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18 April 1986

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AGRICULTURE

CZECHOSLOVAKIA

AGRICULTURAL COOPERATION WITH CEMA DETAILED

Moscow/East Berlin INTERNATIONALE ZEITSCHRIFT DER LANDWIRTSCHAFT in German
No. 1, 1986 pp 23-24

[Article by Dr Milan Bena, expert of the CEMA secretariat]

[Text] By its territory Czechoslovakia is not big among the countries of the socialist community. Because the area available for agricultural production in the country is limited, Czechoslovakia embarked upon the path towards intensification of agriculture in the early sixties following completion of the formation of socialist production cooperatives. In this connection, the agricultural scientists and especially the plant breeders concentrated their efforts especially on the fulfillment of the tasks posed by the CPCZ for crop production.

Special attention was devoted to raising the grain yields. During past years Czechoslovakia succeeded in achieving big successes in this field, not least owing to the close cooperation with other CEMA countries, especially with the USSR and the GDR.

The growth of grain production is shown in Table 1.

As is evident from the indicators, grain production has significantly increased with simultaneous reduction of the grain cultivation area. The highest increase occurred in winter wheat yields. For example, while in 1970, the wheat harvest was 29.5 dt per hectare, in 1984 the yield was 50.9 dt per hectare. These results are attributable to the close cooperation between Czechoslovak and Soviet breeders. Since 1970, the Soviet Mironovskaya 808, Besostaya I and Skorospelaya 36 winter wheat varieties have been grown in Czechoslovakia. In the fifth 5-year plan period these varieties accounted for 71 percent of the wheat cultivation area. Cultivation of the Soviet wheat varieties had a favorable effect not only on the yields but they have also shown very good baking qualities. However, these varieties--in addition to the mentioned good features and their frost resistance--are infected by rust which is widely present in some European CEMA countries.

Together with the increase in wheat production, the import of wheat seeds could be continuously restricted. As late as the seventies, Czechoslovakia still imported about 8000 tons of winter wheat seeds a year, while now it has to import

only a small quantity of seeds. From Czechoslovak breeding comes the wheat variety Regina, which distinguishes itself by positive qualities; it has good storage qualities and is brown-rust resistant and achieves high yields with good baking quality of the flour. The Regina variety is also grown in the GDR. In addition, the Virginia, Iris, Sabina and Sdar varieties are grown, which are also cultivated in other CEMA countries.

Regarding cultivation and breeding of barley, Czechoslovakia is numbered among the leading countries in the world. Some varieties are also grown in Hungary, the GDR and the USSR. The Valticki, Kasticki, Mars, Fatran, Opal, Karat, Dvoran and Favorit varieties are to be mentioned as the best. These varieties are grown on large areas in the USSR. In Romania, Czechoslovak varieties have a 40-percent share in the barley area, in Hungary the share is around 65 percent.

The barley variety Triumph was created in the early seventies in joint work of Czechoslovak and GDR breeders. This variety occupied about 650,000 hectare in the CEMA member countries; in the meantime it was replaced by the Rubin, Kristall, Bonus, Zenit and Kredit varieties. During recent years the plan provided for an annual export of 7000 t of seed of the various barley varieties from Czechoslovakia; actually it was twice as much. In 1983 alone, 13,600 t of barley seeds was exported to the Soviet Union. The highest share was that of the Favorit variety, which provides stable yields in the USSR. In the future, too, Czechoslovakia will deliver the agreed-upon quantities of quality barley seed. Successful cooperation exists between Czechoslovakia and the GDR in the field of winter barley breeding. Through this cooperation, Czechoslovakia which for the time being does not possess any varieties of its own, was able to expand

Table 1

Grain Production in Czechoslovakia, 1970 and 1984

Indicators	1970	1984	1984 in % of 1970
Grain cultivation area in 1000 ha	2,602	2,536	97
Yield, dt/ha	27.7	47.4	171
Total production, 1000 t	7,204	12,020	167

the cultivated area of winter barley based on GDR varieties. They excel because of their high yield, early maturing and small demands on soil and climate (Erfa and Borwina varieties). In the field of rye breeding, Czechoslovak breeders successfully cooperate with Polish specialists. Widely cultivated in Czechoslovakia are the Polish Dankowskie Zlote and Dankowskie Nowe rye varieties; they occupy 70 percent of the rye cultivation area. On the other hand, Poland grows the Czechoslovak summer wheat variety Jara on a larger area than does the country of origin of the seeds. The GDR, too, buys Czechoslovak summer wheat varieties, for the most part the Rena variety. Romania, too, has expressed interest in importing summer wheat varieties from Czechoslovakia.

An important grain variety that constantly achieves good yields in Czechoslovakia is oat. Here especially the Diadem variety excels by high per-hectare yields. For a long time not a single foreign variety was able to compete with Diadem. In Poland, e.g., this oat variety is being cultivated on 400,000 hectares and, moreover, it is also included in the breeding of several Polish oat varieties. Since 1976, it is also cultivated in Bulgaria and Romania. These countries are also interested in additional Czechoslovak oat varieties, namely in the also very productive Hermes and Pan varieties which also have good storage properties.

Good successes have also been achieved in breeding and production of legumes. Here, too, Czechoslovak varieties have achieved high esteem and wide use in other CEMA countries. For example, the Dukat and Smaragd pea varieties are cultivated in Hungary. In the USSR and in Poland, however, the Borek variety proved to be especially productive and surpasses the domestic varieties of these countries by 25 to 40 percent. Additional varieties with high yields are Polgar, Bogatyr and Tyrkis. Czechoslovakia exports significant quantities of pea and bean seeds to the USSR. Hungary and Bulgaria have indicated their interest in imports of Czechoslovak lentil varieties (Lenka variety) and of bean varieties even though Czechoslovakia for the time being is not yet able to meet domestic demand completely. It is assumed that with the help of the new, modern cultivation methods from the USSR they will succeed in raising lentil production.

Positive results have also been achieved in rape breeding. The new rape varieties (e.g., the Silesija variety) exhibit less of an erucic acid content. Export of rape seeds from Czechoslovakia to Romania, Hungary and to other countries of the socialist community is planned for the future. The demand of several CEMA countries for Czechoslovak flax varieties also grows. Thus Czechoslovakia's role in the breeding of new productive grain and legume varieties as well as for some oleaginous fruits has continuously grown in recent years.

Czechoslovakia can also view good results in the breeding of productive and qualitatively high-grade maize varieties and hybrids. For the past three years new maize hybrids are being offered which provide a 5-percent higher green mass yield and a 16.2-percent higher kernel yield, respectively.

The breeding work is strongly concentrated on the development of new, more productive sugar beet varieties with high sugar content, also monocotyledonous varieties, which meet the requirements of industrial cultivation processes of this culture. On the basis of pollinators which were obtained from Czechoslovakia by other CEMA countries, 37 sugar beet hybrids have been bred. In the field of the technology for the treatment of the sugar beet seeds for protection against pest infestation, incrustation is applied. In 1984 an examination of sugar beet drills was made as regards quality of the seed deposit to select those that functioned most reliably in cultivation without expending manual labor.

In vegetable breeding a clear improvement of product quality has been achieved within a short time. Czechoslovakia exchanges productive hybrids in these cultures with other countries. Fruit breeding is handled similarly. On the part of Czechoslovakia methodologies for clone breeding of sour cherries and apples were turned over to the coordinator, the Soviet Union, and proposals for the exchange of sweet and sour cherries were submitted.

Work in the field of breeding perennial fodder crops was directed especially towards warding off lucern diseases. In this connection biological material was exchanged among the CEMA countries, test and control methods were coordinated. In the development of new varieties these international experiences were taken into consideration and the expenditures for research could be reduced by 10 percent.

In animal production there exists a broad exchange especially of sperm from high-performance breeding bulls between Czechoslovakia and the USSR. In this field Czechoslovakia also cooperates with Bulgaria, the GDR, Hungary and Poland. By imports of heifers from the GDR and from Poland, the performance of the cows in the agricultural enterprises of Czechoslovakia could be raised. To increase hog production, breeding material was imported from Bulgaria, Hungary and the GDR.

Good progress has been recorded in Czechoslovakia in sheep production. That is attributable to the import of high-performance animals from the USSR (12,000 ewes and 100 rams per year) as well as from Bulgaria (300 ewes and 15 rams per year).

There has been long-term cooperation especially with Hungary in poultry production. Czechoslovak poultry production enterprises mainly obtain their material for broiler production from there.

Czechoslovakia annually exports to the USSR breeding boars and sows, in addition about 2000 cans of bull sperms. Other CEMA countries have also expressed their interest in the latter. Export of goats, which are purchased by the USSR and Bulgaria, are of some importance.

In Table 2 the increase in the efficiency of animal production in Czechoslovakia during the past 15 years is shown, which could largely be achieved by the more intensive cooperation with the other CEMA member countries.

Especially remarkable is the increase in performance in cattle and poultry production. As a result of the achieved successes, the state quota for animal production could be surpassed and the population supplied from domestic production in the required quantity and in the necessary assortment.

The further development of the cooperation among the fraternal countries will contribute to a continuous growth of agricultural production and to the fulfillment of the tasks which are derived from the decisions on agriculture of the economic conference of the CEMA member countries on the highest level and from those of the party congresses of the communist and workers parties.

Table 2

Performance of CSSR Animal Production, 1970 and 1984

Indicators	1970	1984	1984 in % of 1970
Cattle holdings per 100 ha of LN ¹	59.9	76.9	128
Hog holdings per 100 ha of AL ²	100.7	147.5	146
Average annual milk production, kg/cow	2,489	3,500	141
Calves per 100 cows	88.6	100.4	113
Average daily mass increase per fattened hog, g	520	528	102
Average number of young hogs per sow & year	16.1	17.7	110
Average annual laying performance of hens, eggs	175	233	133
Gross production of animal husbandry, korunas/ha LN ¹	5,213	7,623	146
Goods production of animal husbandry, million korunas	28,816	45,669	160

Key:

1. Agriculturally productive land
2. Agricultural land

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AGRICULTURE

GERMAN DEMOCRATIC REPUBLIC

BRIEFS

SPRING CULTIVATION BEGINS--East Berlin (ND)--On Tuesday [18 March] cooperative peasants started seeding spring grain on light soil. Over the next weeks about 500,000 hectares in the Republic will be seeded with barley, oats, and rye. Spring cultivation was started, among others, by the Herzberg and Rheinsberg LPGs, Neuruppin, and the Zehdenick, Gransee Kreis. The cultivation collectives of the Gross Schmoelen, Krenzlin, and Ludwigslust LPGs in Schwerin Bezirk started drilling grain. The peasants of the Gross Schmoelen LPG mainly cultivated the higher-altitude fields that had already been dried by wind and sun, and permitted the good quality seeding of spring rye. Where the condition of the soil does not yet permit seeding the peasants are currently examining the winter crop. In the Neubrandenburg Bezirk, 260,000 hectares of plants are checked for density, condition of vegetation, nutrient supply, and infestation with diseases, and measures for developing maximum yield concepts are derived from this. [Text] [East Berlin NEUES DEUTSCHLAND in German 19 Mar 86 p 2 AU] /12712

CSO: 2300/281

ECONOMY

GERMAN DEMOCRATIC REPUBLIC

ROLE OF ADVANCED TECHNOLOGY IN SOCIALIST ECONOMY EXPLAINED

Neubrandenburg FREIE ERDE in German 17 Feb 86 p 5

/Interview with Prof Lutz-Guenther Fleischer, vice president of URANIA, by Dr Dieter Dietzel and Ulrike Streckenbach; date and place not specified/

/Text/ Our interviewee: Prof Lutz-Guenther Fleischer. Born in 1938 in Gera. Training in fine optics. Delegated to the ABF by the VEB combine Carl Zeiss Jena in 1956. Studied at Leuna-Merseburg technical college from 1959 to 1964.

While still a scientific assistant he was given a position as lecturer in philosophy. Took degree in 1968. In 1970 he was a college instructor for the area of "the thermodynamics of irreversible processes" at the technical college. Director of the scientific area "process fundamentals" in the division of manufacturing technology. Additional study in Leningrad from 1972 to 1973. Has been representing the areas of thermodynamics and flow dynamics since 1975 at Humboldt University in Berlin, in the division of nutritional economy and foodstuffs technology. Vice president of URANIA since 1975.

Numerous scientific publications, including three thermodynamics textbooks.

/Question/ You are a scientist, and you are often involved in conversations with nonscientists. Can these activities be reconciled?

/Answer/ Yes, in spite of all the problems that arise. You see, on the one hand the questions that are put by science tend to be very specialized. On the other hand, they are extraordinarily complex. Nevertheless, it is a principle of democracy that the relatively narrow circle of those who are active in science should permit a much wider circle to become well-informed about it. Why? Because science today does not concern only the process of production, or a few parts of it, but it influences daily life in many different ways.

This offers opportunities for everyone who wishes to shape his life consciously; on the other hand, you have to develop the understanding of the general public for the social value and the function of science, because it is a decisive instrument of progress--especially in socialism.

/Question/ You sometimes make use of a concept that is not listed in any dictionary: thought tools. Are you after originality?

/Answer/ We have become accustomed to talking about work tools. By this we mean the objects with which our hands are equipped in order to become more productive. But now the human brain has "intelligent" technical partners, above all computers of various levels of capability. It is well known that human beings are active in the production process with three organs: with the hands, the muscles and the brain. The hands found technical reinforcement very quickly, the muscles no later than the working machines of the 19th centuries, and now the human brain, with all its capacities, is acquiring a technical counterpart that will relieve it more and more of achievements which can be formally stated and programmed. Why should we not give it a name which is exactly analogous to "work tool"?

/Question/ In the documents of the SED we are required to link the advantages of socialism organically with the achievements of the scientific and technical revolution....

/Answer/ The important thing is the necessity of creating an organic unity which functions as well as it possibly can. Among the requirements of socialism, scientific and technical progress (both their achievements and the processes involved) as well as social progress are indissolubly connected. Unlimited scientific and technical progress needs socialism and must be reflected in social progress. It is our job to make every effort so that scientific, technical and technological innovations result in the greatest possible social results, that they produce wherever possible those effects which we need in order to serve social progress--i.e., economic progress, but also intellectual and cultural, ethical and moral progress.

/Question/ Under the aspect of the mastery of science and technology, what do you consider to be the greatest advantage of socialism?

/Answer/ That it brings about social progress for the masses. That the creativity of the masses is stimulated, and how it is stimulated--not least because of this mastery. These are, I feel, primarily logical consequences of the basic advantages: the conditions of ownership and the fact (which everyone can verify for himself) that what is created by the masses is used for their benefit. The main task, in its union of economic and social policy, I consider to be nonnegotiable. Finally, it is the decisive motivating force which forms creativity for the masses and makes the meaning of socialism into a reality. Scientific and technical progress produces social forces, and also needs those forces.

/Question/ In your opinion, what should the average citizen be able to make of concepts like CAD/CAM?

/Answer/ Anyone who is not confronted directly with computer-assisted design or computer-assisted manufacture still only needs to know what is being talked about, what can be achieved with them technologically and economically. But

soon the observational knowledge will no longer suffice for the majority. After all, in computer-assisted design, computer-assisted manufacture and computer-integrated manufacture we are dealing with revolutionary developmental processes which are gradually affecting every branch of industry. And then who will not be obliged to know something about them? "Comprehension," mastery will become necessary.

/Question/ Does the possibility exist for technical concepts of the computer age that processes in the scientific realm are no longer comprehensible to everybody?

/Answer/ The danger cannot be dismissed out of hand. But it does not lie primarily in the concepts. It lies in the development itself. After all, the concepts only reflect particular objective facts and tendencies. It would be stupid if we did not see the dangers, for seeing them means being halfway to banishing them. If scientific and technical processes produce completely new technologies, we will be well advised to make every effort to avoid having them leave behind them even a trace of the incomprehensible or worse, the uncanny. Of course it is necessary to translate certain technical concepts. But we also have to get used to the fact that scientific, technical and technological developments produce a practical and clearly directed reservoir of concepts which are to be accepted, learned, and understood. By the way, this also applies to the methods, e.g., the powerful and indispensable mathematical and logical procedures.

/Question/ Do you believe that within 10 or 15 years everyone will have to be able to use computers the way they can use a ballpoint pen today?

/Answer/ It would be nice if the demands placed by future computers could be regulated as if we were dealing with ballpoints.

If the computer is to be employed meaningfully, considerable intellectual prerequisites are necessary. Dealing with computers is a challenge on a much higher level. I am convinced that the earlier you begin with it the more brilliantly you will be able to use it. It is certainly helpful to understand the computer first as a "plaything" (in the original sense), in order to use it later as a confidently controlled work tool.

/Question/ If you see children at the station playing with the ticket machines, do you send them away?

/Answer/ No. If they are playing without using violence, it won't hurt the machines. And anyone who wants to buy a ticket will be able to clear a path for himself.

/Question/ How do you apply the role of technology in the mastery of science and technology?

/Answer/ Revolutions in the technological realm are the central point of scientific and technical progress. There is no other way to make a scientific result effective for production except by using technology. Every peak achievement in physics, biology or chemistry only becomes economically useful through process formation and manufacturing management.

At least four facts speak for the key social role of technology: first of all, it mediates. Scientific results only become effective for production through the application of technology. Secondly, it integrates. Depending on the level of knowledge involved, it links, coordinates, combines and couples the elements of the process of production into more or less rational and effective technological processes and systems.

Thirdly, it stimulates, by encouraging and demanding the development and progress of the scientific insights and areas of knowledge which support it. Above all, it forces the development of technical means and procedures, as well as organizational structures. And fourthly, it transforms, by influencing all the elements of the material and technical basis, as well as the thought and actions of the producers.

/Question/ Does the status of technology correspond to its role in society?

/Answer/ Not in every case. We need to do more to attain this. And we can. I have not found any previously passed party program in which technology is as explicitly addressed as it is in the program of the SED. This offers us great possibilities!

/Question/ Why do we value "key technologies"?

/Answer/ Really, every technology is a key. If we nevertheless speak about key technologies, it must be a question of something particularly progressive. These technologies are as it were "keys of higher dimensions." For they usually function in a way that saves energy as well as materials, work time, workplace and funds. In addition, they permeate almost all branches of industry, and open the door for considerable economic growth because of their high level; gradually they produce that material and technical basis which communism requires. Which are these child prodigies?

First of all I would list microelectronics. At any rate, at least two things are combined under this heading: production and application technologies. We must therefore take into account all technologies which are required, on a material basis which is constantly expanding, for the production of highly integrated microprocessors, micro-operators and microsensors. But this also includes all technologies in which the production results of microelectronics are brought into use as a technical tool for the technologies of measurement, management and regulating, including CAD/CAM.

