/ 6 m ton at 6,000 Din
4/ 20 m ton at 3,000 Din
5/ 1,200 kg N:P:K 10:12:26 at 3.50 Din/kg and 500 kg KAN at 2.40 Din/kg
6/ 45 m ton every third year
7/ own well Din.800 maintenance costs and Din.700 pumping costs
8/ Replacement of half of the plastic material each year at 30 Din/kg
9/ 40 Aluminium tubes and 80 nozzles
10/ Half of the labor required for picking
11/ Ploughing transportation and spreading of fertilizer
12/ 3 per cent of production value
13/ Based on 50 percent of the operating expenses for 4 months at 12%

APPRAISAL OF
AGRICULTURE AND AGROINDUSTRIES II PROJECT
YUGOSLAVIA

MACEDONIA
PLASTIC HOUSE-CASH FLOW PROJECTION
(DIN 000)

	YEAR (01)	(02)	(03)	(04)	(05)	(06)	(07)	(08)	(09)	(10)
CASH INFLOW										
RETURNS	341.0	372.0	372.0	372.0	372.0	372.0	372.0	372.0	372.0	372.0
OWNED FUNDS	135.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
IBRD LOAN	253.8	.0	.0	.0	.0	.0	.0	.0	.0	.0
SBS LOAN	286.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
SHORT TERM LOAN	23.0	51.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0
SUB TOTAL	1039.0	423.0	439.0	439.0	439.0	439.0	439.0	439.0	439.0	439.0
CASH OUTFLOW										
INVESTMENT AND REPLACEMENT COSTS	674.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
OPERATING COSTS	45.0	102.0	134.0	134.0	134.0	134.0	134.0	134.0	134.0	134.0
SUBTOTAL	719.0	102.0	134.0	134.0	134.0	134.0	134.0	134.0	134.0	134.0
SURPLUS CASH FOR DEBT SERVICE	320.0	321.0	305.0	305.0	305.0	305.0	305.0	305.0	305.0	305.0
LOAN REPAYMENTS										
ANNUITY, IBRD LAON	.0	68.6	68.6	68.6	68.6	68.6	.0	.0	.0	.0
ANNUITY, SBS LOAN	.0	70.3	70.3	70.3	70.3	70.3	.0	.0	.0	.0
SHORT TERM LOAN	23.0	51.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0
SUBTOTAL DEBT SERVICE	23.0	189.9	205.9	205.9	205.9	205.9	67.0	67.0	67.0	67.0
NET CASH INFLOW										
ANNUAL	297.0	131.1	99.1	99.1	99.1	99.1	238.0	238.0	238.0	238.0
CUMULATIVE	297.0	428.1	527.2	626.3	725.4	824.5	1062.5	1300.5	1538.5	1776.5
INCREMENTAL CASH FLOW FOR FINANCIAL RATE OF RETURN	(*)	165.0	134.0	134.0	134.0	134.0	134.0	134.0	134.0	424.0

Financial Rate of Return

Base Case	= 28.05
Investment Costs +10%	= 23.75
Operating Costs +10%	= 24.85
Revenues -10%	= 20.25

ANNEX 7
Table 28

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Farm Model: Mechanization
A. Investment Projections

Investment Items	Capacity or Total Units	Cost per Unit	Total Investment Costs			Year 1	Year 2
			Total	Local	Foreign Exchange		
			Dinars				
On Large Tractor Farm							
Trailer m ton 533,020	1	79,000	79,000	60,830	18,170	79,000	-
Trailer	1	20,731	20,731	15,963	4,768	20,731	-
Plough	1	6,876	6,876	5,295	1,581	6,876	-
Harrow	1	5,000	5,000	3,850	1,150	5,000	-
Tiller	1	16,665	16,665	12,832	3,833	16,665	-
Cows	2	10,000	20,000	20,000	-	20,000	-
Interspace Cultivator	1	9,660	9,660	7,438	2,222	-	9,660
Sprayer	1	13,500	13,500	10,395	3,105	-	13,500
Mover	1	9,932	9,932	7,648	2,284	-	9,932
Subtotal			181,364	144,251	37,113	171,364	33,092
On Cooperating Farms							
Honda 6.5	3	22,230	66,690	51,351	15,339	66,690	-
Tiller	3	1,980	5,940	4,574	1,366	5,940	-
Trailer	3	5,900	17,700	13,629	4,071	17,700	-
Interspace plough	3	1,350	7,818	6,020	1,798	4,050	3,768
Interspace Cultivator	3	1,256	3,768	2,901	867	3,768	-
Subtotal			101,916	78,475	23,441	98,148	3,768
Total			283,280	222,726	60,554	246,420	36,860
Physical Contingencies 5%			14,164	11,136	3,028	12,321	1,843
TOTAL			297,444	233,862	63,582	258,741	38,703

ANNEX 7
Table 29

APPRAISAL OF
AGRICULTURE AND AGROINDUSTRIES II PROJECT
YUGOSLAVIA

MACEDONIA
MECHANIZATION-CASH FLOW PROJECTION
(DIN 000)

	YEAR (01)	(02)	(03)	(04)	(05)	(06)	(07)	(08)	(09)	(10)
CASH INFLOW										
RETURNS	277.0	336.0	371.0	425.0	425.0	425.0	425.0	425.0	425.0	425.0
OWNED FUNDS	59.0	9.0	.0	.0	.0	.0	.0	.0	.0	.0
IBRD LOAN	112.8	18.8	.0	.0	.0	.0	.0	.0	.0	.0
SBS LOAN	127.2	21.2	.0	.0	.0	.0	.0	.0	.0	.0
SHORT TERM LOAN	51.0	63.0	74.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0
SUB TOTAL	627.0	448.0	445.0	509.0	509.0	509.0	509.0	509.0	509.0	509.0
CASH OUTFLOW										
INVESTMENT AND REPLACEMENT COSTS	299.0	49.0	.0	.0	.0	.0	.0	.0	.0	.0
OPERATING COSTS	102.0	126.0	148.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
SUBTOTAL	401.0	175.0	148.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
SURPLUS CASH FOR DEBT SERVICE	226.0	273.0	297.0	341.0	341.0	341.0	341.0	341.0	341.0	341.0
LOAN REPAYMENTS										
ANNUITY ,IBRD LOAN	.0	30.6	30.6	30.6	30.6	30.6	30.6	30.6	.0	.0
ANNUITY,SBS LOAN	.0	29.5	29.5	29.5	29.5	29.5	29.5	29.5	.0	.0
SHORT TERM LOAN	51.0	63.0	74.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0
SUBTOTAL DEBT SERVICE	51.0	123.1	134.1	144.1	144.1	144.1	144.1	144.1	84.0	84.0
NET CASH INFLOW										
ANNUAL	175.0	149.9	162.9	196.9	196.9	196.9	196.9	196.9	257.0	257.0
CUMULATIVE	175.0	324.9	487.8	684.7	881.6	1078.5	1275.4	1472.3	1729.3	1986.3
INCREMENTAL CASH FLOW FOR FINANCIAL RATE OF RETURN	(*)	(10.0)	42.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0

Financial Rate of Return

Base Case		= 17.45
Investment Costs	+10%	= 15.35
Operating Costs	+10%	= 10.65
Revenues	-10%	= 7.95

ANNEX 7
Table 30

ANNEX 7
Table 31

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Farm Model: Mechanization
B. Development of Yields

Volume Produced /1	Number of Units at full development	Costs or Price per Unit Din	Without Project	Year 1	Year 2	Year 3	Year 4 - 12
			m tons				
Wheat	12.25		15.75	15.75	14	13.0	12.25
Barley and Rye	-		3.00	3.00	3	2.4	-
Corn	20.00		22.50	22.50	20	20.0	20.00
Tomatoes	30.00		12.00	12.00	18	24.0	30.00
Peppers	50.00		20.00	20.00	30	37.5	50.00
Melons	14.00		8.00	8.00	12	12.0	14.00
Onions	12.00		6.00	6.00	9	9.0	12.00

C. Income and Operating Costs Projections

		Din	'000 Din				
Sales							
Wheat	12.25	2,100	33.1	33.1	29.4	27.3	25.7
Barley and Rye	-	2,000	6.0	6.0	6.0	4.8	-
Corn	20.00	1,700	38.3	38.3	34.0	34.0	34.0
Tomatoes	24.00	3,400	40.8	40.8	61.2	81.6	102.0
Peppers	50.00	2,400	48.0	48.0	72.0	90.0	120.0
Melons	14.00	2,000	16.0	16.0	24.0	24.0	28.0
Onions	12.00	2,200	13.2	13.2	19.8	19.8	26.4
Milk	18.00	4,000	48.0	56.0	72.0	72.0	72.0
Calves	7.00	1,200	7.2	8.4	8.4	8.4	8.4
Cull cows	2.50	3,500	7.0	8.8	8.8	8.8	8.8
Horses	-		-	8.0			
Subtotal			257.6	276.6	335.6	370.7	425.3
Operating Costs							
Seed		/2	14.8	14.8	21.2	25.6	31.1
Fertilizer		/3	31.3	31.3	32.9	35.9	37.5
Plant Protection		/4	9.6	9.6	10.3	10.6	11.8
Water		/5	13.3	13.3	18.0	19.0	20.0
Concentrates			3.0	5.0	6.0	6.0	6.0
Tractor and Machinery Costs							
Maintenance and Repairs		/6		6.5	6.5	13.0	13.0
Fuel, Oil, etc.				20.0	24.0	25.0	27.0
Hired labor		/7	4.0	-	5.4	10.3	19.2
Interest in Seasonal Credit			1.5	2.0	2.5	2.9	3.3
Subtotal			77.5	102.5	126.8	148.3	168.9
Net Income			180.1	174.1	208.8	222.4	256.4

/1 For structure of land use and yields see Table 31.
/2 Seed Costs per ha: grain 130 kg at 2.20 Din/kg; corn 30 kg at 2 Din/kg; peppers 50,000 seedlings at 0.20 Din per piece; tomatoes 40,000 seedlings at 0.90 Din per piece; melons 5 kg at 400 Din/kg; onions 5 kg at 500 Din/kg
/3 Fertilizer costs per ha: Grain 400 kg complex fertilizer 0:20:30 at 3.65 Din/kg; 150 kg Nitrogen (27%) at 2.40 Din/kg; corn 600 kg complex fertilizer);20:30, 250 kg nitrogen (27%); vegetables 850 kg N:P:R: at 3.50 Din/kg, 350 kg Nitrogen (27%); alfalfa 200 kg complex fertilizer 0:20:30
/4 Vegetables: 40 kg Yeolin at 14 Din/kg; 20 kg Cineb at 16 Din/kg; 5 kg Etcol at 12 Din/kg; corn 9 kg Gardon at 175 Din/kg
/5 Pumping costs from own well 0.6 Din/m^3; only corn, vegetables and alfalfa irrigated
/6 5% of the investment value
/7 50% of the labor for picking and 20% of the labor for planting of tomatoes and peppers

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Farm Model: Mechanization
D. Projection of Land Use and Number of Cows

	Without Project			Year 1			Year 2			Year 3			Year 4-12		
	a/1	b/2	total	a	b	total	a	b	total	a	b	total	a	b	total
	ha														
Wheat	1.5	3.0	4.5	1.5	3.0	4.5	1.3	2.7	4.0	1.3	2.4	3.7	1.1	2.4	3.5
Barley	0.2	0.3	0.5	0.2	0.3	0.5	0.2	0.3	0.5	0.1	0.3	0.4	-	-	-
Rye	0.2	0.3	0.5	0.2	0.3	0.5	0.2	0.3	0.5	0.1	0.3	0.4	-	-	-
Corn	1.5	3.0	4.5	1.5	3.0	4.5	1.3	2.7	4.0	1.3	2.7	4.0	1.3	2.7	4.0
Tomatoes	0.1	0.3	0.4	0.1	0.3	0.4	0.1	0.5	0.6	0.2	0.6	0.8	0.3	0.7	1.0
Peppers	0.2	0.6	0.8	0.2	0.6	0.8	0.4	0.8	1.2	0.5	1.0	1.5	0.7	1.3	2.0
Melons	0.1	0.3	0.4	0.1	0.3	0.4	0.2	0.4	0.6	0.2	0.4	0.6	0.2	0.5	0.7
Onions	0.1	0.3	0.4	0.1	0.3	0.4	0.2	0.4	0.6	0.2	0.4	0.6	0.3	0.5	0.8
Alfalfa	1.5	2.4	3.9	1.5	2.4	3.9	1.5	2.4	3.9	1.5	2.4	3.9	1.5	2.4	3.9
Meadows & pastures	2.0	2.4	4.4	2.0	2.4	4.4	2.0	2.4	4.4	2.0	2.4	4.4	2.0	2.4	4.4
Total ha	7.4	12.9	20.3	7.4	12.9	20.3	7.4	12.9	20.3	7.4	12.9	20.3	7.4	12.9	20.3
Cows - head	4	6	10	6	6	12	6	6	12	6	6	12	6	6	12

/1 a = larger farms with 4-wheel trailer investment
/2 b = 3 smaller farms with 2-wheel trailer investment

large trailer farms and small farms exchange services (deep ploughing transportation, spraying, intercrop cultivation) at a level which amounts to net payments of 12,000 Din per year from the smaller farms to the larger trailer farms.

ANNEX 7
Table 32

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Table 33

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Farm Model: Dairy Farm (6 Cows)

A. Investment Costs

Investment Items	Capacity or Total Units	Costs per Unit	Investment Costs - Year 1		
			Local	Foreign Exchange	Total
			----------Din----------		
Cow stable inc. storage for home grown fodder /1	6	22,000	121,440	10,560	132,000
Farm Equipment /2			10,000	2,500	12,500
Heifers in calf	3	14,000	42,000	-	42,000
Total investments without contingencies			173,440	13,060	186,500
Contingency 5%			8,672	653	9,325
Total Investment			182,112	13,713	195,825

B. Development of Yields

Volume	Yields							
	Without Project	Year						
		1	2	3	4	5	6	7-20
Milk- kg	2,400	9,900	10,800	14,200	16,500	16,800	16,800	16,800
Cull cows	0.6	1	2			1	1	1.2
Heifers in calf						1	1	1.8
Male calves	1.8	3	3	3	3	3	3	3

1/ new stable for total number of cows

2/ Milk equipment, mower, trailer

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Farm Model: Dairy Farm (6 Cows)
D. Herd Projection

	Without Project	Years 1	2	3	4	5	6	7	8
Cows									
Busha	3	3	3	1					
Montafon		3	3	5	6	6	6	6	6
Female Calves born									
Busha	1	1	1	1					
Montafon		2	1	2	2	3	3	3	3
Heifers under 1 yr.									
Busha	1								
Montafon		2	1	2	2	3	3	3	3
Heifers 1 - 2 years									
Busha	1	1							
Montafon			2	1	2	2	3	3	3
Male calves born									
Busha	1	1	1						
Montafon		1	2	2	3	3	3	3	3
Sale Montafon calves under 1 year		1	2	2	3	3	3	3	3
Sales									
Fattened calves									
Busha		2	1	1					
Montafon		1	2	2	3	3	3	3	3
Cull cows									
Busha	1	1	2						
Montafon					1	1	1	1	1
Heifers over 2 yrs									
Busha		1	1	1					
Montafon						1	1	2	1
Heifer purchased		3							

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Farm Model: Dairy Farm (6 Cows)
C. Income and Operating Costs Projections

	Yields or number of units at full development	Costs or Prices per unit	Without Project	Years 1	2	3	4	5	6	7-20
			Din							
Income										
milk	16,800 kg/1	4	9,600	39,600	43,200	56,800	66,000	67,200	67,200	67,200
heifers in calf	1.8 head/3	12,000						12,000	12,000	12,000
cull cows	1.2 head/2	/5	2,100	3,500	7,000			6,000	6,000	7,200
male calves	3 head	/6	2,160	4,100	4,600	5,100	5,100	5,100	5,100	5,100
Total Income			13,860	47,200	54,800	61,900	71,100	90,300	90,300	91,500
Operating Cost										
fertilizer /7			550	550	7,370	9,220	9,220	9,220	9,220	9,220
water /8		3,000ha	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000
concentrates/9				6,900	6,900	11,500	11,500	13,850	13,850	13,850/10
veterinary service			300	3,600	3,600	3,600	3,600	3,600	3,600	3,600
Electricity, water & miscellaneous			1,000	2,000	2,000	2,000	2,000	2,500	2,500	2,500
maintenance								2,500	2,500	2,500
insurance /11			500	2,500	2,500	3,900	3,900	3,900	3,900	3,900
interest on seasonal credit			190	500	500	594	594	641	641	641
Total Operating Costs			11,540	25,050	31,870	39,814	39,814	45,211	45,211	45,211
Net Income			2,320	22,150	22,930	22,086	31,286	45,089	45,089	45,289

/1 Production minus consumption for raising of calves
/2 20% of the total number of cows (1-2 per year at full development)
/3 production minus heifers for replacement/none pregnant cows are replaced at the end of the lactation period
/4 all calves (female and male) not needed for replacement
/5 Busha cows 350 kg at 10 Din/kg , Montafon 500 kg at 12 Din/kg
/6 Busha calves 80 kg at 15 Din/kg, Montafon 100 kg at 17 Din/kg
/7 Total fertilizer consumption inc. pastures at full development: 2000 kg complex fertilizer (0:20:30) at 3.65 Din/kg, 800 kg N(27%) at 2.40 Din/kg
/8 Fixed and variable water charge
/9 3,500 kg of mixed concentrates at 2.5 Din/kg and 300 kg substitute for milk at 17 Din/kg
/10 medicine and A.I. Service 600 Din/cow and corresponding calves and heifers
/11 3% of herd value
/12 based on 50% of the operating expenses for fertilizer, water and concentrates at 12% for 4 months

APPRAISAL OF
AGRICULTURE AND AGROINDUSTRIES II PROJECT
YUGOSLAVIA

MACEDONIA
DAIRY-CASH FLOW PROJECTION
(DIN 000)