Modern biotechnologies are gaining in importance. I say "modern" deliberately, because beer, cheese, milk, sour pickles, and sauerkraut are also biotechnological products, of course; but conventional ones. The modern biotechnologies exploit the potential of fungi, of bacteria, of yeasts, as well as of animal and plant cell cultures, and produce (or decompose) very specific materials if they are kept in an environment favorable to life. Here I am thinking especially of the production of antibiotics, amino acids, hormones, enzymes, and other acids. In addition, environmental protection tasks can be carried out with selected microbes via decomposition. One example is the enzyme-stabilized treatment of waste water. What we have been able to observe in

this area so far is only the tip of the famous iceberg. In spite of all that microelectronics can do, it still manipulates "physically." With biotechnology it is possible to refine to a higher degree, i.e., produce completely new material qualities under favorable energy conditions, at normal pressure and low temperatures.

The third high technology group, I would say, includes the highly refining material technologies. These include first the production of extremely pure materials, e.g., silicon itself. This is also an indication that the key technologies interpenetrate each other. Microelectronics are unthinkable without extremely pure silicon.

Secondly, we should address the production of materials which have new properties throughout their whole volume, e.g., biopolymers, certain ceramics and glasses, compound materials for biotechnologies and for space travel. It is a question, so to speak, of the construction of materials with the desired properties. Thirdly, we should list the technologies for the refining of the surface of materials. This includes, e.g., coating with silicate or titanium carbide in the heat shields of space vehicles, or silicate and titanium nitrides. This is the case with glasses which appear to be golden and the modern cup with gold rim or inlay. But I am also thinking of plasmatron atomization to produce the thinnest possible coatings for microelectronics. This is one of the top achievements of the GDR, developed in the "Manfred von Ardenne" research institute, and has also been applied in the glass industry in Lausitz.

And the fourth group of key technologies includes all processing and manufacturing technologies which are automated (increasingly, flexibly automated), low in manpower and low in waste products.

I would like to mention something else: the approximately 250 key technologies make very high demands on the ability to think theoretically; they require basic research which is effective and rich in ideas. In addition, key technologies require an unprejudiced openness of the producers to new ideas and a dynamic education. Anyone who doesn't understand the value and function of science cannot fully master the key technologies.

/Question/ Isn't it presumptuous for the relatively small GDR to compare itself with countries which have a much greater potential with regard to the level of labor productivity?

/Answer/ On the contrary, that is a vital question. What can our country really contribute in order to further social progress to the extent which has been sketched here? Not enormous tonnage, certainly! We have to form everything that arises in the process of production and which influences it according to the latest word from science and technology. For one thing, because we modify the form of more than 45 percent of our industrial good production via foreign markets. There people look at costs, at price and quality. Increasing labor productivity is a focal point in which many things are tied together. In the GDR today it is more than 95 percent a question of science which has been made effective for production. Science, education and consciousness are our most fruitful and the same time theoretically unlimited resources. That is what we should invest.

/Question/ How do you explain the pessimistic scientific concepts which exist in Western countries?

/Answer/ In the West a large number of developments in science and technology lead to social results which work against a majority of the working class. Think of the effects of rationalization which are connected with microelectronics. Capitalistic rationalization makes workers and professional experience dispensable, qualifications useless, jobs unsafe. If you don't look carefully, you only see the superficial connection between this social and economic result and the lines of development in both science and technology. Then you do not recognize that science and technology really carry a "genetic burden," which stems from the capitalistic conditions of ownership. If a machine can be installed more productively and more cheaply than a worker, the only possible conclusion for the capitalist is to replace the precious living work with the technical construct, regardless of the consequences.

/Question/ Do you consider it impossible to discuss the role of science and technology with people who--at least from time to time--have to gather stones from the fields?

/Answer/ We cannot expect miracles from science, in spite of all its capabilities. And it is unfortunately true that that which sounds simple is often extremely difficult to change. Although it appears to be contradictory to discuss science with "stone gatherers" or others who are confronted with underdeveloped technologies, we are applying ourselves to the problem. Science needs their suggestions too, and insight into what is not yet possible today has to have a basis. In our society no one is excluded from scientific knowledge, its enrichment or its utilization.

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ECONOMY

GERMAN DEMOCRATIC REPUBLIC

DIE WELT REPORTS ON GDR SHIPBUILDING INDUSTRY

DW201416 Bonn DIE WELT in German 20 Feb 86 p 12

[Unattributed article: "USSR Helps Shipyards Work to Capacity"]

[Text] DPA/VWD East Berlin--For the "GDR" shipbuilding industry on the Baltic Sea the term shipyard crisis which is well-known in the Federal Republic is unknown. The production program has been laid down on a long-term basis. Full employment of the 4 shipyards in Rostock, Stralsund, and Wismar is primarily guaranteed by orders from the Soviet Union which imports 75 percent of the "GDR's" newly built ships.

The annual production of the Rostock shipbuilding combine, which was founded in 1979 when the shipbuilding industry including the two inland shipyards and the contractor enterprises were merged, amounts to about 400,000 gross register tons. Last year the "GDR" shipyards delivered 69 ships, of them 40 fishing boats and 25 ocean going cargoships. In 1985 the Soviet Union commissioned as many as 62 ships built in the "GDR." This year the delivery of 66 ships has been planned, with the major part going to the Soviet Union.

According to official data in East Berlin, a government agreement between the Soviet Union and the "GDR" for the 1986-1990 5-year plan period envisages the supply of more than 100 "fishing and fish production ships as well as other ships for the Soviet Union's ocean going and inland water fleets." In the past 5 years the combine which has now roughly 58,000 employees built 320 ships. Of them, "307 were supplied to shipowners in 12 countries," with most of them--254--going to the customer USSR. They included container ships, roro ships, refrigerator ships, fishing ships, floating excavators, and inland water passenger ships.

Of the more than 5,000 ships launched by the "GDR" since 1946, Soviet ship-owners commissioned more than 3,300. Over the years shipbuilding has increasingly focused on the Soviet customer.

The Rostock Warnow shipyard has specialized on ocean cargoships. Every year 10-12 ships are built there, including multipurpose cargoships and container ships. Internationally the shipyard ranks fourth with that type of cargoships.

The Rostock Neptun shipyard builds roro ships and bucket dredgers, among other things. The center of shipbuilding for the fishing industry is the Stralsund People's Shipyard, with an annual production of about 35 freezer trawlers. The shipyard has built one third of the Soviet fishing fleet.

The Wismar Mathias-Thesen shipyard is the only producer of refrigerator transport ships for the "GDR" fishing industry. It also builds universal cargo-ships. A large order for the production of 6 double-deck ferries is the result of the agreement with the Soviet Union on the link between the port of Mukran specially built for that purpose on the island of Ruegen and Klaipeda (formerly Memel) in Lithuania.

The first of these 190 meter long railway ferries will be tested as of April and will start ferry operations in October. The other 5 ferries 3 of which will be supplied to the Soviet Union will be delivered by 1990.

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ECONOMY

GERMAN DEMOCRATIC REPUBLIC

RECYCLED MATERIALS USE IN CHEMICAL INDUSTRY SKETCHED

East Berlin PRESSE-INFORMATIONEN in German No 21, 20 Feb 86 p 6

[Article under rubric "Numbers and Facts": "Use of Secondary Raw Materials in the Chemical Industry"]

[Text] Increased use of secondary raw materials and industrial waste products in turn increases the amount of raw materials available to the national economy. The 1986 economic plan sets such a task. A total of 31.5 million tons of secondary raw materials are to be reclaimed this year. In 1985 the total was approximately 30 million tons. Secondary raw materials are playing an ever larger role in the nation's economy.

The chemical industry absorbs a major portion of these secondary raw materials. 9.3 million tons were recycled in 1985 as opposed to 6.9 million tons in 1980. This means that 77% of all accumulated nonmetallic secondary raw materials were reprocessed. 3.9 million tons, almost 42%, were used in closed material cycles in the chemical industry, a significant contribution to environmental protection.

The increased use of secondary raw materials places new demands on science and technology. New and improved ways for incorporating such materials in other products must be developed. By using secondary materials as raw materials, many processing stages and thereby corporate man-hours are eliminated, as such materials are already highly labor-intensive.

Much of the chemical industry's balance of raw materials is made up of waste thermoplastics. The acquisition and recycling of thermoplastic secondary raw materials rose from 28,000 tons in 1980 to 51,000 tons in 1985, an increase of 82%. This includes waste thermoplastics from private households, such as used foil. Products made from waste thermoplastics range from cans, trashcan liners, pails and flowerpots to crates for food and bottles to shoetrees and bicycle attachments.

By working together, nationally-owned industries for secondary raw material acquisition in the districts, local government institutions, corporations and the respective processing industries were able to acquire and process 6,000 tons of thermoplastics from private households in 1985. These wastes, in addition to being purchased wholesale, are also collected in mesh receptacles

outside stores in residential areas. The goal is to recycle 10,000 tons of household thermoplastics per year.

Waste oil, particularly motor and industrial waste oil, is particularly valuable for the national economy. More and more is collected each year. Once reprocessed it is used as a lubricant. Approximately 80,000 tons of waste oil are collected annually, fulfilling 20% of the nation's need for lubricating oils.

Used tires are made fully serviceable again by industrial retreading. This is the most effective and economical processing method, saving the buyer money as well. Approximately 50% of accumulated used tires are currently being retread. The rest -- often because of improper driving -- are scrap tires, of which around 45% are currently used in the most varied of products. Rubber from the linings is already being partially reused in the production process. Research and development collectives are tasked with finding new ways to economically use all accumulated scrap tires.

Animal fat deposits and fatty secondary raw materials from some 6,000 agricultural and food industries are currently being recycled. They produce animal body fats and mixed fats for use by the chemical industry as well as protein fodder for agriculture. When chemically processed they yield glycerin and fatty acids -- raw materials for many daughter products such as cosmetics and autocare products. 47,000 tons of fatty secondary raw materials are currently collected in the GDR each year, a figure that must be considerably increased in coming years.

Waste paper already supplies 50% of the paper industry's raw materials requirements. In the purview of the Ministry for Chemical Industries, over 14,000 tons were collected and delivered in 1985. Waste paper is used for products such as collapsible boxes, sales pads, driver's licenses, graph paper and wallpaper. Every ton of waste paper can replace 0.8 to 0.85 tons of primary fibrous materials (paper or wood pulp). Every ton of waste paper prevents the otherwise necessary felling of 8 to 10 seventy-year-old spruces.

Valuable materials contained in sewage, fixers, etc., are another important reserve that must be tapped with new technology. In this area efficient procedures were gradually employed to reclaim, for example, silver out of fixer or old film. In 1985, 490,000 liters of fixer were collected. The goal of the national economic plan is to expand the use of industrial waste products more rapidly.

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ECONOMY

GERMAN DEMOCRATIC REPUBLIC

GROWTH OF RAIL FREIGHT TRANSPORT CITED

East Berlin PRESSE-INFORMATIONEN in German No 24, 27 Feb 86 pp 2-3

[Article by Guenther Knobloch, deputy transportation minister and first deputy to the director-general, German Railroad: "Railroad Offers Performance for Efficient Goods Shipment"]

[Text] Thousands of railroadmen and temporary workers are in action these days in an effort to eliminate obstacles caused on tracks and in railroad stations by snow and frost, in particular to clear tracks, switches, rail brakes, and signal installations of any icing, and to remove snow. The shipment of coal, construction materials, and other goods important to supply operations must be guaranteed under all circumstances. This is precisely the time to make full use of the railroad because of its energy-saving characteristics.

In 1981, the German Railroad achieved a performance increase of 45 million tons in freight transportation. This due last but not least to the fact that great efforts were made during all seasons through close cooperation with all partners to continue intensification in this area and to develop it in depth. This holds true even more so during the year of the party congress.

It is above all the range of services offered by the Railroad that assumes importance in this respect. That includes, for example, the use of complete train loads and through-goods-trains for shipments to be delivered quickly, groupage and container traffic, as well as express and piece goods traffic. On the one hand, transportation customers are offered favorable shipment opportunities in this way; on the other hand, existing transportation capacities can be used even better in this fashion. The prerequisite here is close cooperation among all partners. This, for example, is true in the case of the on-schedule loading and unloading of freightcars every day of the week and the even better exploitation and acceleration of freightcar turnaround. In 1985 it was possible to increase freightcar utilization by one percent compared to 1984.

Higher Transportation Output Due to Complete Train Loads

It is above all the use of complete train loads which offers an opportunity here to achieve better results, coupled with simultaneous reductions in expenditures. Complete train loads--which are used to carry bulk goods, such as coal, construction materials, and fertilizer--are run from a departure station to a destination

station without being switched under way. The train is split up only at the destination station and the individual freightcars are routed to the various specific destinations from there. The advantages are in the interest of both the customers and the German Railroad: fast transportation and thus also an acceleration of freightcar turnaround are guaranteed, marshalling yards are decongested, and the capacity of railroad stations and lines goes up. The transportation client moreover gets freight reimbursements from the railroad. Today, the German Railroad is already carrying more than one out of every two tons of all goods in complete train loads. The latter are also used to deliver about 70 percent of the coal shipped by rail to its destination.

Since the entry into force of the 1985-1986 annual plan, the railroad has been scheduling through-goods-trains for particularly urgent shipments between selected shipping, receiving, and supply centers. This system is proving itself in particular as regards the supply of the country's population and of industry with express goods. The more than 300 connections within the DGS [not further identified] train system are shown in the Freight Rate Book and at the affiliated railroad stations.

Inland shipping in particular, which has been in existence since 1982, has also been becoming more effective. It organizes groupage shipments between collection and distribution points. The goods are picked up from the shippers by state motor transport trucks and driven to the collection points. From here they are hauled by rail to the distribution points and from there they are taken by truck to the particular consignees. The advantages accruing to the transportation clients in terms of portal-to-portal haulage are preserved but transportation by motor vehicle over the entire distance--something which is ineffective in the context of the national economy--is eliminated. The network of groupage shipments, which presently consists of more than 180 links with around 50 collection and distribution points, is being constantly expanded.

Large Container Traffic Increasingly Significant

The large container shipping volume rose 2 percent in 1985 as compared to 1984. Presently, about 70 percent of GDR territory are open to large container traffic. This also includes 33 large container stations, 14 transloading points, and around 250 miscellaneous railroad stations. The 1986 national economic plan has established the target of hauling 5 million tons of goods in large containers.

Other services offered are express and piece goods traffic. The technology of hauling express goods is so structured that every station authorized to perform this service within the GDR can be reached in a maximum of 48 hours. All localities in the republic are serviced by piece goods traffic. In addition, there is piggyback haulage which has been tested on the Suhl--Karl-Marx-Stadt run since 1985. This technology facilitates efficient shipment over medium and longer distances. Under this system, motor vehicles are carried on railroad flatcars. Here are the advantages: decongestion of long-distance highway network, saving of liquid energy sources, less wear and tear on road vehicles.

The transportation workers are doing everything they can to meet the transportation requirements--including those deriving from the obligations of the combines

and enterprises regarding additional daily work output on the occasion of the 11th SED Party Congress--with the help of available resources. In the process, they compete with the goal of lowering the total transportation expenditure by 3.5-4 percent as compared to 1985.

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ECONOMY

GERMAN DEMOCRATIC REPUBLIC

SYSTEMIC FLAWS OVERSHADOW RECENT SUSTAINED ECONOMIC GROWTH

Frankfurt/Main FRANKFURTER ALLGEMEINE in German 8 Nov 85 p 13

[Article by Hans Herbert Goetz: "With an Eye on Moscow - Will the GDR Be Able to Stick to its Economic Police?"]

[Text] It is very likely that the GDR top leaders are waiting each day for their copy of PRAVDA--with bated breath and concern: What might be printed there, who was fired or pensioned off after 20 or 30 years of service? Many decades have gone by since there has been an upheaval comparable to that now being carried out by General Secretary Gorbachev. The wholesale exchange of senior officials in the party and government apparatus (including the State Planning Commission) is bound to arouse anxiety in the GDR. Nothing is more pleasant and convenient in a planned economy than continuity--people know exactly where they are. They know the antechamber, the secretaries, the closest associates of the boss, the department managers--and suddenly many have gone: The foreign trade minister held his office for 27 years, the 74-year old head of the planning commission occupied his for 20 years. And all this just a few months before the party congress in February.

Actually, the GDR has long implemented many of the objectives listed now in the Soviet Union (although they have probably been thought of before).

Reading Honecker's article published by PRAVDA on 18 October, we are bound to ask ourselves whether it was really pleasant for the Russians to be given a report of so many successes. In the months preceding the coming April party congress, the GDR boasts of the 15-year Honecker era, 1971-1986. It assesses the performances of these three "legislative terms" in the 5-year intervals between party congresses. Disregarding a difficult phase at the end of the 1970's and the early 1980's, these legislative terms are characterized by healthy rates of growth. Whatever we may think of GDR statistics, the overall situation has definitely stabilized; lately this has been quite noticeable for each individual GDR citizen. Still remaining, though, is the sharp drop off from East Berlin to the districts on the periphery and small towns, where supplies continue to be modest.

The GDR tightened its industrial structure in the communist manner, though in the course of this more and more enterprises have turned into complete monopolies and sole suppliers. Its suspicion of any kind of market mechanism

remains implacable, that is why it is out of the question for the Soviet Union or the GDR to seriously contemplate the introduction of market economic elements--such as China, for example, is currently doing.

The time now sees foreseeable when the GDR will be able to claim that the housing construction problem will be settled by about 1990 as a "social problem" (to stay with party jargon). Enormous satellite suburbs of dubious quality have arisen. What has remained next to some nicely restored inner cities are the surrounding shabby and sometimes decayed city districts. They demonstrate the limits of the GDR's economic capacity. However, the housing situation has eased somewhat.

Furthermore, compared with Soviet agriculture, that perennial headache, GDR farming is doing quite well. Two record harvests were brought in, the country is largely independent of cereal imports. Arrears in labor productivity admittedly persist, and yields of root crops remain unsatisfactory while the fertility of the soil, often abused by unduly heavy machinery, is causing some anxiety. The nonsensical division of crop cultivation from livestock production is being reversed, gigantism no longer imposed. The GDR seems also to have succeeded in at least partially reactivating any farming enthusiasm left after the forcible collectivization of the 1950's.

On the international stage also the GDR is now in better shape--as regards cultural policy by skillfully arranged art exhibits as well as in economic terms. When, some years ago, in connection with the crisis in Poland, the decline of the Romanian economy and the Soviet Union's reluctance to hold a financial "umbrella" over their needy brother countries, Western banks almost overnight closed their foreign exchange counters to the GDR also, the latter tightened its belt and quickly earned foreign trade surpluses.

The GDR also recorded some successes in the sphere of "management and planning." Honecker outlined the principal directions in the above mentioned article in PRAVDA. Some of what he reported as already achieved is still being considered in the Soviet Union. In connection with the establishment of 157 large-scale combines, for example, the GDR has already abolished the so-called interim structure of VVB's [associations of state enterprises]. In the Soviet Union this step is still being discussed. While there is some overlap due to the many specialized ministries, the GDR does not suffer from the grotesque excesses such overlaps assume in the Soviet Union (and which are well documented). Admittedly, the size of the GDR makes it more easily manageable.