	YEAR (01)	(02)	(03)	(04)	(05)	(06)	(07)	(08)	(09)	(10)
CASH INFLOW										
RETURNS	47.0	55.0	62.0	71.0	90.0	91.0	91.0	91.0	91.0	91.0
OWNED FUNDS	42.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
IBRD LOAN	86.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
SBS LOAN	97.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
SHORT TERM LOAN	12.0	16.0	20.0	20.0	22.0	22.0	22.0	22.0	22.0	22.0
SUB TOTAL	285.0	71.0	82.0	91.0	112.0	113.0	113.0	113.0	113.0	113.0
CASH OUTFLOW										
INVESTMENT AND REPLACEMENT COSTS	226.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
OPERATING COSTS	25.0	32.0	40.0	40.0	45.0	45.0	45.0	45.0	45.0	45.0
SUBTOTAL	251.0	32.0	40.0	40.0	45.0	45.0	45.0	45.0	45.0	45.0
SURPLUS CASH FOR DEBT SERVICE	34.0	39.0	42.0	51.0	67.0	68.0	68.0	68.0	68.0	68.0
LOAN REPAYMENTS										
ANNUITY, IBRD LAON	.0	.0	.0	18.4	18.4	18.4	18.4	18.4	18.4	18.4
ANNUITY, SBS LOAN	.0	.0	.0	18.2	18.2	18.2	18.2	18.2	18.2	18.2
SHORT TERM LOAN	12.0	16.0	20.0	20.0	22.0	22.0	22.0	22.0	22.0	22.0
SUBTOTAL DEBT SERVICE	12.0	16.0	20.0	56.6	58.6	58.6	58.6	58.6	58.6	58.6
NET CASH INFLOW										
ANNUAL	22.0	23.0	22.0	(5.6)	8.4	9.4	9.4	9.4	9.4	9.4
CUMULATIVE	22.0	45.0	67.0	61.4	69.8	79.2	88.6	98.0	107.4	116.8
INCREMENTAL CASH FLOW FOR FINANCIAL RATE OF RETURN	(*)	21.0	20.0	29.0	43.0	43.0	44.0	44.0	44.0	44.0

Finanical Rate of Return

Base Case	= 19.05
Investment Costs+10%	= 17.15
Operating Costs +10%	= 16.65
Revenues -10%	= 14.45

ANNEX 7
Table 36

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Table 37

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Farm Model: Private Sector, Sheep
A. Investment Costs

Investment Item	Capacity or Total Units	Costs per Unit	Year 1 Total	Local	Foreign Exc.
			----------Din----------		
Sheep	40	650	26,000	15,600	10,400
Barn Extension, incl. storage for winter fodder	40	1,000	40,000	36,800	3,200
Rams	1	1,500	1,500	450	1,050
Subtotal			67,500	52,850	14,650
Physical Contingency	5%		3,375	2,643	733
TOTAL			70,875	55,493	15,383

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Farm Model: Private Sector, Sheep

B. Development of Yields

	Yields of Number of Units at full development	costs or Price per Unit	Without Project	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12-20
Total Volume Produced															
Lambs - head	65		36	63	61	64	59	63	62	62	60	57	65	65	65
Cull Ewes - head	24		16	16	16	19	19	23	24	24	94	97	30	25	24
Rams - head	1		0.66/1	1	1	1	1	1	1	1	1	1	1	1	1
Milk, sold by kg /2	3,600		1,200	2,400	2,340	2,565	2,655	2,805	2,865	2,970	3,090	3,225	3,375	3,555	3,600
Wool, kg /3	310		155	241	249	259	265	253	284	286	291	296	314	309	310

C. Income and Operating Costs Projections

							Dinars								
Sales															
Lambs - head	65	375	13,500	23,625	22,875	24,000	22,125	23,625	23,250	23,250	22,500	21,375	24,375	24,375	24,375
Cull Ewes - head	24	420/4	4,400	4,400	4,400	5,950	6,095	8,260	8,030	8,920	8,790	10,180	11,150	10,210	10,080
Rams - head	1	400	264	400	400	400	400	400	400	400	400	400	400	400	400
Milk sold, kg	3,600	6.9	8,280	16,500	16,146	17,698	18,319	19,354	19,768	20,493	21,321	22,252	23,287	24,529	24,840
Wool, kg	310	/5	3,090	5,090	5,550	5,580	6,100	6,460	6,680	6,820	7,020	7,400	7,750	7,750	7,750
Insurance /6			1,425	2,550	2,670	2,745	2,940	2,970	2,610	2,685	2,985	2,910	2,730	2,880	3,225
Net Income from arable land /7			2,225												
Total			33,184	52,565	52,041	56,373	55,979	61,069	60,738	62,568	63,016	64,517	69,692	70,144	70,670
Operating Costs															
Concentrates		/8	5,400	9,000	9,000	9,250	9,380	9,600	9,700	9,900	10,000	10,200	10,400	10,800	10,800
Fertilizer /9			2,000	3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100
Summer Pasture /10		14/head	1,442	2,016	2,058	2,142	2,058	2,114	2,142	2,156	2,156	2,212	2,254	2,170	2,170
Ram		800/head	266	800	800	800	800	800	800	800	800	800	800	800	800
Transport /11			600	1,200	1,170	1,280	1,325	1,402	1,432	1,485	1,545	1,612	1,687	1,777	1,800
Insurance /12			4,000	6,200	6,200	6,300	6,300	6,400	6,400	6,500	6,600	6,700	6,800	6,800	6,800
Ram replacement		1,500/head	990	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Total			14,698	23,816	23,828	24,382	24,463	24,916	25,074	25,441	25,701	26,124	26,541	26,947	26,970
Net Income			18,486	28,749	28,213	31,991	31,516	36,153	35,664	35,327	37,315	38,393	41,351	43,197	43,700

/1 2 rams in 3 years
/2 Improved breeds, 30 kg per ewe, pramenka 15 kg per ewe
/3 Fleece wiehgt of 2 kg for adult sheep and yearlings of improved breeds, 1.5kg for adult sheep of pramenka
/4 Pramenka 25 kg at 11 Din/kg, improved breeds 35 kg at 12 Din/kg
/5 Pramenka 20 Din/kg, improved breeds 25 Din/kg
/6 75% of the market value of sheep, 20% of the market value of lamb
/7 Used for the production of fodder with the project (1.5 ha corn)
/8 Improved breeds per ewe 40 kg corn at 2 Din/kg and 4 kg sunflower meal at 2.5 Din/kg, pramenka 30 kg corn and 3 kg sunflower meal
/9 750 kg complex fertilizer 0:20:30 at 3.65 Din/kg and 150 kg Nitroger (27%) at 2.4 Din/kg
/10 Contribution for improvement of summer pastures
/11 0.5 kg per kg milk
/12 7% of the herd value

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Farm Model: Private Sector, Sheep

D. Flock Projection

Flock Composition	Without Project	Years 1	2	3	4	5	6	7	8	9	10	11	12-20
Improved Breeds /1													
Rams		3	3	3	3	3	3	3	3	3	3	3	3
Ewes		40/2	38	51	57	67	71	78	86	95	105	117	120
Ewe Hogget			16	15	20	22	26	29	31	35	38	32	32
Lambs		36	34	46	51	60	64	70	71	86	95	105	108
Mortality													
Ewes		2	2	3	3	4	4	4	4	5	5	5	6
Ewe hogget			1	1	1	1	1	1	1	1	1	1	2
Lambs		4	3	5	6	7	6	7	8	9	9	10	11
Sales													
Lambs		16	16	21	23	27	29	32	36	39	54	63	65
Cull Ewes				5	6	13	14	16	17	19	20	23	24
Rams		1	1	1	1	1	1	1	1	1	1	1	1
Local Breeds /3													
Rams	2												
Ewes	80	80	80	69	63	53	49	42	34	25	15	3	-
Ewe hogget	21	21	10	12	7	9	7	2					
Lambs	64	64	64	55	50	48	39	33	27	20	12	2	-
Mortality													
Ewes	4	4	4	3	3	2	3	2	2	2	2	1	-
Ewe hogget	1	1	1	1	1	1	1	-	-	-	-	-	-
Lambs	7	7	7	5	5	5	4	3	3	2	1	-	-
Sales													
Cull Ewes	16	16	16	14	13	10	10	8	6	8	10	2	-
Rams	0.66/4	2											
Lambs	36	47	45	43	36	36	33	30	24	18	11	2	-
Total number of Ewes	80	120	118	120	120	120	118	120	120	120	120	120	120

Production Indices

	Pramenka	Improved Breeds /1
Lambing rate %	80	90
Mortality lambs %	10	10
Mortality Ewes %	5	5
Culling rate Ewes %	20 /5	20
Milk kg/ewe	30	60
Wool kg/adult sheep	1.5	2

/1 Bulgarian Breeds, (Zcabatshka, Pcowidizka) or Merino-meat sheep
/2 Purchase
/3 Pramenka
/4 in 3 years
/5 New breeds from year 5 onwards

APPRAISAL OF
AGRICULTURE AND AGROINDUSTRIES II PROJECT
YUGOSLAVIA

MACEDONIA
SHEEP-CASH FLOW PROJECTION
(DIN 000)