Environmental control and the lacking motivation of scientists represent weaknesses. Complaints are constantly reiterated about the arrears in cooperation between the economy and the latest technology. However, such flaws are inherent in the system. Despite all organized "innovator movements," initiative and spontaneity are not worth while, because they might make the person concerned conspicuous. Everything just meanders along the "socialist path," the individual concentrates on expanding its private niche. That is the reason why the considerable differences in labor productivity, for example, will persist between the two German states--in industry as well as in

farming. It is likely in fact that the differences will grow, albeit at a higher level. Serious differences will also remain with regard to the quality of life.

Party congresses in Western democracies are usually tensely awaited. Who will stay? Who will go? Who will get a majority, who will not? How do the various fronts line up? The situation is exactly reversed in communist countries: Once the party congress begins, everything tends to have been decided already. The persons to be elected to the Central Committee and the Politburo on the last day of the congress have been chosen by the time deliberations begin. The preceding phases--currently operating in the Soviet Union and the GDR--are much more important than the party congress proper, and just these phases are subject to unusual uncertainties in the Soviet Union: As regards foreign policy by the thrilling dialogue with the United States, as regards domestic policy by the search for new approaches to the reform or at least improvement of the unwieldy planning system. According to everything available about the intended "shift" in the Soviet Union, nobody really knows the ultimate direction of the efforts for an improvement of the planned economic system. Is the GDR pursuing the correct line by the policy it adopted in the late 1970's and which certainly yielded quite some success? Uncertainty still prevails.

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ECONOMY

GERMAN DEMOCRATIC REPUBLIC

COOPERATION COUNCILS PROMOTE LPG, STATE FARM INTEGRATION

East Berlin WIRTSCHAFTSWISSENSCHAFT in German Vol 33 No 11, Nov 85 pp 1662-82

[Article by Klaus Ahrends, Dr of Economics, certified economist, born 1948, lecturer at the Institute for the Political Economy of Socialism, Academy of Social Sciences, CC SED. Original title: "Deepening the Cooperation between Agricultural Cooperatives and State-Owned Farms--A Factor of Growth in Production and Efficiency"]

[Text] The continued shaping of the developed socialist society is inseparable from a qualitative development of the socialist production relations. In GDR agriculture, this process is essentially marked by the deepening of cooperation, especially by the expansion and strengthening of the division of labor cooperation between the specialized, legally independent, and economically responsible agricultural cooperatives and the state-owned farms.¹ "This perfecting of production relations accords with the needs for the further shaping of the developed socialist society and proceeds from the givens in social production organization."²

The deepening of cooperation between the LPG's, producing by a division of labor, and the VEG's makes possible a more effective exploitation of the available abundant material funds the GDR's agricultural economic units command and, above all, a more intensive use of the resources concentrated in a given territory.³ That pertains, particularly, to the soil, the cattle stocks, the feed, the organic fertilizer, the equipment, the structures, and the labor capacity. As the LPG's and VEG's acquired more such resources, especially in the 1970's, and production became more highly specialized in that period, the economic cooperation potential for the comprehensive intensification of agricultural production grew significantly. It proves the "proper way for realizing production intensification under the historically grown conditions of our agriculture."⁴ With it, the deepening cooperation relations in various ways affect the further development of the working and living conditions of the cooperative farmers and workers in the GDR's socialist agriculture. This connection results from the close link between operational performance and personal income trends as well as from the common efforts made by the cooperating partners toward developing the rural infrastructure, rural leisure time and recreational activities, and the intellectual-cultural life in the villages.

The deepening of cooperation relations between the specialized crop and livestock production enterprises is an objective process. It is based on the fact that

as the division of labor developed between the LPG's and VEG's in crop and livestock production, the proportions of the uniform agricultural reproduction process began to be reshaped, through which the cooperation among the agricultural economic units producing by way of a division of labor became an elemental condition for effective territorial economic management. For that reason, the deepening of cooperation is among the qualitative growth factors in agricultural production. It makes possible a better exploitation of the available production and efficiency potentials, or an increased use of cooperation as a social productive force. Furthermore, it is found that operational division of labor also always creates new social relations among the collectives.

Under the conditions of the socialist planned economy, special requirements also always arise from the dialectics between a deeper division of labor and cooperation for perfecting the management, planning, and economic cost accounting system. The point here mainly is to develop the kind of forms in management, planning, and economic stimulation or improve the effectiveness of the existing forms so that the proportionality among the members and components of the uniform agricultural reproduction process is ensured and the quality of social relations among the collectives accords with the concrete-historic requirements of the socialist economic laws.

SED leadership activity has always paid much attention to the connection between developing division of labor and cooperation in agriculture on the one side and the perfecting of the management, planning, and economic cost accounting system, on the other. E.g., the SED Central Committee Politburo resolutions of 18 October 1983 and 23 October 1984, on deepening cooperation, propose to develop more authoritatively still the cooperation relations between crop and livestock production enterprises "by means of management, planning, and economic cost accounting."⁵ What it essentially comes down to in both resolutions is to elevate the role and accountability of the cooperation councils in managing and planning the territorial agricultural reproduction process, organized by way of a division of labor. Mainly in conjunction with the preparation and implementation of the "LPG/VEG Cooperation Plan," the cooperation councils are, step by step, assuming economic management functions. By taking account of the experiences of 88 cooperation tests in 1984, the ninth SED Central Committee session got set to "gradually assign economic management functions in all LPG/VEG cooperations to the cooperation councils in 1985 and 1986."⁶ The framework for preparing relevant cooperation contracts comes from the "model cooperation accord for LPG/VEG cooperation," issued as an official recommendation by the GDR Council of Ministers on 13 June 1985.⁷ The most recent measures for deepened cooperation set down in SED and GDR Council of Ministers resolutions are of great consequence for further rural social development. "They chart the direction of further perfecting the socialist production relations."⁸

Territorial Proportionality--A Basic Condition for Increasing Agricultural Production and Efficiency

Socialist production is essentially production managed according to plan. For that reason, the cooperation between the crop and livestock production enterprises within the cooperation framework is dealt with primarily, if not exclusively, by the correlated and integrated "LPG/VEG Cooperation Plan."

As the cooperation councils gradually assume economic management functions, that plan becomes the chief instrument for managing the cooperation relations among the territorial crop and livestock production LPG's and VEG's.

The central problems of planned economic management in socialism is known to be deliberately establishing and constantly maintaining the proportions needed for steady economic growth. That is partly due to the fact that proportionate development and productive force creation through cooperation are two closely linked processes. Each division of labor creates "a qualitative structuring and quantitative proportioning of social production processes, whereby it also develops a new social productive force of labor."⁹ Important here is that the creation of productive force through the division of labor in socialism does not come about as a spontaneous process but only becomes effective through the planned cooperation of the members and elements, having become independent, of what was previously a uniform reproduction process on the basis of newly generated proportions.

Important production and efficiency potentials can be tapped through working out the "LPG/VEG Cooperation Plan," as experiences in 1984 have shown. That became possible mainly through short-range measures taken to established well balanced proportions among the various members and components of the territorial agricultural reproduction process. What with all the advances made, however, a longer time period will be needed for fully establishing this proportionality in all cooperatives or for all basic proportions. What is mainly needed for coping with this task is more of a long-term conceptual work by the cooperation council. Many cooperation councils face the task to come up with structural changes through long-term decisions that would facilitate more efficient cooperation among the members and components of the territorial agricultural reproduction process. Ultimately the point is better to balance the ratio between the social demands placed on the development of agricultural production and its efficiency and the available territorial agricultural resources.

The territorial proportionality between crop and livestock production is, by and large, determined by the following proportions:

Proportion between feed requirements and feed production

Through the farm policy guideline from the 10th SED Congress, to use more domestic feed in livestock production and gradually eliminate feed imports, the proportion between feed requirements and feed production has become a key for increased agricultural yields. The focal point is to supply livestock production completely if possible, with territorial feed.

Significant advances have been made in recent years in satisfying feed requirements on a territorial basis. The number of cooperatives that could not cover their feed requirements on a territorial basis has noticeably declined. Even so, right now there still are a number of cooperatives that do not fully secure the feed requirements for their livestock production. This circumstance affects the performance and efficiency trend of many livestock production enterprises rather considerably still, mainly due to the fact that a growing use of feed per head generally improves the feed economy, i.e., that per unit of livestock end product less feed is needed; with increasing feed production per head,

there comes an increasing livestock capacity within certain limits and a drop in the specific feed outlays; i.e., relatively more feed is converted into livestock capacity. As revealed by an analysis of a larger number of livestock production LPG's, e.g., the specific feed consumption at an in-house product of 2.47 MEF/FGV¹⁰ still comes only to 81 percent of the volume needed to produce an in-house product of 1.74 MEF/FGV (cf. Table 1). Such substance conversions are given adequate expression by cost/benefit computations. Increasing livestock capacity drops specific feed costs and increases LPG and VEG livestock production profits.

In securing feed demands in the cooperative territory more is involved, however, than a certain volume. Of great importance for the effectiveness of crop and livestock production is making feed available in all its varieties. Factors important for determining an optimum territorial feed variety structure are the nutritional and physiological demands in livestock production, the structure of livestock varieties itself, the given soil fertility and the conditions for its reproduction, and economic production factors (e.g. disparate labor efforts for various types of feed and the labor and fixed assets allocations). Feed imports being done away with step by step, the proportion between bulk and concentrate in feed occupies the central concern of the cooperation councils' work in proportioning feed varieties. The main point is to reduce further the still rather strong disparities in meeting concentrate requirements in the different cooperatives.

The still existing disproportions between feed production and feed requirements still encountered in some cooperatives are gradually going to be surmounted in the process of the further intensification of agricultural production. Elevating the yield level marks the focal point there of all intensification measures since there is a direct connection between the size of hectare yields in crop production and the level of feed supplies available.

Proportion between withdrawal and supply of organic substance

This proportion, directed at an optimum humus management, requires, e.g., that in the crop rotation a demand satisfaction in organic substance between 90 and 110 percent is ensured.¹¹ That alone will ensure over the long run that the humus content of the soils gradually increases and no valuable organic substance is lost to agriculture.

Table 1: Proportions between Performance and Feed Consumption in 1,184 analyzed Livestock Production LPG's

<u>Number of Enterprises</u>	<u>Percent</u>	<u>In-house Production MEF/FGV</u>	<u>Feed Consumption per MEF In-house Product</u>	<u>Percent</u>
250	21	1.74	1.34	100
701	59	2.07	1.21	90
233	20	2.47	1.08	81

Source: B. Helmisch/J. Franke/S. Muehle/J. Schreiber, "Nicely Coordinated Production and Labor Organization Enhances Effectiveness of Cooperation," KOOPERATION, No 11, 1983, p 514.

A good humus balance is needed for long-term production and efficiency development. It is a basic criterion for reproducing soil fertility. The humus balance directly or indirectly affects the economic effect of all other soil fertility enhancement measures. Organic substance admixture increases the biological action of the micro-organisms and of small organisms living in the soil, improves the soils' absorption capacity for water and mineral fertilizer, and improves the carrying capacity of acreages for heavy equipment, which cuts down on damage compressions. Furthermore, when soils get enough organic substance, the effects of infestations are mitigated. When they grow stronger roots, most cultured plants can do very well in spite of infestations.

The towering role of applying organic substance to soils in reproducing soil fertility practically also is seen in that LPG's and VEG's with a good humus balance in recent years also showed the highest yields and the smallest yield fluctuations. International surveys confirm this close connection between the humus balance and the level of output. Hectare yields on soils with enough humus reach a 5 to 12 percent higher level on the international average than those with an exclusive though optimal mineral fertilizer application.¹²

Great advances have been made in the last couple of years in improving the soils' humus balance. "While in 1982 the GDR still had an average of a shortage of 4.2 decitons of reproduction-effective organic substance, that had dropped in 1984 to only 2.8 decitons."¹³ So 87 percent of the needs on acreages for organic substance can now be met. It may be assumed that right now one third of the cooperatives have a good humus balance, another third gets an admixture of organic substance up to 90 to 100 percent of the withdrawn volume, while for the last third the application still lies below 90 percent. So for most cooperatives higher efforts still have to be made in the coming years to increase output and use organic substances more rationally. To bring this about, many joint measures are needed between the crop and livestock production LPG's and VEG's that must be prepared presciently over many years and brought to realization step by step. They range from a suitable crop rotation and appropriate catch crop cultivation, adequate cattle stocks and good stable-dung management, all the way to setting proper prices for straw, stable-dung, and liquid manure.

Proportion between volume of production and transport requirements

Of the 445 million tons of goods GDR agriculture has to transport within one year nearly 120 million tons go to stable-dung and liquid manure and 100 million tons to feed. These goods, to be transported merely within the cooperation territory, come to nearly 50 percent of the entire agricultural shipment volume. With the deepening of the social division of labor and cooperation in agriculture the specific transport expenses have also risen greatly. That is mainly due to increasing shipping distances. The higher shipping costs compensated for some of the concentration and specialization effects. This process, as it affects the efficiency trends in agriculture, was reinforced by the growth of the economic outlays for liquid energy sources. That results mainly from that transport requires between 40 and 50 percent of the diesel fuel consumption in agriculture. Indirect effects, moreover, are derived from the relatively high specific basic assets expenditures in shipping. For the transport, trans-shipment, and storage processes, 40 to 60 percent of the fixed assets in agriculture are used at this time.¹⁴

When one talks of transport as a process that calls for the highest specific investments in live and embodied labor, one can see how important it is for enhancing the effectiveness of agricultural production. Cutting down on transports plays the principal role for improving the cost/benefit ratio. The main trend of trimming shipping costs in agriculture lies in cutting down distances. While shipping volumes are hard to reduce without production or efficiency losses, the cutting down of distances proves an economically relevant direction for boosting the efficiency of agricultural production. Table 2 gives an idea of shipping distances in agriculture at the early 1980's.

Of special interest for cutting down shipping distances are the first four items on Table 2. They are correlated most strongly with the production and labor organization, i.e. with the cooperation among the members and components of the territorial agricultural reproduction process.

As one can tell by looking at Table 3, shipping distances increase with the size of the producing territory and the location of acreages in the territory. The most favorable results in terms of shipping and production management are now attained when the stable-dung, liquid manure and bulk feed volumes are produced and used in a territory of an average distance of 5 to 6 km. That conforms with territorial producing areas of between 1,500 and 2,500 hectares of agricultural acreage.¹⁵ They are created, mainly, on the basis of the territorial labor organization and production principle. To that end, the cooperating LPG's and VEG's form stable departments and brigades which accord with the requirements of efficient soil utilization, crop rotation, acreage formation, livestock provisions, and settlement structure and cooperate with one another relatively independently within the producing sector. The forming of territorial work collectives is combined with handing over acreages, equipment, structures, and livestock for their own accountable use and the distribution of LPG and VEG planning quotas among the departments and brigades.

By adopting the territorial principle, shipping distances and the concomitant specific agricultural shipping costs can be reduced perceptibly. One must see to it, however, that the economic effects of concentration and specialization are maintained or expanded. The ultimately decisive criterion for changing the production organization is the effectiveness of the territorial agricultural reproduction process as a whole, and not the cutbacks in shipping costs.

Table 2: Average Distances for Selected Types of Transports in GDR Agriculture

<u>Kind of Transport</u>	<u>Shipping Distances (in km)</u>
From the field	6.9
To the field	4.2
Among agricultural installations	7.7
In crop and livestock production enterprises	7.8
Sales	19.6
Purchases	15.0
Agricultural transports in toto	8.6

Source: H. Hilbert, "Shipping, Transport and Transshipment Communities--A Useful Possibility in Territorial Rationalization," KOOPERATION, No 8, 1983, p 377.

Proportion between labor requirements and available labor for crop and livestock production.

The gap that is known to exist between the labor and the production in crop production generates fairly ample labor peaks and dips. Labor requirements fluctuate considerably in the course of the year, the production period, and relative to natural production conditions (climatic conditions). So for certain sowing, cultivation and harvesting schedules the labor requirements in crop production enterprises exceed the total of labor engaged in these economic units, whereas when there is not much to do an efficient total exploitation of the available labor capacity cannot normally be fully ensured.

Discounting the fact that in many livestock production LPG's and VEG's seasonal fluctuations in labor requirements also occur, the fundamental labor economy problem in these economic units rather is found in spending more for taking care of the animals for steadily boosting the livestock capacity and, hence, the effectiveness of livestock production. The labor available in many livestock production LPG's and VEG's is not enough at the prevailing level of mechanized labor to ensure for the animals to be taken care of as well as they ought to be. The result is that the labor now available in many livestock production enterprises causes the annual average working hours to be exceeded or a less than full exploitation of the production and efficiency potentials there. In conjunction with more labor mechanization, as planned, and with developing the labor available in livestock production, a temporary exchange of labor among the cooperating crop and livestock production enterprises is one way to cope with the crop production tasks on favorable agro-technical schedules while also improving the schedule-related working conditions in livestock production. Seasonally and climatically caused disproportions between enterprise labor force requirements and labor force available can be surmounted in many cooperatives by applying this form of an efficient use of the labor capacity. When livestock producers, e.g., grow sugar beets or work in the hay or root crop harvest in crop production, or when crop producers help the livestock production enterprises in the winter months, this then also helps develop the joint responsibility the crop and livestock producers have for a rational management of the soil-plant-animal-soil cycle. Labor exchange between the LPG and the VEG of a cooperative emphatically affects the formation of common economic interests on the part of the cooperation partners.

Table 3: Mean Transport Distances in Relation to Diverse Supply Territories

Size of territory (in hectare)	Mean transport distances in relation to agricultural acreage in a territory (kilometers) ^{a)}		
	<u>70 percent</u>	<u>50 percent</u>	<u>30 percent</u>
500	1.4-3.0	1.6-3.6	2.1-4.7
1,000	2.0-4.3	2.3-5.1	3.0-6.6
1,500	2.4-5.3	2.8-6.2	3.7-8.1
2,000	2.8-6.1	3.3-7.2	4.2-9.3
3,000	3.4-7.5	4.0-8.8	5.2-11.4
4,000	3.9-8.6	4.7-10.2	6.0-13.2
6,000	4.8-10.6	5.7-12.5	7.4-16.2

a) from best to worst territorial and internal traffic conditions

Source: G. Erk, "Better Work by the Cooperation Councils in the Planning Process Improves Crop, Livestock Production. Cooperation," KOOPERATION, No 7, 1983, p 296.

Above and beyond the labor exchange between crop and livestock production, however, a temporary use of labor from the economic units in agriculture's own preproduction sectors (melioration cooperatives, agro-chemical centers, kreis enterprises for farm equipment) in crop production also helps meet the labor requirements in agro-technically decisive periods and for meeting the most favorable agro-technical schedules. It is of advantage in this regard that many who work in the economic units of the preproduction sectors are delegated cooperative farmers or former workers on state farms who reside in the cooperatives' territories.

If either type of labor exchange is to be highly efficient, the temporary job change must be integrated, according to plan, into the enterprise reproduction process, and the working people intended to be exchanged must get well-timed technical and ideological training for it. Thus the LPG's, VEG's, and the economic units of the preproduction sectors must, while preparing their plans of operation, take the temporary labor exchange into account.