	YEAR (01)	(02)	(03)	(04)	(05)	(06)	(07)	(08)	(09)	(10)
CASH INFLOW										
RETURNS	53.0	52.0	56.0	56.0	61.0	61.0	62.0	63.0	64.0	70.0
OWNED FUNDS	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
IBRD LOAN	35.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
SBS LOAN	39.8	.0	.0	.0	.0	.0	.0	.0	.0	.0
SHORT TERM LOAN	12.0	12.0	12.0	12.0	12.0	12.0	12.0	13.0	13.0	13.0
SUB-TOTAL	147.0	64.0	68.0	68.0	73.0	73.0	74.0	76.0	77.0	83.0
CASH OUTFLOW										
INVESTMENT AND REPLACEMENT COSTS	82.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
OPERATING COSTS	24.0	24.0	24.0	24.0	25.0	25.0	25.0	26.0	26.0	26.0
SUBTOTAL	106.0	24.0	24.0	24.0	25.0	25.0	25.0	26.0	26.0	26.0
SURPLUS CASH FOR DEBT SERVICE	41.0	40.0	44.0	44.0	48.0	48.0	49.0	50.0	51.0	57.0
LOAN REPAYMENTS										
ANNUITY ,IBRD LOAN	.0	.0	9.5	9.5	9.5	9.5	9.5	.0	.0	.0
ANNUITY, SBS LOAN	.0	.0	9.8	9.8	9.8	9.8	9.8	.0	.0	.0
SHORT TERM LOAN	12.0	12.0	12.0	12.0	12.0	12.0	12.0	13.0	13.0	13.0
SUBTOTAL DEBT SERVICE	12.0	12.0	31.3	31.3	31.3	31.3	31.3	13.0	13.0	13.0
NET CASH INFLOW										
ANNUAL	29.0	28.0	12.7	12.7	16.7	16.7	17.7	37.0	38.0	44.0
CUMULATIVE	29.0	57.0	69.7	82.4	99.1	115.8	133.5	170.5	208.5	252.5
INCREMENTAL CASH FLOW FOR FINANCIAL RATE OF RETURN	(61.0)	10.0	14.0	13.0	18.0	17.0	19.0	19.0	20.0	25.0

Financial Rate of Return

Base Case		=25.95
Investment Costs	+10%	=23.55
Operating Costs	+10%	=21.75
Revenues	-10%	=19.15

ANNEX 7
Table 40

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Macedonia
Tobacco Drying Station (200 m ton capacity)

Investment Projection

Investment Item	Year 1 Investment Costs		
	Total	Local	Foreign Exchange
	--------- Din '000 ----------		
Civil Works			
Building	5,050	4,646	404
Electrical Installations	307	282	25
Plumbing and drainage	188	173	15
Access roads	420	387	33
Equipment			
Drying room equipment	1,235	494	741
Curing room equipment	180	139	41
Installation	273	210	63
Framework for hanging tobacco	546	218	327
Metal pallets	520	401	119
Crating, freight & insurance	173	133	40
Engineering	922	922	-
Total	9,814	8,006	1,808
Physical contingencies 5%	491	401	90
TOTAL	10,305	8,407	1,898

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Macedonia
Tobacco Drying Station (200 m ton capacity)

Income and Operating Costs Projections

	Yields of number of units at full development	price per unit	years 1 - 10 ---'000 din--
Sales			
Dried tobacco /1	200 tons	40,000 Din/ton	8,000
Operating Costs			
Green tobacco	1,100 ton	4,000 Din/ton	4,400
fuel	240	2,800	672
electricity			69
labor			682
Maintenance			295
Subtotal			6,118
NET INCOME			1,882

/1 Selling price minus costs for manipulation and fermentation

APPRAISAL OF
AGRICULTURE AND AGROINDUSTRIES II PROJECT
YUGOSLAVIA

MACEDONIA
TOBACCO DRYING STATION-CASH FLOW PROJECTION
(DIN 000)

	YEAR (01)	(02)	(03)	(04)	(05)	(06)	(07)	(08)	(09)	(10)
CASH INFLOW										
RETURNS	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000
OWNED FUNDS	2902	0	0	0	0	0	0	0	0	0
IBRD LOAN	4230	0	0	0	0	0	0	0	0	0
SBS LOAN	4770	0	0	0	0	0	0	0	0	0
SHORT TERM LOAN	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
SUB TOTAL	22902	11000	11000	11000	11000	11000	11000	11000	11000	11000
CASH OUTFLOW										
INVESTMENT AND REPLACEMENT COSTS	11902	0	0	0	0	0	0	0	0	0
OPERATING COSTS	6118	6118	6118	6118	6118	6118	6118	6118	6118	6118
SUBTOTAL	18020	6118	6118	6118	6118	6118	6118	6118	6118	6118
SURPLUS CASH FOR DEBT SERVICE	4882	4882	4882	4882	4882	4882	4882	4882	4882	4882
LOAN REPAYMENTS										
ANNUITY ,IBRD LOAN	0	822	822	822	822	822	822	822	822	0
ANNUITY,SBS LOAN	0	806	806	806	806	806	806	806	806	0
SHORT TERM LOAN	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
SUBTOTAL DEBT SERVICE	3000	4628	4628	4628	4628	4628	4628	4628	4628	3000
NET CASH INFLOW										
ANNUAL	1882	254	254	254	254	254	254	254	254	1882
CUMULATIVE	1882	2136	2390	2644	2898	3152	3406	3660	3914	5796
INCREMENTAL CASH FLOW FOR FINANCIAL RATE OF RETURN	(8423)	1882	1882	1882	1882	1882	1882	1882	1882	1882

Financial Rate of Return

Base Case		= 16.85
Investment Costs	+10%	= 13.55
Net Benefit	-10%	= 13.25

ANNEX 8
Table 1

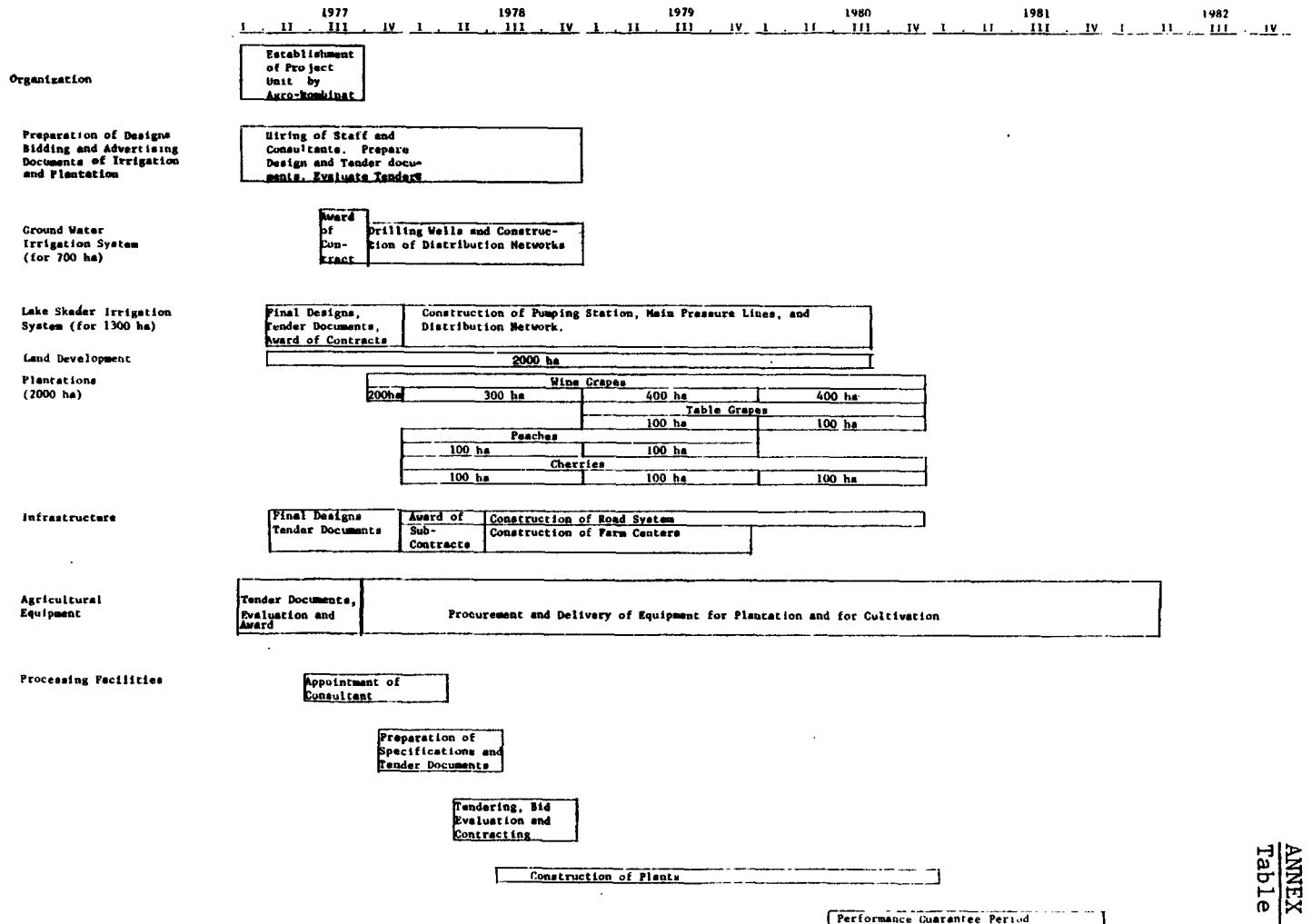
APPRAISAL OF

AGRICULTURE AND AGRO-INDUSTRIES II PROJECT

YUGOSLAVIA

Montenegro-Cemovsko Polje Project

Implementation Schedule



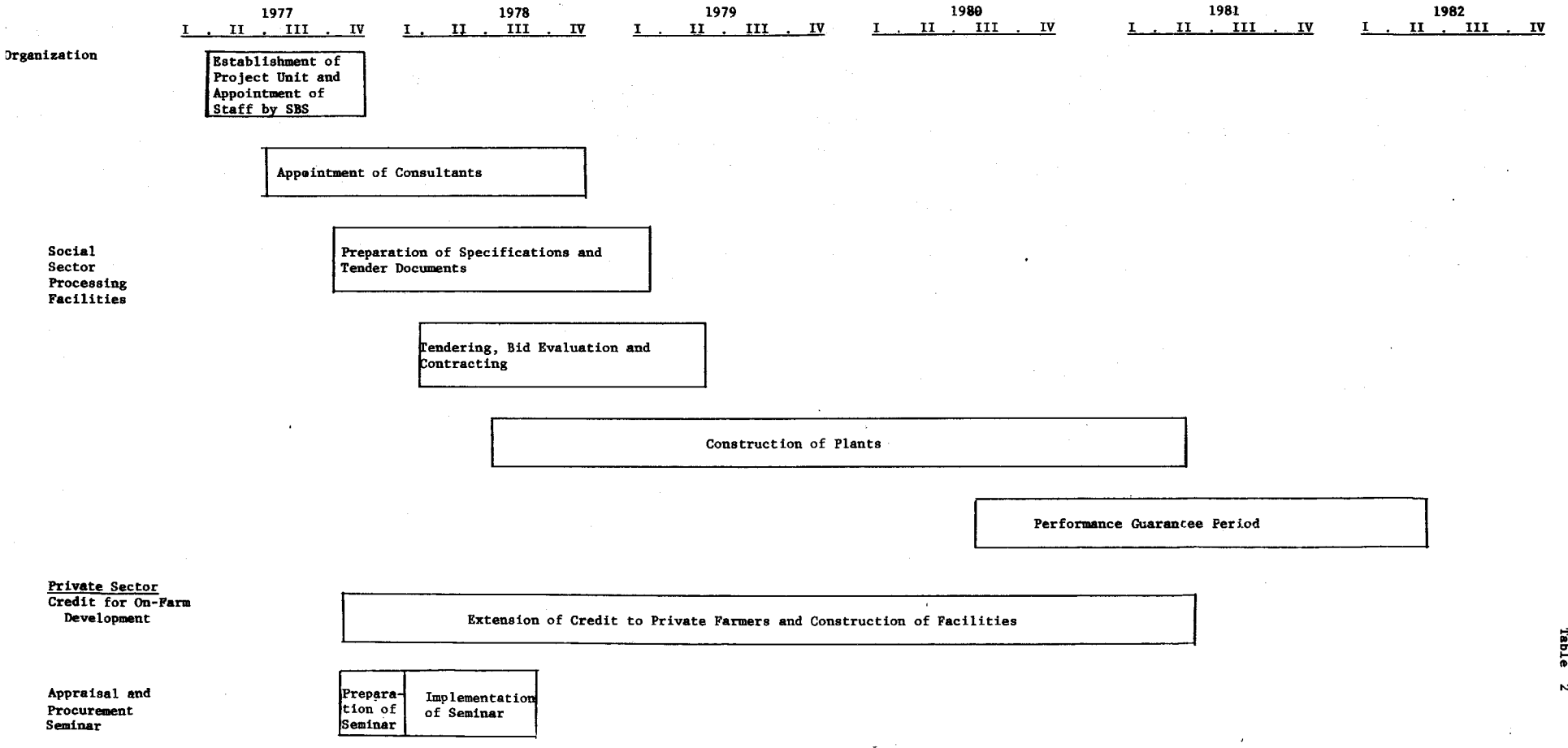
APPRAISAL OF

AGRICULTURE AND AGRO-INDUSTRIES II PROJECT

YUGOSLAVIA

MACEDONIA

Implementation Schedule



ANNEX 8
Table 2

ANNEX 9

Estimated Cumulative Quarterly Schedule of IBRD Disbursements

US$'000

Fiscal Year	Quarter	Cumulative Disbursements	
		Montenegro	Macedonia
1977	3	100	-
	4	200	100
1978	1	316	261
	2	839	522
	3	2,101	2,061
	4	3,363	3,600
1979	1	4,626	5,139
	2	5,890	6,678
	3	8,165	10,099
	4	10,440	13,520
1980	1	12,715	16,941
	2	14,990	20,362
	3	16,195	21,303
	4	17,400	22,244
1981	1	18,605	22,644
	2	19,811	22,985
	3	20,862	23,350
	4	21,913	23,600
1982	1	22,964	23,800
	2	24,016	24,000
	3	24,885	-
	4	26,000	-

January 1977

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Montenegro - Investicions Banka Titograd
Projected Statement of Project Receipts and Disbursements During Life of IBRD Loan

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Sources of Funds																
1. IBRD Loan	14.5	85.8	148.1	63.9	49.2	-	-	-	-	-	-	-	-	-	-	-
2. FNP Funds	14.5	91.7	83.8	10.0	-	-	-	-	-	-	-	-	-	-	-	-
3. IBT Own Funds	-	-	153.2	135.1	104.7	1.6	-	-	-	-	-	-	-	-	-	-
4. Government of Montenegro Funds	-	-	-	-	-	10.0	55.9	58.1	61.1	47.9	37.3	-	-	-	-	-
5. Loan Collections																
(a) IBRD Loan	-	-	-	19.5	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	18.8
(b) FNP Loan	-	-	-	-	.7	4.8	8.8	9.7	10.2	10.6	11.2	11.8	12.3	13.0	13.6	14.3
(c) IBT Loan	-	-	-	-	-	-	30.6	57.7	78.6	78.9	78.9	48.3	21.3	.3	-	-
6. Interest Collection																
(a) IBRD Loan (11.0%)/1	-	-	-	-	-	-	42.4	38.0	33.5	29.1	24.6	20.2	15.7	11.3	6.9	-
(b) FNP Loan (5.0%)/2	-	-	-	-	.9	6.1	10.7	10.9	10.4	9.9	9.3	8.8	8.2	7.6	6.9	6.3
(c) IBT Loan (8.0%)	-	-	-	12.3	23.1	31.5	30.4	26.8	21.4	14.8	8.7	3.6	.9	-	-	-
7. Annuity on Government Loan	-	-	-	-	-	-	-	-	-	-	-	-	30.1	30.1	30.1	30.1
Sub-Total	29.0	177.5	385.1	240.8	217.7	93.1	217.9	240.3	254.3	230.3	209.1	131.8	127.6	101.4	96.6	69.5
Uses of Funds																
8. Disbursements to AK																
(a) IBRD Funds	14.5	85.8	148.1	63.9	49.2	-	-	-	-	-	-	-	-	-	-	-
(b) Local Funds	14.5	91.7	237.0	145.1	104.7	11.6	55.9	58.1	61.1	47.9	37.3	-	-	-	-	-
9 Financial Expenses																
(a) Commitment Fee	1.3	2.1	1.4	.6	.2	-	-	-	-	-	-	-	-	-	-	-
(b) Interest to IBRD (8.5%)	-	-	-	-	-	-	29.2	25.9	22.7	19.4	16.2	13.0	9.8	6.5	3.2	-
(c) Cost of Local Funds (6%)/3	-	-	5.3	15.4	23.9	30.8	32.1	32.3	30.8	29.1	27.8	24.8	23.8	22.6	21.4	17.8
10. Repayment to IBRD	-	-	-	19.5	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	18.8
11. Return of Local Funds	-	-	-	-	-	.7	4.8	39.4	67.4	88.8	89.5	90.1	60.1	33.6	11.3	13.6
12. Administrative Expenses	.4	2.3	4.1	1.1	.4	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
Sub-Total	30.7	182.1	395.9	245.6	217.5	82.3	161.4	194.9	221.2	224.6	210.0	167.1	132.9	101.9	77.1	50.3
Annual Cash Inflow	(1.7)	(4.6)	(10.8)	(4.8)	.2	10.8	56.5	45.4	33.1	5.7	(.9)	(35.3)	(5.3)	(.5)	19.5	19.2
Cumulative Cash Flow	(1.7)	(6.3)	(17.1)	(21.9)	(21.7)	(10.9)	45.6	91.0	124.1	129.8	128.9	93.6	88.3	87.8	107.3	126.5
Memo Item																
Interest on IBRD Loan Capitalized	-	1.3	9.0	22.3	29.6	36.4	—	—	—	—	—	—	—	—	—	—
Interest on FNP Loan Capitalized	-	0.6	4.3	7.8	8.0	4.1	0.5	—	—	—	—	—	—	—	—	—

1/ Interest during construction up to 1982 capitalized.