Proportion between value formation and value realization

This proportion--in so far as it is affected by cooperative relations between crop and livestock production--evolves mainly through contract prices. They, in terms of this proportion, must be formed in such a way that the feed not only covers the costs, which had already normally been the case prior to the agrarian price reform, but that it can also be produced with profit. That is primarily a requirement for stronger incentives for big feed production and effective use of it. As long as, e.g., in hay, corn, lucerne and potatoes, due to setting effective cost-effective prices, a gap occurred between value formation and value realization, there was not enough of an incentive to boost the yields precisely in these cultures. Crop producers mainly concentrated their efforts on highly profitable commodities (grain). On the other hand, the relatively low prices for feed encouraged all too insufficiently a rational use of bulk fodder. Bulk fodder management played a subordinate role in livestock production enterprises. Nor did the widespread non-use of combining products like straw, stable-dung, liquid manure, and dung water, as far as the value enhancement in the LPG and VEG reproduction process was concerned, help exactly in promoting the production and effective utilization of these agricultural raw materials.

New principles also took effect with the agrarian price reform for setting contractual bulk fodder prices. They oriented the cooperative partners to setting profitable contractual prices. The profitability of feed production which became possible thereby greatly improved the prerequisites in terms of value for a proportionate development as between the production of crop market products and that of feedstuff for the cooperation partners. On the other hand also, in setting more contractual prices for stable-dung and dung water, one then also helped make visible the connection between the value formation and value realization in these raw materials. Setting quality-related contractual prices for fodder and combined products has been greatly broadened in recent years, which has reinforced the material incentive for the producers to produce primarily high-grade feed and organic fertilizers. In the Oehna cooperative, e.g., contractual prices for feed are formed in such a way that only for good or very good grades a profit can be produced. But when the feed is

classified as grade III, IV, or V, price deductions up to as much as 70 percent have to be taken into the bargain (cf. Table 4).

Of importance to a proportionate development of crop and livestock production, as a basic condition for highly effective agricultural production, also is the target-directed cooperation of the cooperation partners in shaping territorial working and living conditions. Proportionality in the social sector is crucial "for more closely linking the village, where the farmers are at home, with agricultural production and further heighten the influence, mainly, of the agricultural producers cooperatives on all village life."¹⁶ The stronger cooperation among the cooperating partners in the social sector relates above all to improving the rural material living conditions. The emphasis is placed on rural housing construction, commuting, vacations, and food provided in the enterprise. In particular with respect to improving the housing conditions, mainly by modernization and maintenance and the expansion of commercial buildings not in use and of private homes, and by joint an individual repair and maintenance projects,¹⁷ it is more advantageous for economic reasons also to coordinate procedures and make sure through jointly prepared regulations that the new generation of workers settle near the production sites. For an effective cooperation in provisioning and taking charge it is of importance that, in line with the economic cost accounting principles, clear agreements are made among the cooperating partners on the financing and accounting for what is done.

This, furthermore, relates to activating a diversified intellectual-cultural and athletic life in the villages. In working together in the fields of culture and sports, the cooperating partners assume that vivid intellectual-cultural and athletic life in the countryside decisively contributes to socialist personality development and consciousness development and to fostering the creativeness, pleasure on the job, well-being, and village links of the cooperative farmers and agricultural workers. For this reason they are, within the framework of communal accords concluded with the communities, materially and financially supporting cultural groups, sports teams and other culturally active social organizations.

These objective existing proportions and fields of activity in such cooperation are the essential points of departure for the work of the cooperation council. What this mainly boils down to is to initiate through management decisions long-term changes in the cooperatives' production structure or mitigate the historically grown level disparities, not due to differences in achievements, in the working and living conditions of the cooperation partners, whereby to create the general economic foundation for the genesis, development, and consolidation of joint economic interests in the cooperative.

Table 4: Price increases and reductions for feed in the Oehna Cooperative
(in percent)

Grade	Price increases or reductions
I	+20
II	0
III	-20
IV	-45
V	-70

Source: R. Lehmann/E. Seidel, "Planning the Uniform Reproduction Processes in the Crop and Livestock Production of the LPG's Cooperative," KOOPERATION, No 4, 1985, p 152.

The Cooperation Council--A Collective, Democratically Elected Management Organ

The cooperation councils are collective management organs of the crop and livestock production enterprises cooperating with each other. In the past they exercised coordination functions exclusively. Assigning economic functions to them started in 1984 and is supposed to be concluded in 1986.

In GDR agriculture by no means all cooperative relations are managed by organs especially set up for them. Rather, at present, there are four different basic forms of cooperative management to be distinguished:

1. Cooperative relations are directed and regulated exclusively within the scope of "normal" management activity, such as the cooperative relations between the kreis enterprises for farm equipment or repair enterprises for farm equipment and the agricultural economic units. Management in that case is based on planning decisions and economic contracts made and concluded within the scope of the existing management system.
2. Relations between the cooperative enterprises and their joint facilities (e.g. ZBE/ZGE¹⁸ for cattle breeding, young cattle or heifer production) are managed by elected or appointed organs (e.g. authorized agents' assemblies). They are an integral part of the management system of the joint facilities. The functions of these management organs are principally conceptual and supervisory.
3. Cooperative relations are coordinated by elected or appointed participatory organs. These organs, e.g. the cooperative associate councils,¹⁹ do not enjoy the status of independent management organs and hence cannot make any binding planning and management decisions.²⁰ In this case also the cooperative relations are in principle managed through the branch management organs, the territorial state organs, and the managements of the economic units. Management decisions take the recommendations, suggestions, and resolutions of the elected participatory organs into account.
4. Cooperative relations are controlled and regulated by management organs with economic management functions, as it is now increasingly the case with managing the cooperation between the crop and livestock production LPG's and VEG's. These management organs, the cooperation councils, are in charge of the management and planning processes of the cooperating economic units. Their decisions are binding on all LPG's and VEG's working together within the cooperative framework.

The management of cooperative relations by means of organs that have economic management functions thus is no general feature of agricultural cooperatives; it is determined primarily by the specifics in the cooperative relations between the crop and livestock production LPG's and VEG's. For defining these cooperative relations, the following features are of special importance:

1. A high degree of integration is typical of the cooperative relations between crop and livestock production enterprises. The general basis for it is the metabolic soil-plant-animal-soil cycle.

2. The cooperative relations between crop and livestock production enterprises are marked by high intensity and stability. The supplying of feed in a livestock production enterprise, e.g., by and large is concentrated in one crop production enterprise,²¹ that is to say, between 40 and 60 percent of the production consumption in the livestock production enterprises are procured from one "supplier."

3. The cooperative relations between the crop and livestock production enterprises are tied to the territory. The territorial limit placed on these cooperative relations is due to economic reasons primarily. Were one to expand the cooperative relations of crop and livestock production generally beyond the territory of a cooperative, higher costs, mainly in production consumption, would result.

4. The cooperative relations between crop and livestock production enterprises are marked by a high degree of flexibility and active operations. This is already due to the fact that the actual accomplishments achieved by the cooperative partners are strongly affected by the natural farm production conditions. That is true especially of the volume and structure of feed supplies from the crop production enterprises, but it also relates to such processes as the exchange of labor and the common use of some equipment (tractors, trailers).

These objectively existing characteristics of the cooperative relations between the crop and livestock production LPG's and VEG's are essential causes for having the cooperation councils gradually take on economic management functions. It is to be noted here, however, that these characteristics reach the quality establishing the need for the cooperation councils to assume economic management functions only in their being combined and interlaced, not yet while they are still isolated from one another.

As coordination organs of the agricultural economic units working together in a division of labor, the cooperation councils evolved with the division of labor between crop and livestock production in the 1970's. The successive assumption of economic management functions by the cooperation councils, as of 1 January 1984, must thus have causes other than the specific characteristics of cooperation between the crop and livestock production LPG's and VEG's. They are closely tied up with the comprehensive intensification of agricultural production. With agriculture's converting to the fund-saving type of intensive expanded reproduction, increasing importance began to be attached to factors like

- the securing of feed out of the territory,
- the trimming of the consumption of energy carriers,
- the rational use of mineral fertilizers, and
- the most efficient use of technical farm equipment,

to implement the SED's farm policy goals. They constitute a much higher economic potential at this time than they did in the 1970's. In consequence of the re-evaluation of feed production, the energy carriers, the fertilizers, and the technical farm equipment, and their higher place value in the intensification process, the territory itself gained a higher rank as a relatively independent factor of farm production, and so did that of the cooperation council in managing and planning the territorial agricultural production. What ultimately triggered new forms and methods of agricultural management, which also includes the gradual

assumption of economic management functions by the cooperation council, hence were structural changes in the system of the agrarian productive forces. They turned the deepening of cooperation and, in this connection, the gradual assumption of economic management functions by the cooperation council also into an essential condition for the comprehensive intensification of agricultural production.

That it is a collective working and democratically elected management organ, is one of the essential features of the cooperation council. This feature of the cooperation council follows mainly from the predominance of cooperative property in agriculture. In nearly 75 percent of all cooperatives, only LPG's are cooperating; only in 0.4 percent of all cooperatives, exclusively state-owned enterprises do.²² That circumstance brings it about that the principles of cooperative democracy also became the general basis for managing the territorial cooperation of the crop and livestock production LPG's and VEG's. The gradual assumption of economic management functions by the cooperation council therefore does not restrict, let alone invalidate, cooperative democracy, but actually expands its effective radius. The principles and forms of cooperative democracy show up above all in the composition and working method of the cooperation council:

1. The cooperation council is a democratically elected management organ. It is staffed by management personnel of the cooperating economic units (LPG chairmen, directors of the state-owned agricultural enterprises) as well as by cooperative farmers and production workers. They are elected for 3 years by the LPG plenum or appointed for that period by the competent director of the state-owned agricultural enterprise--after consultation with the enterprise trade union management. Right now, an average of 16 or 17 cooperative farmers and other working people are working together on a cooperation council. In the 1980's, in particular, greater efforts have been made to advance the democratic character of the cooperation council by including more production workers. In consequence, the proportion of cooperative farmers and production workers has increased, if unevenly in the various cooperation councils. More young people also were sought to be put into cooperation councils. Some such councils are still without young people. "That neither reflects the real situation in the LPG's and VEG's nor is it apt to lead young people, systematically and smoothly, into higher functions."²³

2. The democratic character of the management process in the cooperatives, responsive to the principles of cooperative property in the means of production, is reflected also by the broad participation of cooperative farmers and workers in managing the commissions of the cooperative council. Working on the commissions turns out to be a highly rational way for drawing other management cadres, specialists and cooperative farmers from material production into cooperation council activities and for using their creativeness in coping with managerial tasks. For preparing their decisions or for the operational management of priority cooperation tasks, in conformity with concrete conditions, the cooperation councils are setting up the following commissions:

- Commission for planning and economic relations,
- competition commission,
- fodder commissions,
- soil fertility commission,

- commission for livestock development and protection from epidemics,
- commission for scientific-technological progress, innovations, rationalization and reconstruction,
- commission for the labor capacity, training and advanced training,
- individual production commission, and
- commission for working and living conditions.

Generally speaking, these commissions work more or less on their own, on the basis of a plan of operations ratified by the cooperation council. At regular intervals they account to the cooperation council for what they have done or get charged by it to come up with particular decision proposals. The commission membership in most cooperatives is between 4 and 8 at this time. The commissions normally are managed by LPG chairmen, VEG directors, or other managerial cadre.

3. The cooperation councils are charged by the plena of the cooperating LPG's or the directors of the state-owned agricultural enterprises with concrete functions and authorizations to carry out joint management, planning, and economic cost accounting measures. The legal premise for it is Article 12 Section 3 of the LPG Law of the GDR, promulgated in 1982, which states: "The LPG's, state-owned farms, and other socialist agricultural enterprises may assign to the cooperation councils rights and duties for carrying out under their own responsibility joint management and planning measures in the cooperatives' uniform reproduction process and for using shared funds."²⁴ The delegating principle for tasks and managerial authorizations implies an accountability obligation. The model cooperation agreement therefore provides that the status report from a cooperation council has to be passed at the year's end by the LPG plenum or the VEG director. This principle furthermore points out that by no means all management tasks belong in the cooperation council's sphere of competence. The management activity of the cooperation council is mainly concerned with matters relating to the cooperation among the agricultural economic units. Thereby the cooperation council takes on the domain of economic relations which no partner enterprise by itself can manage and plan. The cooperation council is not entitled, however, directly to manage and plan the VEG's and LPG's reproduction process. That continues to fall under the competence of the LPG board or chairman and the VEG director.

4. The cooperation council manages in accordance with the principle of collective consultation and decision-making. When assuming economic management functions, its decisions have become binding on all partners. When this principle was being tested in practice, it became apparent that the decisions by the cooperation council on basic matters concerning the development of the territorial reproduction process in the territory have to be taken unanimously. Majority decisions are not apt to ensure the economic interest of all cooperating partners in boosting production and improving its efficiency in the territory. The requirement to prepare management decisions of the cooperation council thoroughly and, above all, in such a way that they conform to the economic interests of all cooperating partners, is not merely a general condition of planned economic management in socialism; it also results from the conditions under which cooperative property asserts itself. Recognizing and creating appropriate implementation conditions for the economic interest of the various LPG's is imperative for tapping all the economic processes inherent in this form of property for shaping the developed socialist society.

5. The cooperation councils work together closely and on a comradely basis with the state management organs, particularly with the specialized organ for agriculture and the foodstuffs economy under the kreis council. The cooperation councils are no state management organs although they assume certain planning and management functions thus far assumed by the state management organs vis-a-vis the LPG's and VEG's (e.g. breakdown and distribution of state planning quotas for the LPG's and VEG's, running plan precisions, and coordinating the development of the territorial cooperative farmers' personal income). As a management organ of the territorial cooperating economic units, it is working under its own responsibility, on the basis of confirmed plans, state laws and decrees, and the tasks set down in the cooperation agreements. In carrying out their management tasks, the cooperation councils are supported by the specialized organ of the kreis council, in terms of the substantive implementation of the specialized organ's work (e.g. handing over balanced planning tasks and the cooperation council's involvement in preparing territorial development conceptions) as well as with regard to the technical instruction given the cooperation council by the state organ.

The cooperation council is a management organ without a machinery of its own, outside that of the cooperating LPG's and VEG's. This form of management organization makes possible managing the cooperation without additional managerial cadres and keeping the extra management expenses low.²⁵ This also ensures a management close to production. The members of the cooperation council do not stand apart from the territorial agricultural reproduction process; they, as it were, embody the unity between manager (as members of the cooperation council) and subordinate (as members of their production collectives). By way of economic incentives in their economic units they also are induced directly, through material interests, to create conditions in the cooperative for making expanded reproduction in all cooperating LPG's and VEG's highly efficient.

In practically implementing this management organization principle, experiences gathered in the management of industrial and construction combines in the GDR could and can be analyzed and exploited in accordance with the specific agricultural conditions. Because of the socioeconomic and production organization particulars in agriculture, however, it is not suitable to take over directly the combine management principles.

A result of the form of management organization practiced in deepening LPG and VEG cooperation is that cooperation management personnel largely is identical with the management in the agricultural economic units. That holds true not only for the cooperation council chairman but, in principle, for all management cadres. Involving nearly all management cadres in managing the cooperation is due to the fact that LPG-VEG cooperation is not confined to solving individual tasks but embraces the uniform agricultural reproduction process in its complexity. Cooperative management therefore objectively involves all the managerial cadre of the cooperating agricultural economic units. Their activity is broadened by management tasks derived from the rational cooperative organization of the partners of this cooperation for any given domains of responsibility. In the practical implementation of this managerial organization principle it has turned out to be of benefit that not only the management cadre's concrete tasks in running their LPG's and VEG's are set down in the functional plans, but also for managing the cooperation among these economic units. That ensures effective cooperation of the cooperating partners down to the departments and brigades.

There is a chairman who manages the cooperation council. Working together with the LPG chairmen and VEG directors, he organizes the cooperation council's work assigned according to plan, ensures a thorough preparation for and orderly implementation of cooperation council conferences, and conducts operational management sessions. The cooperating partners may authorize him legally to represent through his LPG or VEG the cooperation within the framework of the tasks assigned to the cooperation council. The 12th Farmers Congress of the GDR recommended always to choose the politically and technically most experienced LPG chairman or VEG director as cooperation council chairman. The assumption there was that his political strength of radiation, his technical competence, and his perception of the cooperate reproduction process, as well as his personal dedication to the cooperate reproduction process, would greatly affect the attitude of the other managers and, in consequence, the cooperate development as a whole.

Many cooperative have started appointing another management functionary as cooperation council secretary. That too is normally connected with the work done in one's enterprise and thus requires no extra personnel. In other cooperatives, on the other hand, the cooperation council has charged a skilled functionary with dealing constantly with the territorial uniform agricultural reproduction process, which is to say, with working for the cooperation council exclusively. The work he does makes him being called the economist of the cooperation council. Regardless of how either variant of the management organization is used, neither the part-time secretary nor the full-time economist of the cooperation council can by himself cope with the preparation and supervision over the fulfilment of management decisions. For that one certainly needs the active efforts of the cooperation council and, mainly, of its commission.

Deepening the Cooperation and In-house Responsibility of the LPG's and VEG's

The gradual assumption of economic management functions by the cooperation council does not cancel the juridical independence and economic liability of the LPG's and VEG's. They are forming the basic units of agricultural production. Important signs of the LPG's and VEG's juridical independence and economic liability are

- the LPG's and VEG's having their own plan,
- their own production of means for the expanded reproduction of enterprise funds,
- for the LPG's, an enterprise-specific value of labor unit,
- the concluding of economic contracts, and
- tax payments from the profits to the kreis council budget.

Nor does the gradual assumption of economic management functions by the cooperation council make the LPG's disappear as objects of state management activity, exclusively turning the cooperation council into the subject of state management in agriculture in the cooperate territory. Direct managerial relations continue to exist between the LPG's and the kreis councils; their scope and intensity depend mainly on which concrete rights and duties the cooperating partners have transferred to their joint management organ. The direct managerial relations between the LPG's and the kreis councils express an essential aspect of the overall social character of the agricultural

management and planning processes. State management activity aimed exclusively at the cooperation council would, practically, have the consequence for the cooperation council to lose its function as a joint LPG-VEG organ for managing the cooperate relations. It would, in such a case, form another management level above the LPG's and VEG's. "By no means must the cooperation council become a general switchboard for state orders to the LPG."²⁶

The gradual assumption of economic management functions by the cooperation council, while it does not change the essence of the LPG's and VEG's, it does change the conditions for their in-house responsibilities. The reproduction process in the various agricultural economic units gets much more closely tied up with developing the economic capacities of all cooperating partners. That is supposed to turn back a formerly widespread disparate economic development, often not based on one's own achievements, of the LPG's and VEG's in a cooperative. With the step-by-step assimilation of the economic development levels of the economic units in a cooperative more favorable prerequisites also are created for materializing the socialist performance principle, for a still closer relation between the development of enterprise performance and the personal income of the cooperative farmers and workers in socialist agriculture. But that cannot mean that personal material and moral incentives in the LPG and VEG of a cooperative is "more and more uniformly regulated,"²⁷ but that it is to be brought about for the working people's economic interest to be focused on a performance growth the realization of which would require an intensification of the entire soil-plant-animal-soil cycle, not just of partial segments of it. The economic conditions for LPG and VEG performance improvements in a cooperative must mainly be equal, not the regulations for paying for them. Uniform rules for remuneration and other social benefits generally do not as such produce stronger economic incentives for performance growth, they only facilitate leveling trends, i.e. violations of the performance principle. Moreover, uniform rules on remuneration in all LPG's and VEG's of a cooperative would virtually negate the specific conditions under which both the cooperative and the public property functions.