2/ Interest during grace period capitalized.

3/ Excluding cost of FNP funds during grace period.

ANNEX 10
Table 1

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Macedonia - Stopanska Banka Projected Statement of
Project Receipts and Disbursements During Life of the Proposed
IBRD Loan

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
								Din Million								
Sources of Funds																
1. Local Funds/1	23.7	122.0	231.3	48.4	2.9	-	-	-	-	-	-	-	-	-	-	
2. IBRD Loan /1	9.0	105.3	226.9	16.9	1.3	-	-	-	-	-	-	-	-	-	-	-
3. Loan and Interest Collection																
(a) Social sector	-	-	-	59.9	98.7	98.7	98.7	98.7	98.7	98.7	98.7	98.7	98.7	98.7	18.8	-
(b) Private Sector	1.1	6.4	16.9	27.1	32.5	36.2	35.8	32.3	26.7	19.8	12.3	5.1	1.6	-	-	-
Sub-Total	33.8	233.7	474.1	172.3	135.4	134.9	134.5	131.0	125.4	118.5	111.0	103.8	100.3	98.7	18.8	-
Uses of Funds																
4. Loans to Sub-borrowers																
(a) Social Sector	3.2	163.6	395.4	68.0	-	-	-	-	-	-	-	-	-	-	-	-
(b) Private Sector	29.5	61.7	61.8	17.3	4.2	-	-	-	-	-	-	-	-	-	-	-
5. Financial Expenses																
(a) Commitment Fee	3.2	2.4	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
(b) Interest to IBRD (8.5%)	-	-	-	-	33.8	30.8	27.7	24.6	21.6	18.5	15.4	12.3	9.3	6.2	3.2	-
(c) Cost of Local Funds (6%)	1.4	9.0	22.8	23.4	20.8	17.8	14.8	11.8	9.0	6.5	4.3	2.6	1.0	-	-	-
6. Repayment to IBRD	-	-	-	18.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	18.0
7. Return of Local Funds /2	-	-	-	38.2	46.6	49.7	51.2	49.9	46.4	41.3	35.1	28.9	26.3	26.8	-	-
9. Administrative Expenses	.4	1.2	3.7	3.9	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.1	-
Sub-Total	37.7	239.9	484.2	168.8	141.6	134.5	129.9	122.5	113.2	102.5	91.0	80.0	72.8	69.2	19.3	-
Annual Cash Inflow	(3.9)	(6.2)	(10.1)	3.5	(6.2)	.4	4.6	8.5	12.2	16.0	20.0	23.8	27.5	29.5	(.5)	(18.0)
Cumulative Cash Inflow	(3.9)	(10.1)	(20.2)	(16.7)	(22.9)	(22.5)	(17.9)	(9.4)	2.8	18.8	38.8	62.6	90.1	119.6	119.1	101.1
Memo Item:																
Interest During Construction on IBRD Loan	.4	5.4	19.1	39.1												
Interest During Construction on SBS Loan	.9	6.3	19.4	29.9												

1/ Excludes estimated interest during construction of four years.

2/ Principal collections from sub-borrowers minus IBRD loan repayments equals return of local funds.

ANNEX 10
Table 2

January 1977

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Economic Rate of Return of the Project

1. The economic rates of return for the Macedonian and Montenegrin projects were calculated on the basis of quantifiable economic costs and benefits generated. Costs and benefits are based on the representative investment models as described in Annexes 5 and 7, and were evaluated at shadow prices as discussed below and shown in Table 1 of this Annex. Training and administrative expenses were also included. Results derived from the analysis are considered conservative since some benefits attributable to the project, such as improved resource allocation in the agricultural and agroindustries sector and the health benefits to consumers of hygienically processed food, were deemed non-quantifiable and, therefore, were excluded from the economic rate of return determination.

2. The economic rate of return calculations are based on the following assumptions:

(a) Output Prices. For wheat and maize the Bank's commodity world price projections (in constant 1976 prices) were used as basic data, thus eliminating the subsidy on wheat in Yugoslavia. The price of milk was reduced by the subsidy of Din. 0.5 per kg. The remaining products were adjusted in accordance with the consumption conversion factor (see Table 1 of this Annex).

(b) Input Prices. Investment items were priced at constant 1976 prices. Import duties levied on imported components were deducted. Other equipment items were adjusted in accordance with the conversion factor for investments. The prevailing subsidy for fertilizer was added. Other input prices were converted at the conversion factor for intermediates (Table 1 of this Annex).

(c) Labor. Hired labor has been valued at the shadow wage rate for skilled and unskilled labor respectively (Table 1 of this Annex).

(d) Processing Investments. Benefits were calculated on the basis of value added through processing, adjusted with the consumption conversion factor. Benefits due to reduced losses were added.

(e) Administrative and Training Costs. Salaries and other costs incurred by the borrowing banks and implementing kombinats were added, valued at shadow wage rates.

3. Based on the assumptions enumerated above, the economic rates of return were calculated for the respective components (see Table 2 of this Annex). The Montenegrin project would generate a 17.3% rate of return; and the Macedonian project 25.6%. These rates of return do not take account of the non-quantifiable benefits resulting from the contribution of the project to improved resource allocation in the agricultural and agroindustries sectors through training and institution building. Sensitivity tests were conducted to assess the stability of the respective rates of return to variation in project cost and benefit streams. The variations are not expected to exceed 10% of the base estimate. The results are:

		Montenegrin Component	Macedonian Component
Investment Costs	+10%	16.0%	23.2%
Operating Costs	+10%	15.9%	19.8%
Benefits	-10%	14.4%	17.0%

Both projects' rates of return are most sensitive to variations of benefits. However, even under a pessimistic assumption of 10% lower benefits, the rates of return remain satisfactory.

January 1977

APPRAISAL OF

THE SECOND AGROINDUSTRIES PROJECT

YUGOSLAVIA

Shadow Pricing Parameters

Item	Conversion Factors
General Conversion Factors:	
Standard Conversion Factor (SCF)	0.93
Consumption Conversion Factor	0.93
Investments	0.91
Intermediates	0.93
Transport	0.82
Construction	0.80
Project-Specific Conversion Factors:	
Imported Food Processing Equipment	0.70
Fertilizer	1.12
Pesticides	0.93
Wheat	0.82 /1
Corn	1.13 /1
Milk	0.875
Other	0.93
Shadow wage rate - unskilled labor	0.80
Shadow wage rate - skilled labor	0.93

/1 The conversion factors for wheat and corn are calculated on the basis of the Bank's commodity world price projections, IBRD, Price Forecasts for Major Primary Commodities, Report No. 814, July 1975

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES PROJECT

YUGOSLAVIA

MONTENEGRO

Economic Rate of Return

	Years																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20 30
	Din '000																			
Benefits																				
Wine	-	-	-	32,736	66,495	108,531	133,920	142,755	148,335	150,195										
Fruits and Vegetables	-	-	-	12,276	28,365	51,801	76,818	85,839	88,536	89,001										
SUBTOTAL	-	-	-	45,012	94,860	160,332	210,738	228,594	236,871	239,196										
Operating Costs																				
Skilled Labor	153	650	1,407	9,065	11,935	13,081	13,081	13,081	13,081	13,081										
Unskilled Labor	-	-	2,142	7,502	15,268	33,526	24,460	24,622	24,718	24,718										
Other	153	649	4,683	19,573	37,302	53,086	62,892	63,080	63,193	63,193										
SUB-TOTAL	306	1,299	8,232	36,140	64,505	99,693	100,433	100,783	100,992	100,992										
Investments																				
Civil Works	7,094	43,418	26,178	5,818	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Machinery and Equipment	10,064	57,908	93,907	12,813	3,538	839	1,398	1,787	2,498	2,705	2,418	1,255	1,398	1,787	2,498	4,333	40,655	73.538	2,637	3,362
Skilled Labor	2,013	13,458	13,238	4,920	1,365	-	-	-	-	-	-	-	-	-	-	-	8,662	7.100	-	-
Unskilled Labor	2,071	6,236	3,833	10.847	4,438	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fertilizer	1,073	3,074	4,734	4,565	1,133	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	4,770	26,092	39,894	45,734	21,072	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SUB-TOTAL	31,085	150,186	181,784	84,717	31,546	839	1,398	1,787	2,498	2,705	2,418	1,255	1,398	1,787	2,498	4,333	49,317	80,638	2,637	3,362
Administration and Training	329	2,133	3,847	968	382	92	78	78	78	78	78	78	78	78	-	-	-	-	-	-

Economic Rate of Return and Sensitivity Analysis

Base Case	17.3%
Investment Cost + 10%	16.0%
Operating Cost + 10%	15.9%
Benefits - 10%	14.4%

ANNEX 11
Table 2

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

MACEDONIA

Economic Rate of Return

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20-30
								Din'000												
Social Sector																				
Benefits	.0	.0	40,641	206,832	402,132	461,280	493,179	506,571	----	----	----	----	----	----	506,571	----	----	----	----	----
Operating Expenses																				
Skilled Labor	.0	0	1,534	11,718	28,644	31,062	32,550	33,015	----	----	----	----	----	----	33,015	----	----	----	----	----
Unskilled Labor	.0	.0	320	2,160	7,600	8,400	8,880	9,120	----	----	----	----	----	----	9,120	----	----	----	----	----
Other	.0	.0	31,900	167,586	278,256	313,503	328,011	335,079	----	----	----	----	----	----	335,079	----	----	----	----	----
SUB-TOTAL	.0	.0	35,754	181,464	314,500	352,965	369,441	377,214	----	----	----	----	----	----	377,214	----	----	----	----	----
Investments																				
Civil Works	.0	34,045	53,810	18,984	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Equipment/Machinery	.0	31,105	142,975	165,840	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	31,105	142,975	165,840	.0
Incremental Working Capital	.0	.0	7,068	45,291	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SUB-TOTAL	.0	65,150	203,853	230,115	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	31,105	142,975	165,940	.0
Administration and Training	.0	1,083	3,415	1,611	156	156	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Private Sector																				
Benefits																				
Vegetables	762	3,501	8,718	14,618	19,260	22,076	----	----	----	----	----	----	----	----	22,076	----	----	----	----	----
Grapes	.0	.0	143	681	1,775	3,180	4,462	5,221	6,331	----	----	----	----	----	6,331	----	----	----	----	----
Peaches/Apricots	.0	.0	.0	.0	737	3,519	6,895	8,184	----	----	----	----	----	----	8,184	----	----	----	----	----
Cow Milk	403	1,589	3,346	4,428	4,817	5,019	----	----	----	----	----	----	----	----	5,019	----	----	----	----	----
Sheep Milk	764	2,952	5,869	4,150	4,649	5,001	5,332	5,621	5,996	5,546	6,902	7,354	7,643	----	7,793	----	----	----	----	----
Wool	186	601	1,061	1,201	1,336	1,521	1,641	1,727	1,858	2,031	2,167	----	----	----	2,167	----	----	----	----	----
Cattle	86	185	560	554	622	918	1,113	1,247	1,269	----	----	----	----	----	1,269	----	----	----	----	----
Mutton	954	2,793	4,718	4,916	5,526	5,829	6,480	6,450	6,468	6,716	7,341	7,984	7,785	----	7,761	----	----	----	----	----
Tobacco	8,493	26,226	34,975	----	----	----	----	----	----	----	----	----	----	----	34,975	----	----	----	----	----
Grain	-2,478	-7,400	-11,408	-11,941	-12,395	-12,690	-12,708	----	----	----	----	----	----	----	-12,708	----	----	----	----	----
SUB-TOTAL	9,170	29,887	45,982	51,582	61,302	69,348	75,285	77,812	79,468	79,438	81,558	82,651	82,741	----	82,867	----	----	----	----	----
Operating Expenses																				
Skilled Labor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unskilled Labor	55	106	89	764	258	1,609	1,731	1,809	----	----	----	----	----	----	1,809	----	----	----	----	----
Fertilizer	160	594	1,196	1,671	2,040	2,251	2,278	----	----	----	----	----	----	----	2,278	----	----	----	----	----
Pesticides	3	21	64	145	386	697	722	----	----	----	----	----	----	----	722	----	----	----	----	----
Other	1,472	5,209	10,088	12,618	14,519	15,716	16,400	16,707	16,796	16,962	17,157	17,315	17,190	----	17,190	----	----	----	----	----
SUB-TOTAL	1,580	5,718	11,437	15,198	17,203	20,273	21,131	21,516	21,605	21,771	21,966	22,124	21,999	----	21,999	----	----	----	----	----
Investments																				
Civil Works	10,832	21,798	16,158	1,513	716	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0 /1
Other	15,141	33,553	29,535	3,896	825	.0	.0	.0	.0	.0	2,453	4,907	9,615	12,477	12,578	1,761	.0	.0	4,689	8,917 /1
SUB-TOTAL	25,973	55,351	45,693	5,409	1,541	.0	.0	.0	.0	.0	2,453	4,907	9,615	12,477	12,578	1,761	.0	.0	4,689	8,917 /1
Administration and Training	.0	1,083	3,415	1,611	156	----	----	----	156	----	----	----	----	----	/	—	—	—	—	—

Continuation of Investments for years 21 through 30

	Years									
	21	22	23	24	25	26	27	28	29	30
Civil Works	2,234	5,309	5,309	.0	5,011	10,021	5,011	.0	.0	.0
Other	6,355	5,250	5,250	.0	4,708	12,771	13,820	4,018	2,031	720
Sub-Total	8,589	10,559	10,559	.0	9,719	22,792	18,831	4,018	2,031	720

Economic Rate of Return

Base Case		25.6%
Investments Costs	+10%	23.2%
Operating Costs	+10%	19.8%
Benefits	-10%	17.0%

1/ Year 20 only; investments for years 21 through 30 are given in the subsequent lines.

ANNEX 11
Table 1

APPRAISAL OF

AGRICULTURE AND AGROINDUSTRIES II PROJECT

YUGOSLAVIA

Montenegro and Macedonia

Capital Cost Per Job Created and Per Beneficiary

Macedonia Social Sector	Investment* Cost US$ Million	Employment Created	Farmers Receiving Credit	Other Beneficiaries Farmers	Present Kombinat Employees	Total No. Of Beneficiaries	Capital Cost Per Job Created (US$)	Capital Cost Per Benefiary Family (US$)
	(1)	(2)	(3)	(4)	(5)	(6=2+3+4+5)	(7=1:2)	(8=1:6)
Dairy	2.5	57	--	2,000	2,500	4,557	43,860	548
Slaughterhouse	4.6	138	--	12,500	210	12,848	33,330	358
Potato Cold Store	3.2	68	--	1,500	240	1,808	47,060	1,770
Vegetable/Food Processing	5.1	68	--	1,500	320	1,888	75,000	2,701
Dehydr. Veg.	9.9	211	--	2,000	3,000	5,211	47,000	1,900
Apple Processing	8.4	115	--	1,800	570	2,485	73,000	3,380
Sub-Total	33.7	657	--	21,300	6,840	28,797	51,300	1,170
Private Sector								
Vineyard (110 ha)	0.6	--	110	--	--	110	--	5,454
Orchard (110 ha)	0.5	--	110	--	--	110	--	4,545
Plastic Green Houses (20 ha)	0.7	--	20	--	--	20	--	35,000
Cows (330 hd)	0.5	--	100	--	--	100	--	5,000
Sheep (20,000 hd)	1.9	--	500	--	--	500	--	3,800
Mechanization (120 Units)	2.5	--	120	360	--	480	--	5,208
Tobacco Drying Sheds (4)	2.3	560	--	800	--	1,360	--	1,691
Sub-Total	9.0	560	960	1,160	--	2,680	--	3,360
TOTAL Macedonia	42.7	1,217	960	22,460	6,840	31,477		1,360
Montenegro								
Winery	10.1	96	--	--	--	--	105,208	--
Cold Store	3.5	131	--	170	--	--	26,718	--
Plantations/Irrigation	23.9	403	--	--	2,800	--	59,305	7,462
TOTAL Montenegro	37.5	630	--	170	2,800	3,600	59,524	10,417
Grand Total(Macedonia/Montenegro)	80.2	1,847	960	22,630	9,640	35,077	55,322/1	2,286

*Includes Physical Contingencies

**Not All Additional

1/ Excluding private sector investments

ANNEX 11
Table 4

January 1977

APPRAISAL OF

AGRICULTURE AND AGRO-INDUSTRIES II PROJECT

YUGOSLAVIA

Statement of Operations and Policies for the Project and the Sub-Project Appraisal Criteria

1. The IBT and the SBS would follow the following policies, procedures, terms and conditions in appraising and granting the sub-loans.

2 Montenegrin Project. Before receiving long-term loans the Agrokombinat would up-date the appraisal estimates and submit the loan application to IBT. IBT would review the loan application to take account of possible changes in the economic and market environment and to evaluate the financial viability of the subproject and satisfy itself of the continued credit-worthiness of the Agrokombinat.

3. Macedonian Project. For long-term loans to social sector enterprises, SBS would appraise each sub-project to ensure that: (a) sub-projects provide satisfactory financial and economic rates of return on the basis of detailed and realistic estimates of costs and benefits, and would generate sufficient cash flow to cover debt service, legal claims, compulsory allocations to the enterprise's funds and reinvestment needs. Special justification will be required if the financial rate of return is below 12%; (b) sub-projects are technically feasible based on a critical review of technical data and specifications provided by the sub-borrowers; (c) the market facilities for the incremental production are available, and the supply of raw materials is assured; (d) the sub-borrowers are credit-worthy, have the necessary managerial competence to implement the sub-project and maintain a satisfactory financial structure. As a guideline, the long-term financial structure, debt/equity ratio should not exceed 3:1. Exceptions may be allowed (based on the financial and economic merit of the sub-project) provided that the enterprise enters into an agreement with a bank to increase its equity over a suitable period of time to not less than 25% of its total capitalization; (e) adequate physical and price "contingency" allowances are made. The "contingency" allowance should take into account, inter alia, escalation clauses which may be included in contracts. The appraisal report for each sub-project should indicate the date to which base cost estimates refer and should discuss the "contingency" allowances made; (f) appropriate consideration is given and explicitly recorded in the appraisal report to the need for introduction of capital-intensive automated technology as opposed to more labor-intensive methods and to the consequences of such a choice on the investment and operating costs of the sub-projects.