When the cooperation council assumes economic management functions, the enterprise management organs get increased responsibilities for carrying out the creative conversion of the cooperative resolutions. That is another important sign of the agricultural economic units' increasing own responsibility with deepening cooperation. LPG chairmen and VEG directors, because of the increasingly mandatory nature of cooperative resolutions, effecting a still closer cooperation among their economic units, are also accountable more than before for setting up effective reproduction conditions in the partner enterprises. The operational effectiveness of enterprise management activity is widening. It is no longer confined to the task of using its own resources more intensively and advantageously, it now also embraces the responsibility for a more effective coping with the territorial soil-plant-animal-soil cycle. More than in the past, therefore, does the initiative of the cooperative farmers and workers in socialist agriculture have to be mobilized for meeting both the operations plans and the cooperation council resolutions. Exploiting the previously used performance potentials of the collectives and of each individual cooperative farmer therefore gains a greater importance in the management process.

Nor is the juridical independence and economic liability of the LPG's and VEG's infringed by the cooperation partners' setting up joint funds. The main effect of such joint funds lies in favorable socio-economic prerequisites for production and efficiency growth in all the LPG's and VEG's of a cooperative. Thus they complement the principle of in-house production of the means for expanded fund reproduction in the agricultural economic units. The cooperation councils can decide the setting up of the following joint funds:

- investment funds,
- incentive funds, and
- reserve funds.

All three funds are supplied from the profits of the LPG's and VEG's of the cooperative. The cooperation councils themselves decide on the size and the forming and utilization mechanism of the funds in conformity with the specific socioeconomic conditions in their cooperatives. That alone makes possible using the diverse effective conditions for deepening cooperation in the various territories. With concurrence from their next higher management organs, state-owned farms can also resort to such joint funds, in which case state-owned and cooperative resources are shown and reproduced separately.

In forming and using joint investment funds it has turned out to be beneficial for such funds to be used primarily for financing the kind of investments that provide socioeconomic effects for all the cooperation partners. It is easier to bring this principle into effect if the funds are related to specific purposes when they are set up. That in turn presupposes that the material planning for joint investments precede the financial planning in time.

Using the joint funds for performance incentives normally commit the cooperatives to meeting concrete performance targets in establishing cooperate proportionality. Those are essentially achievements produced by one partner for the cooperative as a whole. The LPG of the Wulfersdorf Cooperative, e.g., uses means from such a fund, among other things, for inducing dung production in the livestock production enterprises, producing sewageable feed from pastures, and the inducing of quality labor in crop production.

The joint reserve fund mainly serves to make up financially for production losses because of unfavorable climatic production conditions and epidemics. It provides the cooperation partners with broader opportunities to bridge unforeseeable financial disturbances in reproduction process operations without assuming extra credits. That is of very special importance, precisely, for ensuring the LPG's liquidity and, in this context, the standard of living attained by the cooperative farmers. To that extent then the joint reserve fund also helps shoring up still better, financially, the implementation of the united economic and social policies in the LPG.

Forming and using joint funds closely relates to expanded LPG and VEG fund reproduction. Expanded LPG fund reproduction remains basic to using all the potentials of cooperative property. This therefore must also be ensured under the conditions that the cooperation partners are setting up joint funds. The expanded reproduction of operational funds is an elemental effective condition of the principle that makes for in-house production of means. This basic

principle of economic cost accounting or economic liability becomes insubstantial when one does not ensure the expanded reproduction of LPG and VEG funds. When one defines the cooperation partners' joint funds as something that complements the expanded reproduction of operational funds, one assumes that the formation and utilization of joint funds, in economic terms, represent redistribution processes and thus infringe the mechanism behind forming LPG and VEG economic interests. If the forming of joint funds no longer permits the extended reproduction of operational funds, the advantages the joint funds undoubtedly provide for boosting agrarian production in the territory and improving its effectiveness may be overcompensated for through negative effects. This is always so when the economic interest of the cooperative farmers no longer pertains primarily to producing a high net product or profit, but to getting as much as possible out of the cooperation partners' joint funds, that is to say, when the interest in dealing effectively with the operational reproduction process declines.

The experiences of the 1980's confirm that deepening the cooperation and consolidating the LPG's and VEG's own economic liabilities are two sides of one uniform process. As necessary conditions for comprehensive intensification of agricultural production in the 1980's, they are inseparable from each other. It had a favorable effect on agricultural performance improvements, as Erich Honecker affirmed at the 10th SED Central Committee session, "that the LPG's and VEG's were further consolidated and, for their mutual benefit, deepened their cooperative relations."²⁸

FOOTNOTES

1. Problems of deepening the cooperation among other members of the agricultural reproduction process or other forms of cooperation in agriculture are not dealt with in this article.
2. E. Honecker, "Zur Vorbereitung des XI. Parteitages der SED" [Getting Set for the 11th SED Congress] (10th SED Central Committee Session), Dietz publishing house, Berlin, 1985, p 41.
3. One GDR crop production enterprise currently takes care of an average of 4,700 hectare in farm acreage. The area of agricultural acreage taken care of by one crop production enterprise, within which furthermore an average of 3 to 4 livestock production enterprises are operating, is, unless announced otherwise, referred to as a territory in the following.
4. E. Honecker, "Aus dem Bericht des Politbueros an das Zentralkomitee der SED" [From the Politburo Report to the SED Central Committee] (9th SED Central Committee Session), Dietz publishing house, Berlin, 1984, p 48.
5. Ibid.
6. Ibid., p 49.
7. Cf. NEUE DEUTSCHE BAUERNZEITUNG, No 25, 1985, pp 12 ff.

8. W. Felfe, "With High Achievements Are the Cooperative Farmers and Workers Targeting at the 11th SED Congress," "Materialien der Zentralen Beratung mit Leitungskadern und Praktikern der sozialistischen Landwirtschaft vom 9.-11. 1. 1985 in Leipzig-Mark-Kleeberg" [Materials from the Central Conference with Management Cadres and Socialist Farmers, 9-11 January 1985, at Leipzig-Mark-Kleeberg] Berlin, 1985, p 44.
9. K. Marx/F. Engels, "Werke" [Works], Dietz publishing house, Berlin, 1956 ff, Vol 23, p 386.
10. MEF - million energy feed units. Natural substantive grading criterion for all crop and livestock products; fGV - feed-related large cattle unit. Conversion index for uneven cattle stocks provided with a uniform natural term.
11. Cf. P. Kundler, "The Soil Pays Off for Everything with Interest." NEUE DEUTSCHE BAUERNZEITUNG, No 41, 1982, p 7.
12. Cf. "Complex Procedures for Improving Soil Fertility and Yields," "Anleitungsmaterial zur Winterschulung der Brigadiere und Arbeitsgruppenleiter der SPG, VEG und deren kooperative Einrichtungen" [Instruction Material for Winter Training for Brigade Chiefs and Task Force Chiefs in the LPG's, VEG's, and their cooperative facilities], Berlin, 1984, p 26.
13. W. Felfe, op. cit., p 22.
14. Cf. J. Ilgner/W. Moerbe, "Production Combination--Intensification Factor and Source for Efficiency Improvements," KOOOPERATION, No 10, 1983, p 451.
15. Cf. G. Erk, "Better Work by the Cooperation Councils in the Planning Process Improves Crop, Livestock Production Cooperation," KOOOPERATION, No 7, 1983, p 296.
16. W. Felfe, "Maximal Achievements in the Karl-Marx-Year from Each Acreage, Each Stable," NEUE DEUTSCHE BAUERNZEITUNG, No 4, 1983, p 6.
17. Cf. "GDR State Council Recommendations for the Activity of the People's Representations, Their Organs and Deputies in Kreis Towns and Communities," NEUES DEUTSCHLAND, 19-20 June 1982, p 5.
18. ZGE and ZBE are joint production or service facilities set up jointly by several enterprises. In the ZGE (intercooperative facilities) only producers cooperatives are involved, in the ZBE (interenterprise facilities), only state-owned enterprises.
19. The cooperation association (KOV) is a form of vertical cooperation among agricultural enterprises, enterprises that process agricultural raw materials, and commerce. Joining the KOV is voluntary, with all participating enterprises maintaining the independence. The cooperation association council organizes the association's work.
20. It is a status claimed still also at this time by many cooperation councils of the cooperating crop and livestock production enterprises in a territory.

21. In almost all 1,170 cooperatives the territory of one LPG or VEG of crop production is identical with the cooperative territory. But in two cases two crop production enterprises also work together with the livestock production in the cooperative.
22. In the remaining circa 25 percent of the cooperatives the cooperative and state-owned agricultural enterprises are comradely working together.
23. W. Felfe, "With High Achievements . . .," op. cit., p 46.
24. "Law on the Agricultural Producers Cooperatives--LPG Law--2 July 1982," GESETZBLATT DER DDR, Part I, No 25, 1982, p 445.
25. The financial outlays for the management activity of the cooperation council are borne by all enterprises. This here applies merely to the cost in working hours or of managerial cadre.
26. W. Felfe, "With High Achievements . . .," op. cit., p 47.
27. G. Erk, "On the Economic Organism of the Cooperating Crop and Livestock Production LPG's and VEG's," KOOPERATION, No 4, 1985, p 165.
28. E. Honecker, "Zur Vorbereitung . . .," op. cit., p 41.

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CSO: 2300/265

ECONOMY

GERMAN DEMOCRATIC REPUBLIC

ADN REPORTS COMMERCIAL AGREEMENTS SIGNED AT LEIPZIG FAIR

LD052356 East Berlin ADN International Service in German 1937 GMT 5 Sep 85

[Excerpts] Leipzig, 5 Sep (ADN)--GDR foreign trade enterprises today concluded numerous further contracts at the Leipzig Fair. The foreign trade enterprise Transportmaschinen Export-Import and the Soviet partner enterprise Avtoexport agreed reciprocal deliveries worth over R93 million. The GDR is to export commercial vehicles, trailers, and spare parts to the USSR and will import commercial and special vehicles for the transport and construction sector.

The GDR foreign and domestic trade enterprise Metallurgiehandel concluded a contract with the Bulgarian foreign trade company Rudmetal on reciprocal deliveries worth over R7 million. The GDR will deliver among other things structural, angled and special steel and thermoimetal [as received] and will receive galvanized pipes and copper and brass strip.

Representatives of the foreign trade enterprises Schiffssommerz and Sudoimport agreed the delivery of a further four multipurpose LO-RO freighters to the USSR in 1986.

The foreign trade enterprise TAKRAF Export/Import has a fair contract to supply tracked rotating cranes worth R19 million to the USSR.

Also intended for the USSR are 150,000 square meters of light-weight metal constructions: multipurpose buildings, and room and kitchen modules.

A long-term agreement was signed by the foreign trade enterprise Elektrotechnik Export-Import with the organization Cubaequipos for supplying communications technology in the period 1986-1990. Another contract envisages the GDR supplying armatures for the Cuban sugar industry.

Romania is importing fault locating equipment from the GDR, Bulgaria electronic measuring equipment, Poland potash products still for 1985. Poland is also to receive electronic accounting and invoicing machinery and office typewriters.

Apart from export contracts, GDR foreign trade enterprises also concluded important import agreements. A long-term contract was signed today between the foreign trade enterprise Industrieanlagen-Import and the Polish foreign trade organization Centrozap. On the basis of this Poland will take part in the planned reconstruction of the blast furnaces in Eisenhuettenkombinat Ost.

/12712

CSO: 2300/276

ECONOMY

GERMAN DEMOCRATIC REPUBLIC

BRIEFS

GDR-USSR TRANSPORT DOCUMENTS SIGNED--Moscow, 12 Feb (ADN)--Questions concerning the start of railway ferry traffic between the GDR and the USSR were discussed in Moscow today between Otto Arndt and Horst Soelle, transport and foreign trade minister of the GDR, and the ministers for railways, merchant marine, and foreign trade of the USSR, Nikolay Konarev, Timofey Guzhenko, and Boris Aristov. A series of basic documents and regulations were signed regulating the conditions, operation, and transportation of goods between both countries, based on the government agreement concluded in 1982 on the establishment of rail ferry traffic between the ports of Mukran and Klaipeda. [Text] [East Berlin ADN International Service in German 1305 GMT 12 Feb 86 LD] /12712

TRADE WITH MONGOLIA--On Friday the agreement between the governments of the GDR and the Mongolian People's Republic [MPR] on mutual commodity deliveries and payments for the years 1986-90 was signed in Berlin by foreign trade ministers Horst Soelle and Dulmaa Jamsrangiyn. The document envisages a significant increase in the commodity exchange. The GDR will supply, among other things, products of machinebuilding, electrical engineering, and electronics; of scientific appliance construction; and of chemical and light industry. The MPR exports particularly involve mining products, wool, furs, leather and suede outerwear, as well as other light and food industry goods. [Text] [East Berlin NEUES DEUTSCHLAND in German 25-26 Jan 86 p 1 AU] /12712

NEW MACHINE TOOLS--This year the Fritz Heckert Machine-Tool Combine will put 20 new and further-developed products on the market. They are efficient processing centers and complete machine systems. They allow the metallurgical industry at home and abroad largely to automate production sectors. Dr Karl Kranert, director of research of the Karl-Marx Stadt Combine, told ADN that all new developments have microelectronic control and regulator systems. The machine complexes can be used flexibly, which allows customers economically to produce different varieties. At the same time, they are easy to operate and therefore help considerably improve the working people's working conditions. [Text] [East Berlin Voice of GDR Domestic Service in German 0600 GMT 18 Feb 86 DW] /12712

MULTIPURPOSE CARGO SHIP--The Wismar Mathias-Thesen Shipyard today launched the first of six planned ships this year. The 24,000 ton multipurpose cargo ship, which was christened BRANDENBURG, will transport under the GDR merchant flag ores and grain as well as lumber and containers over the oceans. Ernst Timm, first secretary of the Rostock Bezirk SED Executive Board, thanked the shipbuilders and all working people of the Baltic Sea Bezirk for their great commitment for the 11th party congress. [Summary] [East Berlin Domestic Service in German 1800 GMT Feb 86 DW] /12712

GDR, INDIA SIGN SHIPPING PROTOCOL--Delhi, 19 Feb (ADN)--The GDR and India intend to intensify further their cooperation in marine transport in the coming years. A relevant protocol was signed by the heads of the two negotiating delegations, Dr Heinz Rentner, GDR deputy minister for transportation, and Prem Prakesh Nawar, state secretary in the Indian Ministry of Shipping and Transport, in Delhi today at the end of 3-day consultations by the joint shipping commission. Both sides agreed to speed up the turnaround of ships in regular service in the ports of the two countries to make more effective use of the available transport capacity. Rapid sea transport between the GDR and India is an important factor for implementing measures for expanding trade and economic relations up to the year 1990 set out by the joint economic commission in November. Last year it amounted to 1.4 million metric tons. [Text] [East Berlin ADN International Service in German 1816 GMT 19 Feb 86 LD] /12712

GDR, ETHIOPIA SIGN TRADE PROTOCOL--Addis Ababa, 25 Feb (ADN)--The GDR and Ethiopia signed a trade protocol for 1986 in Addis Ababa on Monday [24 February]. The agreement envisages among other things Ethiopian deliveries of raw coffee, furs, and textile products. The GDR will deliver machine tools, agricultural machinery, and equipment to develop the building materials industry. At the end of the negotiations, both sides stressed the desire to further expand economic and political relations between their countries. [Text] [East Berlin ADN International Service in German 1017 GMT 25 Feb 86 LD] /12712

INDUSTRIAL ROBOT PRODUCTION--Berlin 22 Mar (ADN)--Around 1,500 industrial robots have been produced at the Central Industrial Plant Construction Combine of Metallurgy (ZIM) over the last 5 years. Forty percent of these are used in combines and metallurgical and potash industry enterprises. Further modern, serial-produced rationalization equipment is proving successful in heavy engineering, chemistry, and electrotechnology and electronics. The combine collectives are thus making an important contribution to the modernization and automation of the economy, Director-General Dr Klaus-Guenter Sorg said. [Excerpt] [East Berlin ADN International Service in German 0115 GMT 22 Mar 86 LD] /12712

LEIPZIG FAIR BUSINESS DEALS--Leipzig 22 Mar (ADN)--The last day of the Leipzig Spring Fair has seen lively business activity. The foreign trade enterprises Robotron (GDR) and Kovo (CSSR) agreed on reciprocal deliveries worth 92.2 million rubles. The GDR is to export computer and word processing technology to its neighbor and to import electronic data processing equipment and chain printers from the CSSR. The GDR foreign trade enterprise Intermed agreed with the CSSR and Romania to export medical technology with a total value of 5 million rubles. The foreign trade enterprise WMW-Export-Import is to export internal circular grinding machines to India worth around a million Valuta Marks and machinery for the processing of large components to Italy worth 1.7 million Valuta Marks. [Excerpt] [East Berlin ADN International Service in German 1245 GMT 22 Mar 86 LD] /12712

CSO: 2300/278

ECONOMY

ROMANIA

TECHNOLOGIES FOR ENERGY CONVERSION OF BIOMASS

Bucharest REVISTA ECONOMICA in Romanian 17 Jan 86 pp 10, 31

[Article by Nicoleta Hornianschi: "Biomass, an Energy Resource Of Great Potential"]

[Text] Considering the exhaustible and non-renewable nature of conventional primary energy resources--oil and natural gas, which at the same time are the major raw materials for the chemical industry, we become aware of the need to introduce into the economy new raw materials which in time will meet certain qualitative and quantitative requirements. One such resource is biomass, which represents the most efficient means for capturing the sun's energy through photosynthesis, and which through various chemical transformations, yields a number of extremely valuable products (ethanol, methanol, furfural, proteins, biogas, pigments, biologically active substances, fodder, hydrogen, and so on). The study and evaluation of biomass resources, and of the capability of microorganisms to transform it through bioconversion, creates the premises for the future development of a chemical industry in which oil and hydrocarbons are at least partially replaced with carbon hydrates and proteins.

Current research programs are aimed at existing resources, their biochemical transformations, and at analyzing systems associated with the energy utilization of biomass. The production of synthetic fuels from biomass is particularly important for countries which do not have large resources of their own, as well as those in which technical, institutional, and economic restrictions prevent or delay the exploitation of domestic fossil fuels.

The growing interest in the exploitation of reusable energy resources, among which the biomass, is primarily determined by two factors: the higher international price of oil and natural gas, and the alarmingly rapid exhaustion of heating wood in some countries. One of the non-trivial advantages of biomass conversion into gas is the moderate cost of building small plants, compared to the major financial efforts required for the construction of plants designed to convert coal or to extract hydrocarbons from bituminous shale.