4. Sub-projects in the private sector in Macedonia would normally be submitted to the SBS by social sector enterprises which, having aggregated investment proposals of several private farmers, would borrow on their behalf. However, private farmers may also submit directly investment proposals to SBS. In appraising sub-projects in the private sector, the SBS would satisfy itself that:

(a) sub-projects are technically feasible, financially viable, commercially sound and economically justified, and markets and processing facilities for their incremental production are available;

(b) sub-projects would generate sufficient cash flow to cover debt service, legal claims and needs for reinvestment;

(c) adequate and continuing technical asistance, and suitable market outlets at fair and reasonable prices are available to the private farmers;

(d) in the case of lending through social sector organizations, the cooperation agreements are adequate.

Financing Plan for Sub-projects

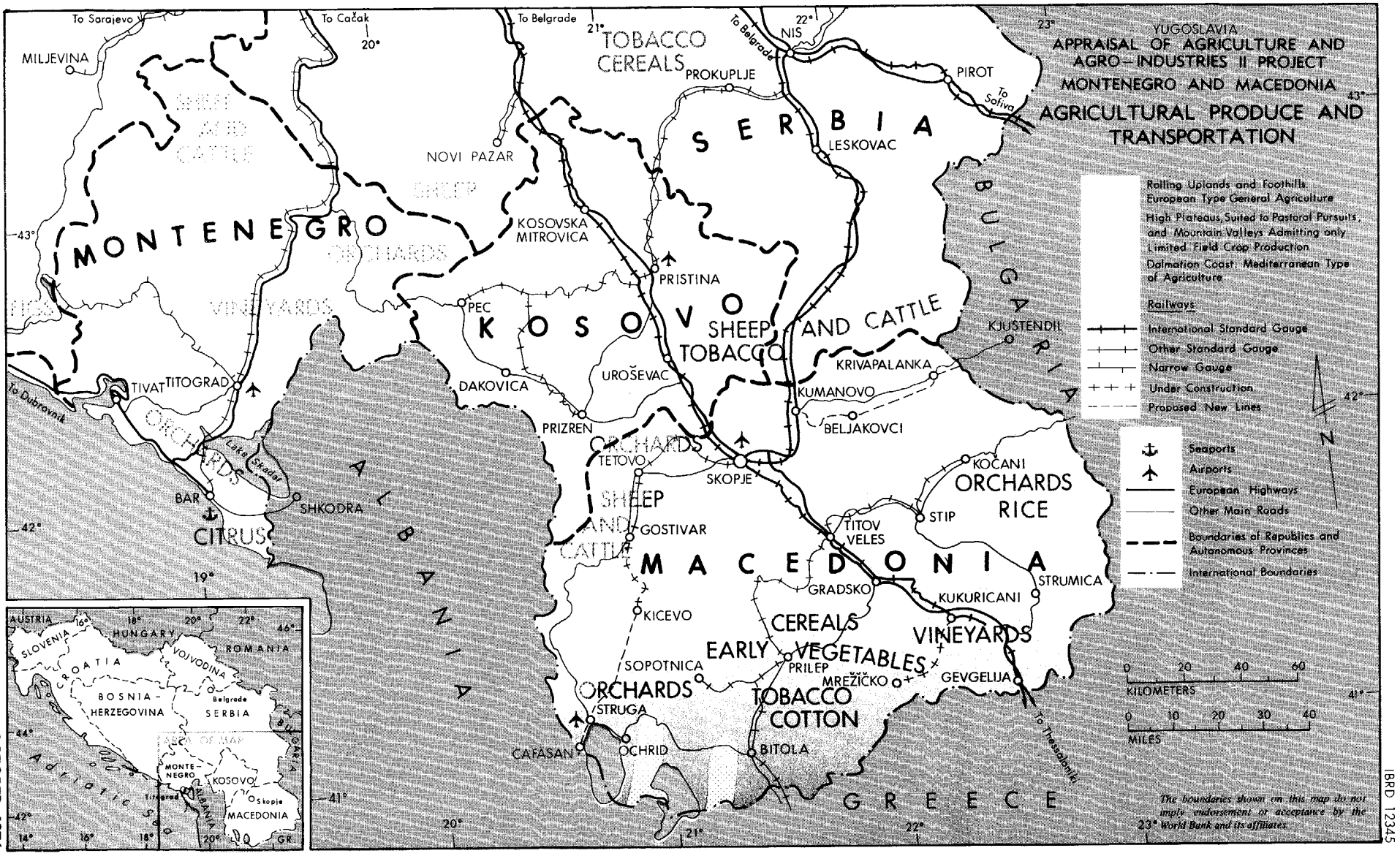
5. The sub-borrowers would provide a minimum of 20% of investment costs. The banks would provide loans up to 80% of the sub-projects costs. The Bank funds would finance 100% of the estimated foreign exchange part of the project cost. Prior to disbursing the Bank loan the banks would assure the availability of their own funds and sub-borrowers' contribution for each specific sub-project.

Repayment Period of Sub-loans

6. The term of sub-loans would be determined in accordance with the cash-flow projections of the investments, after careful estimates of the repayment capacity of the sub-borrower have been made. However, the grace and repayment period on IBRD funds will not exceed the following:

	Maximum Grace Period (Years)	Maximum Total Term (Years)
Macedonia		
Social Sector	3	14
Private Sector	5	10
Montenegro	3	15

January 1977



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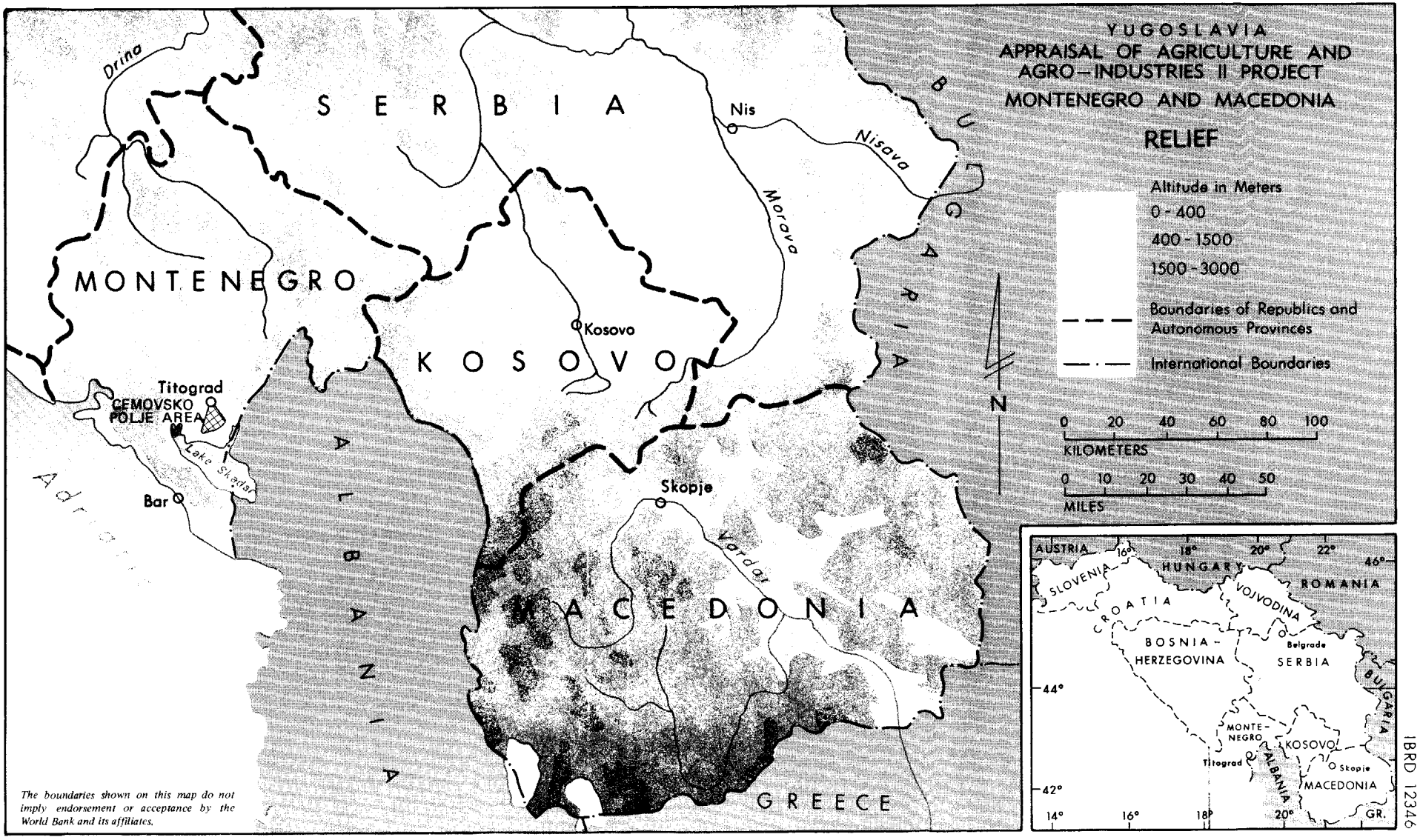

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