Two major directions--biochemical and thermochemical--are presently known for the conversion of biomass into energy. The first involves hydrolysis, fermentation, and anaerobic digestion, while the second uses combustion, gasification, and pyrolysis. Biochemical conversion is a high-yield process, but a relatively slow one, requiring special conditions. Thermochemical conversion is achieved primarily through combustion and the creation of thermal energy, or through pyrolysis and the formation of charcoal. High pressure gasification is a more recent process developed as far as the industrial pilot phase; three industrial installations are presently being built (in New Zealand, the United States, and FRG), with others being readied in Sweden and Austria. Wood is gasified to obtain gas for chemification, and especially to obtain synthetic fuels such as high quality gasoline.

Located in a specific temperate zone, our country enjoys favorable conditions for an extremely large biomass source, which can be exploited as a high quality energy vector. Interesting research with promising results, some of which are now at an advanced testing stage, is carried out at the Institute for Chemical and Biochemical Energy (IECB) in Bucharest, as well as at the Cluj-Napoca subsidiary of ICSITEE.

Romanian research on biomass exploitation through chemification is oriented toward the following: chemical processing of forest biomass and of agricultural biomass and vegetal residues; utilization of residues from the alcohol fermentation of aquatic plants to obtain biogas (the entire process thus having a certain energy autonomy); utilization of marine microalgae for products needed by the food and pharmaceutical industries; and so on. The development of enzymatic and fermentation processes for biomass conversion has made it possible to use ethanol as biofuel or raw material in the chemical industry. On the basis of experiments conducted in a pilot installation, the new bioconversion technologies will be applied industrially in installations with capacities of 1000-5000 tons of ethyl alcohol per year.

Biologic technologies for producing fuels from biomass or residues are of great current interest. The key problem facing these technologies is the economic efficiency of the products (compared to the prices of the same products obtained from conventional sources), whose competitiveness is strongly influenced by oil prices. Although the cost of fuels (such as gasoline) obtained from crude oil at its current price is about 50 percent lower than that of similar products obtained from biomass chemification, the building of small installations is nevertheless recommended for the following reasons: reduce oil importation for currency savings; meet fuel needs at a local level (such as a county); and obtain gasoline of outstanding quality, which being free tetraethyllead, reduces environmental pollution.

Another means for obtaining fuels from biomass is methanogenesis, which has the ability of supplying an efficient biofuel, in some cases eliminating environmental pollution and producing valuable fertilizers; consequently, the production of biogas is expected to grow about five-fold during the 1985-1990 period. Considering the advantages of agricultural waste utilization through chemification, the technology has been studied and industrial installations have been built to process sunflower seed shells and corn stalks into furfural.

Research is also aimed at the comprehensive biochemical exploitation of industrial wastes, with the results obtained so far leaving room for much further expansion. For instance, at the three plants in Romania which produce cellulose from resinous wood through the sulfite process, the substances contained in wastes are exploited only for fodder yeast, producing a total of 12,500 t/year with a 45 percent protein content. Similarly, small amounts of lignosulfonic products (6500 t/year) are obtained at the Zarnesti Chemical Combine, the rest of the residues being drained away.

Research in the thermochemical conversion of forest biomass shows that wood gasification is indicated for obtaining synthetic gas that can be converted into high quality synthetic gasoline or other chemical products. In fact, some industrialized countries such as Canada, Switzerland, Sweden, and Austria, currently propose the substitution of synthetic gasoline obtained from wood for imported automotive gasoline. In Romania, the solution advanced by IECB in collaboration with ICSITEE considers the local chemical exploitation of the wood available in poorly accessible areas, where transportation costs are very high. The process developed by the Romanian specialists and tested in a pilot installation, produces an energy (in terms of high quality synthetic gasoline, fuel gases, and low pressure steam) of about 1.3 tons of conventional fuel per ton of processed wood.

Given the energy and raw materials potential represented by biomass, research has intensified in recent years not only in the exploitation of this renewable resource, but also toward increasing the production of biomass by developing new genetic engineering techniques to obtain high productivity plant varieties with programmed biomass compositions. Energy crops are aimed at an intensive production of wood cellulose biomass, alcohol generation plants, biomass for hydrocarbon extraction, aquatic biomass, and rapidly growing wood varieties. Particularly interesting in this regard is the type of plants that produce oil-related substances, given the existence of species capable of yielding two tons of hydrocarbon substitutes per hectare, at a cost only one and one-half higher than that of oil. The present production of plant mass, estimated at about 100,000 t/year for our country, should triple during the next 20-25 years.

The implementation of various energy conversion processes and technologies for different categories of plants will lead to a potential raw materials and energy savings of 20-40 percent during the first decade of the next century. However, it should be pointed out that the development of raw materials and energy from unconventional sources (among which biomass) involves the concurrent utilization of new and conventional sources of raw materials, and requires correlation with the production of coal and natural gas, and with the results of technical research in the area of specific enzymes.

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ECONOMY

YUGOSLAVIA

ARTICLE VIEWS BORDER TRADE QUOTA WITH ITALY

Belgrade PRIVREDNI PREGLED in Serbo-Croatian 6 Feb 86 p 3

[Article by Jasen Grubic: "Difficulties With the Quota"]

[Text] Last year's quota for local border trade with Italy has been reduced from 30 percent to a fifth of the volume of this year's regular Yugoslav-Italian commodity transactions. How to divide this smaller value among a larger number of registered participants in this trade, in a situation when even products of particular social interest are "running away" to local trade, was the question dealt with at the end of last week by the Committee on Local Border Cooperation of the Yugoslav Economic Chamber's Section for Promoting Economic Relations With Italy, with the participation of representatives from 47 OURs [organizations of associated labor] entered in the court register as having the right to conduct this form of foreign trade business.

Let us state first of all, however, that in spite of the greater "appetite" of operators in the border area, the Yugoslav exports of 538 billion lire planned for last year were not achieved. Analyzing the causes of the shortfall, which was about 24 percent, and by some calculations as much as 37 percent, the local border traders at that meeting stressed the disincentive effect of last year's obligation to set aside 27 percent of the foreign exchange rights achieved on the basis of exports for the general social needs of the federation and the republic, and then, from the middle of the year, 58 percent, as all of the exporters in the country were obliged to do. Next, as an obstacle to better results, they cited the negative influence of the list of articles excluded from exports, such as cut lumber and nonferrous metals in the unprocessed state. On the other hand, the unusually favorable structure of local border trade with Italy makes it an indispensable supplement for ensuring domestic production. It is therefore understandable that the reduction of this year's quota to an amount close to last year's was not greeted by the registered OURs with approval. It is the optimum, however, established by the socioeconomic resolution for Yugoslavia, and therefore all those concerned must be included in it.

On the basis of the self-managing agreement adopted on the distribution of the value and types of goods to be exported and imported in local border trade with Italy this year (it was proposed by the Joint Working Group operating in the PKH [Croatian Economic Chamber]), 384 billion lire worth of exports and

reciprocal purchases in the border zone, which are also regulated by the indicators of the Trieste and Gorica agreements, as well as special duty-free lists, have been distributed among the 47 organizations registered for conducting this type of trade, and in such a way that their export (and import) amounts for last year have been reduced by 37.1 percent. New OURs that were registered for local border trade last year and received the minimum quota of 2.5 billion lire of exports, will keep that volume in 1986 as well, along with organizations for which the implementation of a single reduction of the quota would result in the approval of exports less than 2.5 billion lire.

The changes in the regulations for foreign exchange transactions thus apply fully to arrangements in local border trade, and this means that in accordance with the established forms and rights for imports, the producers of goods exclusively possess an import subquota within the volume of exports made through a registered operator. Furthermore, the funds resulting from exports carried out that are beyond the established right for payment for imports can be yielded to other participants in local border trade, and if they do not use the foreign exchange income within a period of 90 days, it will be redistributed by the Economic Chamber in whose area the producer has its headquarters. If a signer of the agreement does not reach 30 percent of the export quota by 30 June, and 50 percent by September, the unachieved portion up to these percentages will be redistributed by the Committee on Local Border Cooperation. The self-managing agreement also provides for a reserve of 30 billion lire for incentives for OURs which achieve better than average business results this year. Production OURs in the border area are given preference in the utilization of this reserve, however.

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ECONOMY

YUGOSLAVIA

PAPER REVIEWS SLOVENIAN-MONTENEGRIN ECONOMIC COOPERATION

Belgrade PRIVREDNI PREGLED in Serbo-Croatian 11 Feb 86 p 2

[Article by A. Srdanovic: "Finally on the Right Track"]

[Text] The initiatives for pooling labor and funds between Montenegrin and Slovenian work organizations, which were originated last year for the completion of five small business development programs (two would be carried out in Pljevlja, and three in Mojkovac), have received their final form and content, following the approval by the Executive Council of the Assembly of Montenegro and the signing of a self-managing agreement on pooling at the republic's Economic Chamber. At the same time, this was one more step toward strengthening the two republics' past successful economic cooperation. These are programs in which the work organizations of the two republics are mutually interested, and which do not require large investments.

At the end of 1985, first of all the Monter RO [work organization] in Plevlja signed a self-managing agreement on pooling labor and funds with the Development Center in Celje and the Store Steelworks for carrying out a program for the construction and installation of burners for industrial furnaces, as well as a shop for the production of roof windows and openings. It is planned that the Plevlja collective will invest somewhat more than 126.2 million dinars, or 63.1 percent of the total investment, in the program for the construction and installation of the burners, while the Celje Development Center will pool funds from the Fund for the Undeveloped Regions, worth more than 31.8 million dinars. The Store Steelworks will contribute 42 million dinars to this investment.

The estimated value of the program was a little over 200.1 million dinars, and the agreement provided that regular production would start in June. The signers of the agreement will distribute their joint income in accordance with the contribution that each of them has made with its present and past work. They will also jointly bear any risk that occurs as the result of a failure to achieve the planned production or of changes in business conditions that cannot be influenced.

The Monter RO will pool 159.5 million dinars of its own funds for the shop for the production of roof windows and openings, which amounts to 75 percent of the investment. The Development Center in Celje, according to the same

principle as in the first program, will contribute 25 percent of the value of the program.

The beginning of the implementation of three more small business programs in Mojkovac, for which the Kooperacija RO in Mojkovac and the Celje Development Center signed a self-managing agreement on pooling labor and funds, is also in the final phase. These are programs for clothing and hand knitting, the production of rubber products and vulcanization, and also a carpenter's workshop for souvenirs.

Guided by income principles, and in the desire to find common interests, the signers of all three agreements agreed that the value of the funds invested could be continually revalorized, while the repayment period for them is 10 years. These examples of the pooling of labor and funds in small business confirm the diversity of the possibilities for the more rapid and dynamic development of this field. The chances are there, and it is only necessary to use them, as well as the available resources of the republic. Naturally, greater encouragement from society and an appropriate tax policy are required for the more rapid development of small business. Otherwise it will continue to be sidetracked.

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CSO: 2800/171

ECONOMY

YUGOSLAVIA

BRIEFS

KARAWANKEN TUNNEL--Ljubljana, 5 February (TANJUG). -- The shortest link between northern and western Europe and the Middle East that goes through our country is certainly the Fraternity-Unity Highway from Jesenice to Djevdjelija, but, for the current users, the Karawanken mountain massif presents the most difficulties. However, this "bottleneck" will be eliminated with the construction of the tunnel through the Karawanka mountain massif on the Yugoslav-Austrian border. The first drilling of the tunnel through Karawanken will begin in May 1986 at the latest. This significant international infrastructural project will be completed by the beginning of the summer season in 1990. Since last week, the roar of excavators has been heard at the foot of Karawanken, in the town of Hrusic, near Jesenice. The first earth work has begun, which includes moving the water pipeline that supplies Jesenice with water, and preparing the ground for the construction of the plateau. The first work on the construction of the tunnel began as early as 10 years ago, explains engineer Franc Anderluh, the head of the crew of the "Associated Road Enterprises of Slovenia" SOUR. We have already built the approach road to the plateau, along with a new bridge across the Sava river near Jesenice, and the local road has also been "relocated." At this part of the Yugoslav-Austrian border, the highway tunnel through Karawanken will be the easiest way in and out of our country. The tunnel, 7,584 meters long and 7.5 meters wide, will have two vehicle lanes, which means that traffic will move in both directions. It is planned that the capacity will be about 12-15 thousand vehicles per day in both directions. In the tunnel, the border between Yugoslavia and Austria will be 3,450 meters from our end, and 4,414 meters from the Austrian end. The first phase, which includes drilling the tunnel and constructing ventilation, will cost about 9.8 billion dinars, not counting the equipment. In international bidding for the construction of the tunnel, the most favorable offers were submitted by the enterprises of "Slovenija ceste tehnike" in Ljubljana, and a West German firm from Frankfurt, "Polenski kompanij-Celner." They will work jointly on the construction of the tunnel during the next five years. Part of the funds will be obtained through an international credit from the European Investment Bank, worth about \$20 million. [Text] [Belgrade PRIVREDNI PREGLED in Serbo-Croatian 6 Feb 86 p 11] 9909

AUSTRIA BUILDS TOURIST HOUSING--Split, 5 February (TANJUG). -- The hotel work organization Jadran in Supetar on Brac has concluded negotiations with the Austrian firm HBV in Linz on the investment of 36 million Deutsche marks in the completion of the second phase of the Kaktus hotel complex in Supetar. This will be the first foreign investment in the tourist industry in the

central Dalmatian area after the adoption of the new law on the investment of foreign capital in the Yugoslav economy. On the basis of the contract that will be signed next week, the Austrian partner will invest 90 percent of the estimated value of the project, while 10 percent will be invested by the Jadran work organization in Supetar. The investment of 36 million marks by 1 April 1987 will be used to build 205 apartments and other accompanying facilities that will complete the Kaktus apartment complex. There will be a total of 623 beds in these apartments. The first phase of the Kaktus apartment complex was built last year next to the hotel of the same name, and consists of 117 apartments with 392 beds and the accompanying contents. [Text] Belgrade PRIVREDNI PREGLED in Serbo-Croatian 6 Feb 86 p 12] 9909

CSO: 2800/171

POLITICS

CZECHOSLOVAKIA

CPCZ CENTRAL COMMITTEE CRITICIZES INDUSTRIAL MANAGEMENT STYLE

Prague RUDE PRAVO in Czech 15 Jan 86 p 1

[Excerpts] More intensive activity in our national economy places significantly higher demands on the quality of management and organization. The 16th plenum of the CPCZ Central Committee once again called attention to this fact. This is also emphasized in the draft of the Main Directions of the Social and Economic Development in Czechoslovakia in the 1986-1990 Period and in the Prospects for the Period through 2000.

Many managers cannot get rid of the old habits and methods used during the period of extensive development, which represent a serious obstacle in the realization of the new tasks of our society. In the work of our ministries, economic production units, and enterprises we can still see the manager's practice consisting in his concealing his reserves, requesting maximum amount for investments, import, and manpower. On the other hand, nothing is being done in the way of better utilizing working time, improving labor and technological discipline, improving production quality and respecting social interests.

Everything begins with organizing the work of each manager. He is an agent who always--positively and negatively--influences the amount and quality of work of the entire collective. Investigations of these problems confirm this. In those places where the manager's work is done on an emergency basis, unevenly, through improvisation, without an articulate plan, always hurriedly, in the midst of commotion and unrest which adversely affect the atmosphere of the entire workplace, the results are bad.

Such managers often complain of the shortage of this or that which complicate the fulfillment of the plan and of the excessive number of tasks beyond fulfillment assigned to their organizational unit. We know that it is not only the number of tasks but the very shortcomings in the methods, organization, and managers' style of work, their inconsistency, and lack of foresight which leads to the exhaustion of themselves and their subordinates. It is exactly for these reasons that in many instances their enterprises or organizations fail to show better results.

We know from practical experience of more than one manager who used to permit or still tolerates questionable behavior rather than being in command

and giving directions to others. Thus, one should not be surprised to find that such managers who fail to train their coworkers to function independently and to show initiative are unable, because of their involvement in day-to-day problems and red tape, to have time to carry out major conceptual and long-range planning and prospects of further development. As a result of such an attitude a manager who is guided by the motto "one day at a time" finds himself in a vicious circle: Because of his lack of foresight, direction and ability to concentrate on new and more effective approaches, he is faced with ever-growing disruptions even in the normal operational activity whose immediate solution will deprive him of energy and the time which could otherwise be used and ought to be used for the basic conceptual and long-range tasks.

The need to rid ourselves of old habits and stereotyped thinking, of various prejudices and outdated ideas applies to each and every one of us today. Even today, we can see in certain places that the level and quality of the managers' work is evaluated on the basis of his ability to solve quickly and effectively the day-to-day problems which appear here or there. Hence, it is desirable to adopt even in this respect rational views corresponding to the present and not to bother the manager with problems which can be solved by any of his subordinates within their own functional jurisdiction.

If for some of our managers their normal working time is--as they themselves say--a "parade of time lost," then the other managers--and most of them belong to this category--know how to plan their schedules, avoid constant interruptions, and teach those around them to respect their need for concentration. In the first place, however, each individual must start with his own person: improve his self-discipline, tenacity of purpose, and constantly improve his own work methods.

It is extremely important, insofar as the content, style, and methods of the work of enterprise managers and general managers as well as of foremen is reflected in the key demand of our party on the leading structures of our national economy, that the application of the results of scientific-technical development become the main part of development.

The report of the presidium of the CPCZ Central Committee delivered at the 16th plenum of the CPCZ Central Committee by Comrade Lubomir Strougal openly stated that this important requirement "is not particularly reflected" in the work of many industrial managers. "They simply view this demand only as a problem for special institutions and groups and not at all as the most important requirement, as the main part of their executive work. After all, they must know the present technical-economic level of their own field in the world and the future trends of its possible development. They are the ones who should come up with ideas and concrete tasks which would lead to the necessary rapid changes."

No system, no plans, no economic instruments are automatically successful. Hence the 16th plenum justifiedly stated that in selecting, placing, and evaluating managers we must apply much tougher criteria. Only such people can be managers who demonstrate their conscientiousness and technical skill.

by real results, initiative and enterprising spirit, high degree of responsibility, organizational ability, an uncompromising and courageous attitude, who build their authority on their ability to unify the efforts of the collectives for which they are responsible in order to achieve the best economic results--in other words, those people who understand that the successful implementation of our strategic goals depends on the change in the quality of economic development.

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POLITICS

GERMAN DEMOCRATIC REPUBLIC

FRG EDITOR COMMENTS ON INNER-GERMAN CULTURAL AGREEMENT

Cologne DEUTSCHLAND ARCHIV in German Vol 19 No 2, Feb 86 (signed to press 27 Jan 86) pp 113-117

/Article by Dr Peter Jochen Winters, head of the Berlin editorial staff for the FRANKFURTHER ALLGEMEINE: "On the Inner-German Cultural Agreement"/

/Text/ The Federal Republic of Germany and the GDR reached an understanding in the Basic Treaty of 21 December 1972 to develop cultural cooperation and to conduct negotiations for this purpose which would bring about the conclusion of intergovernmental agreements. The negotiations commenced in November 1973 in East Berlin. Twelve years later, in November, 1985, both sides agreed on the text of a cultural agreement. The Federal Cabinet commented favorably on the negotiated agreement in early December. It is now time to get the consent of the states, which--according to the constitutional structure of the Federal Republic regarding the prerogatives of the states in cultural affairs--had been partners in the negotiations. To seek consent one cannot follow the Lindau agreement which is usually employed in the case of international agreements of equivalent content and which engages civil servants from the states' Commission of Agreement, because this would imply that the GDR is a foreign country. But there is another way. The agreement will be ready for ratification after all the states of the Federal Republic of Germany have formally agreed. Then a time can be arranged for the GDR to ratify.

The cultural agreement between the two German states is a unique thing, because it is forged between two states of one culture and one nation. For this reason, many people in East and West question if such an agreement is even necessary. They point out that there is, for example, no cultural agreement between the Federal Republic and Austria. Nevertheless, there is an active cultural exchange. Others, such as the President of the Academy for the Arts in West Berlin and the writer Gunter Grass fear an insufferable bureaucratization of cultural exchange between the states and a suffocation of young art. They fear that everything not in tune with the "conservative" cultural picture prevalent in the two German states at a given time would not have a chance to partake in the cultural exchange. Such objections against the cultural agreement do not realize that the GDR is a centrally administered, totalitarian state and that all branches of culture are subject to control by the state and the party and that a cultural exchange outside of its borders is only possible by permission of the state, independent of whether a cultural agreement exists

or not. In other words: Whatever is possible or impossible regarding cultural exchange between the two states in Germany is up to the GDR in any case. As far as that goes, however, the conclusion of a cultural agreement between the Federal Republic of Germany and the GDR cannot make the present situation worse or reduce the possibilities for exchange. If anything, it can bring about the opposite. Up to now, for example, GDR authorities have often refused applications by GDR artists for travels to the West with the comment that there is not cultural agreement between the two states. Once the cultural agreement is in force, they have to dream up another reason to impede cultural exchange. After all, the GDR commits herself in the agreement "to improve and develop cultural exchange" and to promote "cooperation in the areas of culture, art, humanities and sciences as well as in other related fields." An effective cultural agreement is a document which can be cited by "culturally active people" in the GDR and also by the Federal Government whenever GDR authorities behave in a restrictive fashion. Experience with the final statement in Helsinki and the final document of the KSZE followup conference in Madrid in which the GDR accepted certain humanitarian principles, show that some success is possible.

While negotiating the cultural agreement whose text had not been published officially before copy deadline, but had become public through newspaper publications¹ the Federal Government had stuck to its positions. This applies to the Prussian Heritage Foundation as well as to the inclusion of Berlin and to the refusal by Bonn to modify principles which are anchored in the Basic Treaty by cultural agreement. As regards the Prussian Heritage Foundation, the GDR had demanded in the first phase of the cultural negotiations that the Federal Republic first of all "return" to the GDR all those art works of Prussian cultural heritage which had been located on the territory of the present GDR in 1945--especially on the museum island located in present day East Berlin--before any negotiations about cultural exchange could be possible. Regarding this point, the Federal Government has consistently pointed out that objects of art which belong to the inventory of the Prussian Heritage Foundation are the property of the Prussian Heritage Foundation in Berlin and cannot be negotiated. This claim is based on allied law and on federal regulation in agreement with conclusive regulations by international law. Because of this firm stand on principles by the Federal Government, cultural negotiations were discontinued in October of 1975. The GDR declared by means of a "proclamation concerning the state held museum funds of the GDR" issued 12 April 1978, that even such museum objects and collections which had their original place within the present GDR but are now outside of the GDR's territory because of dislocation or other reasons belonged to her state held museum funds.² However, since the Federal Government refused to change its position and demanded that the GDR respect the realities concerning the Prussian cultural heritage which had come about because of the war, the GDR yielded in late fall of 1982. Honecker said to Wischniewski, the secretary of state in the Federal Chancellory at the time, that he was ready to exclude the problematic issue of the Prussian cultural heritage and to resume negotiations concerning the conclusion of a cultural agreement. Thus, the second phase of cultural negotiations started in September 1983.

The Joint Protocol Statement attached to the cultural agreement reads: "Differing understandings with respect to cultural objects dislocated by the war remain unaffected." Thus, the question about who owns the once Prussian heritage remains excluded. According to the wishes of the Federal Government, the effects of the Prussian Heritage Foundation are to become part of the international cultural exchange. Up to now that has been very difficult because the GDR refused resolutely to partake in exhibitions in the Federal Republic or abroad, which featured artifacts on loan by the Prussian Heritage Foundation. It was the Federal Government's negotiation objective to end this boycott of the Foundation by the GDR. The GDR meanwhile has agreed orally to decide from now on strictly on the basis of objective reasons about participating in cultural events in which the Prussian Heritage Foundation has a part. The future will show what this concession is worth. It is already clear though, that the GDR will in the future not take part in cultural events sponsored by the foundation because in the GDR's eyes it is a Federal institution with an illegitimate seat in Berlin. Also, the GDR will not invite the foundation to cultural events in the GDR.

The second sentence of the cited Joint Protocol Statement reads: "The partners to this agreement declare their willingness to search for solutions concerning cultural treasures dislocated by the war whenever feasible." This demonstrates a serious commitment to discuss the mutual return of those cultural treasures dislocated by the war which do not belong to the once Prussian cultural heritage--for example, state and church archives, public and private art collections or individual works of art. It is only because of a change in the law that the Federal Government can engage at all into talks with the GDR about the return of such cultural treasures. The 1965 law which governs the legal status of defunct public legal entities has transferred to the trusteeship of the Prussian Heritage Foundation cultural treasures--"especially holdings by archives, libraries and museums as well as other art collections or scientific collections inclusive of inventory"--which had once belonged to public corporations, institutions and foundations established before 9 May 1945 in accordance with German law and which, in the final analysis, do not rest within the purview of the Basic Law.³ In December, the Lower House of Parliament in concurrence with the Upper House has decided to terminate the trusteeship over some of these cultural treasures "should they be transferred to persons or authorities in the German Democratic Republic or Berlin (East) following a decision by the Minister of the Interior."⁴ According to domestic law, the Federal Republic is now empowered "to make restoration" as long as cultural treasures are involved which are administered by the Prussian Heritage Foundation by means of a trusteeship but are not its property--such as the once Prussian heritage treasures. Even though the cultural agreement has not yet been signed, representatives of both sides have already met several times to negotiate the mutual restoration of archives dislocated by the war.

Berlin is included in the inner-German agreement by the Frank-Falin formula: "The extension of this agreement to include Berlin (West) follows established procedure and is in accordance with the Four Power Agreement of 3 September 1971." This formula, of course, is also present in the cultural agreement between the Federal Republic of Germany and the Soviet Union signed 19 May 1973.⁵ Up to now, however, no cultural exchange has taken place between the Federal

Republic of Germany and the Soviet Union under the terms of the agreement--the reason is Berlin. The cultural agreement with the Soviet Union--and the one with the GDR, by the way--is a skeleton agreement. It stipulates in Art 12: "For the purpose of putting this agreement into effect, the two partners will agree on 2-year operational programs." None of the 2-year programs has taken place yet, because the Soviet Union has refused up to now to include Berlin based institutions in the cultural exchange by excluding them from the 2-year programs. Thus, the cultural agreement with the Soviet Union has been put on ice for almost 13 years. Because of oral assurances by the GDR, the Federal Government is confident that the cultural agreement between the Federal Republic and the GDR will not meet with the same fate. Furthermore, Art 12 of the inner-German cultural agreement, as compared with Art 12 of the German-Soviet agreement, reads: "In order to implement this agreement, the two parties will arrange agenda including financial regulations comprising a 2-year period." Obviously some speculate that an "arrangement" could possibly prove to be more flexible than an "agreement." They are recollecting Bonn's experience with other East European states with which the Federal Republic has also concluded cultural agreements. The Federal Government believes, apart from such considerations, that the cultural exchange with the GDR which includes Berlin will take place--unlike the exchange with the Soviet Union--because both states are already planning some projects, in which Berlin is included, for the time between the onset of the cultural agreement and the arrangements for the first 2-year agenda. No agreed-upon or prearranged plans, signed by both parties are involved here. Rather, each side, on its own accord, proposed projects which were, tacitly and without signing anything, accepted by the other. These loosely found lists of projects feature a guest performance by the Berlin Theater and an exhibition by the Berlin Bauhaus Archive in the GDR as well as a GDR exhibition in West Berlin including work by the painter Otto Nagel. Although the occasion is, so to speak, a bilateral cultural exchange between West Berlin and the GDR, it takes place under one "federal roof." It would have been even better of course to set up a tour for the GDR's state circus to play in Munich, West Berlin and Hamburg.

The preamble to the inner-German cultural agreement says that it will be concluded "based on the treaty of 21 December 1972 which fundamentally regulates relations between the Federal Republic of Germany and the GDR. That means that the principles laid down in the Basic Treaty also apply to the cultural agreement. The abandonment of additional programmatic declarations in the preamble which otherwise only refers to the provisions of the final statement of the Helsinki Accord and the final document of the KSZE followup conference in Madrid, makes it plain that the GDR has not succeeded in misusing the cultural agreement to revise the Basic Treaty. By its nature, the cultural agreement is a skeleton agreement, but the areas of cooperation are described in as much detail as possible. In addition, it contains essential parts which need not be defined further by work sessions, because they can stand by themselves. Last, but not least, there is an express provision which says that--besides institutions, public agencies, organizations and clubs--"people working in the cultural domain" are also to become part of the cultural exchange and that the arrangement of "state sponsored" agenda is not to inhibit in any way the commercial cultural exchange which already exists. What is more, commercial guest performances by artists and groups are to be expressly promoted alongside commercial relations in additional areas of art

and culture. Cooperation which is to be improved, developed and promoted by the cultural agreement covers the humanities and sciences through an exchange of scientists, experience, information and literature. It covers the fine arts, the performing arts, film, music, the preservation of literature, language, monuments and museums through reciprocal participation in cultural events and festivals and the exchange of exhibitions and guest performances. It also covers publishing, libraries and archives as well as radio and television. Cooperation in the areas of sports and youth exchange, which up to now has been regulated by private agreement, receive an official contractual basis. Those items which need not be further worked out are: the extension of library loans, access to archives, exchange of materials, the reciprocal exchange of information about important meetings, conferences, competitions, festival performances, cultural commemorative and gala performances as well as scientific conventions and the participation by scientists, artists and experts in conventions of that kind.

The interests of the Federal Republic and the GDR in the conclusion of the inner-German cultural agreement are quite different. The Federal Republic is interested in significantly strengthening and improving its cultural presence in the GDR which at present is quantitatively and qualitatively completely unsatisfactory. She also wants to see that cultural events coming from West Berlin are not treated as a political matter in the GDR and that the cultural exchange between the two German states normalizes itself and takes on a harmonious character. The main point of interest for the GDR is to conclude another agreement with the Federal Republic to once more prove herself as an equal and independent state and to attach to the relations with the Federal Republic an international character. The cultural agreement is exquisitely suited for this purpose. At the same time, the GDR wants to prove that it takes seriously the challenge of the Helsinki final statement to bring about cooperation between states of different social systems. To sum up: while the Federal Republic strives for actual cultural exchange with the GDR, the GDR--which can present herself culturally as fully and as freely as she pleases without a cultural agreement--is above all interested in an intergovernmental agreement. This difference in interest and the fact that the actual inclusion of Berlin and the Prussian Heritage Foundation in the cultural exchange between the Federal Republic and the GDR is not definite even after the ratification of the cultural agreement, makes it appear politically wise to ratify the agreement only after the agenda for the first 2-year period has been arranged with the GDR. It is questionable whether the GDR would go for that. One also has to consider whether such an attitude by the Federal Republic would not worsen the inner-German political climate necessary to make the agreement work.

FOOTNOTES

1. See: FRANKFURTER ALLGEMEINE ZEITUNG, 12 December 1985; as printed in this publication, p 219.
2. GDR Statute Roll, part 1, Nr 14, 9 May 1978.

3. Law for the governance of the legal status of defunct legal entities,
6 September 1965 /Official Bulletin, Sec 1, Vol 1965, p 1965/.

4. Law to change the federal law governing indemnities and transactions among
public legal entities, 19 December 1985 /Official Bulletin, Sec 1, Vol 1985,
p 2460/.

5. Agreement between the Government of the Federal Republic of Germany and
the Government of the Union of the Socialist Soviet Republics concerning
cultural cooperation, 19 May 1973 /Official Bulletin, Sec 11, Vol 1973,
p 1685/.

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POLITICS

POLAND

REPORTAGE ON SOVIET CONTACTS, COOPERATIVE EFFORTS

Estonian Exhibit at Press Club

Warsaw ZYCIE WARSZAWY in Polish 11 Dec 85 p 2

[Text] For the eighth time this year, the International Press and Book Club "Nowy Swiat" is presenting an exhibit on Soviet themes in Warsaw. The open exhibit is entitled "Soviet Estonia." The exhibit, organized by the Estonian Soviet Socialist Republic's State Committee on Publishing, Printing and Book Marketing, the All-Union Copyright Agency of the USSR and the "Prasa-Ksiazka-Ruch" Worker's Cooperative Publishing House, presents mainly Estonian books. The exhibit also includes photograms of the Estonian landscape, graphic designs and posters. Participating in the opening ceremonies were Bogdan Jachacz, director of the Press, Radio and Television Division of the PZPR's Central Committee, representatives of the Soviet and Polish organizers of the exhibit, the Soviet embassy, the Main Political Directorate of the Polish Army, the Ministry of Foreign Affairs, the Ministry of Culture and Art and Warsaw based centers of culture and information of socialist countries.

Journalist Delegation Visits Moscow

Warsaw RZECZPOSPOLITA in Polish 12 Dec 85 p 7

[Text] A delegation of the Association of Polish Journalists including Klemens Krzyzagorski, president of the association's main administration, has traveled to Moscow.

Association representatives carried on discussions with the Journalists' Union of the USSR. Information on current goals and plans for both journalists' organizations was exchanged and the results of their cooperation thus far were discussed. A protocol for cooperation between the two organization in 1986 was signed.

Moscow, Warsaw Universities Cooperate

Warsaw TRYBUNA LUDU in Polish 12 Dec 85 p 5

[Text] Celebrations for "M W Lomonosov University Days" at Warsaw University were nearing completion on 11 December. During the seminar organized here on

"Moscow University--traditions--development--cooperation," the Soviet guests, representatives of its administration, presented their school as a scientific and instructional center and acquainted those assembled with its political and social activity. They expressed a desire to continue cooperation with Warsaw University. In summarizing the longstanding cooperation between the two schools, the director of the Department of Scientific Communism of Lomonosov University, Prof S. Nikishov, told a PAP journalist, "The cooperation between Warsaw University and Moscow University is developing most actively in the fields of history, philology, foreign languages, political science and geology. The work of many Polish scholars at our university and Soviet scholars in Warsaw and their joint scholarly publications bear witness that there are ties between us and both sides are interested in developing them."

The visit of the representatives of the Soviet university was also an opportunity for discussions with the school's Society for Polish-Soviet Friendship members; discussed were proposals for cooperation between the Societies for Polish-Soviet Friendship of both schools.

'Interpress' Awards to Soviet Journalists

Warsaw TRYBUNA LUDU in Polish 14-15 Dec 85 p 7

[Text] Ceremonies were held 13 December at the Polish Embassy in Moscow to award gold honorary "Interpress" decorations and certificates of appreciation to a group of publicists and commentators and editorial groups that have cooperated for many years with "Interpress" and have popularized and publicized Polish concerns in the columns of Soviet newspapers and magazines.

Individual awards were presented to the chairman of the board of the "Nowosti" press agency, P. Navmov, the editor in chief of SOVETSKAYA ZHENSCHINA magazine, W. Fedotova and the director of PRAVDA's socialist countries division, B. Averchenko.

Among the winners of group awards were the editorial staffs of IZVESTIYA, MOSKOVSKAYA PRAVDA, SOTSIALISTICHESKAYA INDUSTRIYA and OGONEK.

Soviet, Polish Unionists Confer

Warsaw TRYBUNA LUDU in Polish 14-15 Dec 85 p 7

[Text] The chairman of the All-Union Central Council of Trade Unions, Stepan Shaleyev received the Polish ambassador to the USSR, Stanislaw Kociolek. Discussed were issues for the further development of cooperation between trade unions of the USSR and Poland.

Soviet Aid in Rebuilding Warsaw Honored

Warsaw RZECZPOSPOLITA in Polish 16 Dec 85 p

[Text] In Poland by invitation of the Main Board of the Society for Polish-Soviet Friendship is a group of nearly 30 people, veterans of work from the USSR who helped in the reconstruction of postwar Poland. During a meeting with

journalists on 14 December in the House of Polish-Soviet Friendship in Warsaw, they shared their first impressions of their current visit.

Edward Saulewicz, chairman of the delegation, retired veteran, comrade in arms to soldiers of the First and Second Polish Armies and in the first postwar years a staff officer in the Polish Army, said, "In our group are several builders of the Palace of Culture and Science, the Warsaw Foundry, the Vladimir Lenin Metallurgical Plant in Nowa Huta, the power plant at Zeranie and the Metal Works in Krasnik. This is a tremendous experience for all of us, since we remember Poland, especially its heroic capital Warsaw, lying in ruins. It was hard on everyone, but the enthusiasm and desire to rebuild a normal life were evident at every turn. Today it is hard to believe how different everything looks. We have already had the opportunity to see Warsaw, met with employees of the Warsaw Foundry and the crew of the power plant in Zerane and see the Palace of Culture and Science. We encounter proverbial Polish hospitality everywhere and we enjoy remembering with our Polish friends the years of our youth, when after our joint battle against the Nazi fascists, many of us worked side by side to clear the ruins and build a new future for your country."

One of the fitters who erected the metal structure of the Palace of Culture and Science was Juriy Razancew, currently a builder and social activist in the Society for Polish-Soviet Friendship. He said at the meeting, "I was happy to see, after all these years, the Palace of Culture and Science which, as one can see, we and the Polish builders were able to build solidly, because as the employees assured us, it has functioned very well for 30 years, fulfilling many important functions and serving the residents of Warsaw."

Aleksandra Nikolajeva also worked on building the Palace of Culture. "Warsaw is beautiful," she said, "especially when one sees it from the Palace of Culture and Science, with whose construction many memories and experiences are associated for me. I remember particularly pleasantly the real, friendly and amicable ties binding us--Soviet builders and Polish builders. I am very glad I could visit Warsaw again and see it so transformed."

There were many such recollections at the meeting. After their stay in Warsaw, the guests from the Soviet Union will go to Krakow, Katowice and Oswiecim. The schedule for their stay provides for touring plants in whose construction they participated, as well as monuments and locations that are directly associated with Polish-Soviet brotherhood in combat and work.

Parliamentary, Cultural Cooperation Discussed

Warsaw TRYBUNA LUDU in Polish 17 Dec 85 p 7

[Text] Avgust Vola, chairman of the Council of Nationalities of the USSR's Supreme Council met 17 December with the Polish ambassador to the Soviet Union, Stanislaw Kociolek. Discussed were problems of issues for the further development of cooperation between the parliaments of the two fraternal countries.

That same day Ambassador Kociolek was received by Piotr Demichev, deputy Politburo member and the USSR's minister of culture. Polish-Soviet cultural cooperation was the subject of the discussion.

Chemical Weapons Ban Discussed

Warsaw TRYBUNA LUDU in Polish 17 Dec 85 p 7

[Text] On 16 and 17 December, at the USSR's Ministry of Foreign Affairs, a Polish-Soviet conference took place on issues related to preparation of conventions for the disarmament conference on the ban on development, production and stockpiling of chemical weapons and their elimination.

W. Loginov, the USSR's vice minister of foreign affairs, carried on discussions with Poland's representative at the disarmament conference, Stanislaw Turbanski.

Power Engineering Talks

Warsaw TRYBUNA LUDU in Polish 17 Dec 85 p 5

[Text] A meeting took place 16 December at the Soviet House of Science and Culture in Warsaw between representatives of power engineering plans and research institutes of the PRL's Mining and Power Engineering Ministry and employees of trade agencies and power engineering plants of the USSR.

The occasion for the friendly meeting and discussion on prospects for the development of power engineering in the two fraternal countries was the coming "USSR Power Engineering Day" (22 December). This is a holiday for the several million people working in the Soviet power engineering industry.

Writers Union Cooperative Agreement

Warsaw ZYCIE WARSZAWY in Polish 18 Dec 85 p 4

[Text] PAP correspondent Jozef Rzeszut notes that on 17 December in Moscow, a future plan for cooperation between the USSR's Writers' Union and the Union of Polish Writers [ZLP] for 1986-1990 were signed and agreements on cooperation between the ZLP and Soviet Writers' Union for 1986 were reached.

Signing the documents were ZLP President Halina Auderska and first secretary of the Main Board of the Soviet Writers' Union, Georgiy Markov. Poland's ambassador to the Soviet Union, Stanislaw Kociolek, was present at the signing.

The signed agreements open a new stage in cooperation between the writers' organizations of the two fraternal countries. They provide for regular meetings by representatives of the writers' unions' administrations, the organization of creative meetings for writers and critics and seminars for critics, the organization of Polish literature days in the USSR and Soviet literature days in Poland, the appointment of a joint Polish-Soviet committee on translations and publication of the works of writers from both countries.

A subject of particular concern for both unions will be young writers. Meetings of young writers from Poland and the Soviet Union will be scheduled regularly, while young authors from our country will be able to undertake higher studies at the Gorkiy Literary Institute in Moscow.

Cooperation between Polish and Soviet literary publications is also among the concerns of both organizations.

Soviet Artists Union Delegation Visits

Warsaw TRYBUNA LUDU in Polish 18 Dec 85 p 2

[Text] On 17 December the Center for Modern Arts hosted a delegation of the USSR's Artists' Union, in Poland at the invitation of the Polish Association of Arts Education. The Soviet artists became acquainted with the general concept for the future activity of the center and visited the center for information and records for modern art, now being created. Cooperation thus far between the Soviet Artists' Union and the Polish Association for Arts Education, especially in the area of joint artistic initiative by young artists, called "On the Peaceful Future of the World," was also summarized.

Soviet Unionists Visit OPZZ, PZPR

Warsaw TRYBUNA LUDU in Polish 23 Dec 85 p 2

[Text] A delegation from the USSR's All-Union Central Council of Trade Unions, [WCRZZ] headed by V. Sergeyev, director of the Foreign Division, has visited Poland. The Soviet union activists were received by OPZZ chairman A. Miodowicz and the director of the PZPR Central Committee Social-Professional Division, S. Gabrielski.

Discussed in conversations between the WCRZZ delegation at the OPZZ and members of local union organizations were matters related to the intensification of union cooperation at all levels. V. Sergeyev and A. Sudol, director of the OPZZ Office of International Cooperation, coordinated the execution of the schedule and plan for cooperation in 1986 and exchanged views on problems of the international union movement. Satisfaction with the bilateral cooperation thus far between trade unions in Poland the USSR was expressed.

USSR Theoretical Journal Delegation Visits

Warsaw TRYBUNA LUDU in Polish 16 Dec 85 p 2

[Text] At the invitation of NOWE DROGI, Valeriy Bushuyev, a representative of the Communist Party of the Soviet Union Central Committee's theoretical-political organ, KOMMUNIST, has visited Poland. He held discussions at the editorial offices with the editor in chief of NOWE DROGI, Stanislaw Wronski, on the development of cooperation between the two periodicals.

He became acquainted with the party's ideological and political activity by attending meetings of the PZPR's Central Committee and party units in Tarnow Province. He presented a talk on preparation for the Soviet Communist Party's 17th Congress to the party lecturers in that province.

The Soviet guest held discussions with the deputy directors of these PZPR Central Committee divisions: Information, Jan Bisztyga; Press, Radio and TV, Stanislaw Glen; Ideology, Janusz Janicki, and with the pro-rector of the PZPR's Academy of Social Sciences, Wieslaw Iskra.

Stanislaw Opalko, member of the Central Committee Politburo and first secretary of the PZPR's provincial committee in Tarnow, received the KOMMUNIST representative.

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POLITICS

POLAND

REPORTAGE ON PZPR DRAFT PROGRAM, 10TH CONGRESS PREPARATIONS

Committee Member Discusses Draft

Warsaw ZYCIE WARSZAWY in Polish 11 Feb 86 pp 1, 3

[Interview with Prof Adolf Dobieszewski, deputy rector of the Academy of Social Sciences, by Alicja Matynia-Bonik; date and place not specified]

[Text] [Question] The program of the party which leads society is a great responsibility. You took part in preparing the draft of this program, as a member of the editorial committee. You are also a member of the committee for the approaching 10th Congress, which will accept this program as a binding document. Did you have your own concept of what this program would be?

[Answer] Every member of the committee had some kind of concept. But the point is to concentrate the whole party around this work of preparing a program. The last plenum invited members of the other parties, the Patriotic Movement for National Rebirth (PRON), all of society--it may be said everyone for whom this program is being prepared--to take part in the discussion. Because the party program is not just for the party, because it is not a goal unto itself. It has been asked, is this a program exclusively for the party or for the nation? To ask such a question at all is a misconception, because the party is a means of realizing the social goals and aspirations of the working class and the nation. This is one of its functions.

The draft program is the starting point for discussion in all social circles. And only at the 10th Congress will it be finally passed. Therefore, as of now, nothing has been decided.

You ask whether I had my own concept of such a program. Well, the editorial committee, of which I was a member, worked almost a year. It was made up of several score persons and during the course of the work the opinions of many specialists outside the committee were solicited. In total, several hundred people took part in preparing the program. This wide-scale opinion-seeking at the writing stage of the draft preparation stemmed from a new spirit of party work. At various stages new proposals kept coming in pertaining to the substance and form of the program. The draft became the outcome of collective thinking. One person is not able to comprehend all of the complex problems of our life. The final version of the program is the result of different opinins, compromises, and various points of view. Of course, these

compromises cannot be compromises on fundamental issues. because this would affect the goals of the party program.

I, and other committee members, were in a dilemma: To what extent was the program to be general, and to what extent was it to be specific? In the last version, and there were several of them, it numbers 92 pages. There was even a version that totaled 270 pages. Is the present one still too long? During the discussion, an opinion on this, too, will emerge. I think that if it is possible to "trim it down," that would be good. The matter of the "language" of the program is also very important, so that it is informative, propagandist and appealing, with no loss to its substance.

I think that there are certain issues in the draft which should be dealt with more extensively--they should be defined more clearly. But as I have already said, it was hard--and this is understandable--to consider all points of view in the draft.

[Question] In preparing the draft, to what degree was the experience from the past considered, particularly the recent past, beginning with the 1980's? For example, was the report on the reasons for the crisis in People's Poland considered?

[Answer] No social programs arise out of nothing. All programs originate from a definite base, from experience. Naturally, the report mentioned was the first material we considered. But when we began to work on the program, we had to ask ourselves the following general question, which we had to answer: What, really, should such a program be? We assumed that the program should sum up the many years of our achievements in building socialism. It should record everything that has proven itself in the theory and practice of the party's functioning. And, at the same time, it should point to new possibilities of development and new driving forces for this development. It should also point to the barriers and threats which might distort the life of the party and weaken its influence in society. It should sum up both the negative and positive achievements. In the recent past, the party's accomplishments were often described very vividly or very darkly. Now a certain distance separates us from this past. Time is the best teacher, both for those who are formulating such a program and for the average citizen.

After all, our 40-year history is a period of undeniably genuine achievements, the social and civilizational advancement of society.

[Question] It seems to me that the problem which is especially acute now is the problem of the young generation and its future. In your opinion, does the draft program give enough consideration to this?

[Answer] Every generation believes that life began on the day that it was born. This is a natural state of mind. But at the same time, a young generation with no reference to history, to the experience of its fathers, becomes very impoverished, not only from the standpoint of experience but also from the standpoint of being able to determine its own future. Understanding and agreement between generations is needed. We do not ask the young generation to excuse our mistakes, but we do ask for their understanding. Nor

do we want to dampen the fresh outlook of the young people. Both the negative and positive achievements have been summed up in the program, with the next generations in mind.

[Question] It is obvious that such a program must unite the diverse, often conflicting, interests of classes, groups and social circles, on the one hand, and on the other hand it must set goals and indicate the ways and means by which they can be achieved. Do you not believe that it is very difficult to unite these interests? After all, our society is differentiated. In the economy, for example, the number of sectors is expanding. How can this be reconciled?

[Answer] A socialist society, a socialist socioeconomic structure, just as any other, develops primarily through conflict, which is the driving force in the development of every society. At one time this society was pictured as being without conflicts and without problems. And it is, after all, a class, strata and group society. The basic motive in the activities of particular classes or individuals are their economic, social, cultural and political interests. Their interests are responsible for the diversity of this society. In this kind of society there are barriers and threats, but there are also activist elements. Conflicts and contradictions are not a curse. It is the way in which society naturally develops. It is the primary task of the party to know how to reveal and solve social contradictions so that they do not lead to conflicts, to know how to unite the interests which integrate society. That is precisely the philosophy which the draft program embodies. Naturally, all interests cannot be united, because that is impossible. But it is important to know how to unite the primary interests of society, to activate it and stimulate it to action, to overcome its inertia, and to reinforce its faith in its own strength.

There is something deceptive in our thinking that in several years, for that is the timeframe of our program, when we have solved the problems that are overwhelming us today, we can heave a sigh of relief. Such a belief is fallacious. Very simply, the problems that we solve today create new problems tomorrow. And that is how it will always be. Needs that are met create new needs. We must be aware of this in the party and in society.

[Question] Is the future, with all of its civilizational and technological challenges, ecological and other threats, considered in the program with the proper imagination?

[Answer] These issues keep appearing throughout the entire draft program. The most important ideological and political task today is to give new impetus to the economy. If new, energizing factors cannot be found in the economy, then this program is merely wishful thinking. That is why acceleration of the country's socioeconomic development is so strongly emphasized in the program. We must make important progress in engineering and technology and in labor productivity. Otherwise, the world will leave us far behind. Overcoming the economic crisis, finding new ways to develop economically--these are not tasks beyond our capabilities. We must overcome languor, fatalism, and loss of ambition. A society which loses ambition is doomed to destruction.

[Question] How do we get out of this?

[Answer] We must work better and more productively. In no area of life can progress be made without effective work. I do not want to be a moralizer, because such an approach to work solves nothing. More productive work is not just a matter of workers. There are also--and today in Poland especially--the production organizers, entire socioeconomic and authority structures. There are a lot of people who would want to whip the workers into producing more, but what is needed is to create conditions for more productive work.

[Question] We know what role the political system plays in the morale of the people, in articulating their interests, needs and opinions, and in settling them without conflict. Does this program envisage that the system will be further reformed? And if so, what direction will these changes take?

[Answer] The program envisages further democratization of socioeconomic relations and regards this as the primary method for accelerating the country's development. It is difficult to say today whether new institutions for the development of democracy will be needed. If it turns out that they are necessary, they will have to be created. The main task is to differentiate the institutions of socialist democracy which already exist. We must, first of all, overcome the bureaucratization of political, economic, and arts-culture structures. Many people believe that things can go on as they have in the past. Bureaucracy cannot be eliminated by appeals and moralizing. We must prevent a return to the old system, which is often offered to us in a new package.

[Question] Has the crisis in the party been overcome enough that ambitious planning can be begun?

[Answer] It is not simply a matter of society having to change. The party, too, must change. That is why it is said in the program that in the process of implementing socialist goals, the party must become better.

Something very important has happened both in society and in the party. It is the general awareness that these crises cannot recur. Therefore, the processes of social life must be organized differently and we must rule differently. This awareness and this willingness already exists, but this is only part of the premise which determines that these crises will not be repeated. The further part of this premise is that the party must undergo constant change. It must constantly examine its work and the mood of society. It must always be present among the people. The program is a very general outline of action which must be filled in with concrete details. If it becomes necessary, wrong decisions must be retracted if they were made on the basis of insufficient knowledge about society, or about the matter which was supposed to be solved. It is better to retract or correct decisions than to have events do this for us.

What I have said here flows from the spirit of the draft program, which predetermines nothing because it is the starting point for a general discussion. What the final program will be depends on all of us.

Discussions on Draft Begin

Warsaw TRYBUNA LUDU in Polish 11 Feb 86 p 2

[Text] (PAP) The TRYBUNA LUDU's publication of the PZPR draft program means that the preparations to the 10th Congress have taken on a new quality.

Let us recall that, as specified at the 22d plenum of the Central Committee, the discussion on the draft program is to constitute a great, universal ideological and political training of party members, enhancing their knowledge about the goals and principles of the building of socialism in Poland and the fulfillment, by the party, of its leadership role in the state and its leading role in society. The belief was expressed that the discussion on the draft program will have not only a partywide dimension, but also a nationwide dimension. The acceptance of the program will be decided by the 10th Congress.

PAP correspondents have been reporting on many events which illustrate that the pre-Congress campaign is underway.

The campaign should serve to consolidate and expand party membership and deepen the workers' character of the party--that was the motion formulated at the conference of 600 Primary Party Organization (PPO) and Branch Party Organization (BPO) secretaries representing all elements of the Zielona Gora Province party organizations. A ceremonial feature of the conference was the awarding of membership cards to 60 candidates by the director of the CC Political Organization Department, Kazimierz Cypryński.

The plant party organization in the B. Bierut Steel Mill in Czechochowa has, as the only plant party organization in the Czechochowa region, the right to directly elect delegates to the provincial conference. This is where the PPO and BPO meetings have been held at which delegates to the PZPR plant conference were elected. The first meetings held were the BPO meetings in the Research and Development Plant, in the sales department, and in the METALURG Steel Mill housing cooperative.

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POLITICS

POLAND

OLSZTYN PLENUM ON PARTY ORGANIZATION, SENIOR STAFF

Warsaw TRYBUNA LUDU in Polish 13 Feb 86 p 2

[Text] (PAP) On 12 February in Olsztyn a plenary meeting of the PZPR Provincial Committee was held to discuss the tasks of the party organization and echelons in implementing socioeconomic goals in 1986 and the tasks of the provincial party organization in the pre-Congress campaign.

In Olsztyn Province a large growth in industrial production was recorded last year--50 percent higher than the country's average. Land management also improved, therefore economic figures are good. But despite general progress, examination reveals that a large reserve of capability still exists, and this reserve must be activated immediately. In the production plants this involves the structure of the employment, discipline, worktime utilization, quality of production and the relationship between growth of wages and growth of productivity. Goals set for savings of raw materials, fuels and energy, should be increased, even above those set for this year. This should help to reach the planned 5 percent growth of industrial production.

In taking the floor, Marian Wozniak, Politburo member and CC secretary, called attention to the duty to consider the economy in long-range terms, so that the tasks accomplished today will form a strong basis for undertaking much larger tasks in the very near future. In order to do this, all participants in economic reform, from the management level down to each worker, must be properly educated in economics. The fundamental task for this year, for right now, is to correct the improper relationships between wages and productivity, and in so doing, gradually control inflation.

The tasks of the provincial party organization in the pre-Congress campaign were also discussed. The campaign began with one-to-one talks within the party and a discussion of the party's draft program. In the near future, a discussion on the Congress theses and the election of delegates will begin.

A motion was passed approving the basic economic assumptions for 1986 and defining the means and methods for implementing them.

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POLITICS

YUGOSLAVIA

SOCIOLOGIST VUSKOVIC DISCUSSES YOUTH ATTITUDES, NATIONALISM

Zagreb DANAS in Serbo-Croatian 28 Jan 86 pp 22-25

[Interview with sociologist Boris Vuskovic by Nenad Ivankovic: "Youth in the Mirror of the Crisis"; date and place not specified]

[Text] [Question] The questionnaire research on the attitudes and views of Split secondary school youth that you conducted together with Professor Nikola Kuvacic and Ante Rozga raised quite a bit of dust, although the results have not yet been fully released or even interpreted. What was it in this research that shocked part of the public so much?

[Answer] Perhaps it was a mistake that partial results gradually leaked out during the processing of the data. To tell you the truth, it was not easy to resist it, for the simple reason of avoiding giving the impression of some sort of secrecy. But we are preparing a comprehensive discussion of this research, to which we will invite eminent Yugoslav scholars and social workers. As for the dust, there are a fair number of reasons. One of these things is naturally the fact that Pope Wojtyla and Mother Teresa ranked very highly in the questionnaire. Specifically, we gave the individuals we surveyed a choice of 24 people, with the question: "Which of these people could you choose as your role model?" As is more or less well known, Pope Wojtyla was in third place, which really shocked some people, and so they began to criticize us for a poor selection of people, and for not including President Tito, while Stipe Oreskovic (at the Ideological Commission of the Central Committee of the Croatian LC) even criticized what we did not do: namely, including the American President Reagan among the people. This simply indicates a lack of information.

Things are different, however. What we had to take into account was the comparability of our research with the research on secondary school youth that was conducted in 1967 and 1968 by Professor Vrcan. This means that we also had to use the selection of people from Vrcan's research. Naturally, we could not leave Pope Paul VI in, since he is dead, but we consequently put in the present Pope. The other people remained the same, with some modification. The name of our president was not included in that research either, and so we did not do so, and I am convinced that it would have been a mistake if we had, since Tito was such an exceptional person that he is really not comparable, and I believe that he would have simply overshadowed the rest of the people.

Furthermore, it has been forgotten that in Vrcan's research Pope Paul VI was also ranked very highly (in fifth place), so Wojtyla's position is nothing particularly new. The novelty (and the problem) is that in 1967-1968 Lenin, as a particular symbol of socialism, was also ranked very highly, while today (in our research) he is only in the bottom third! I see this shift as a much more serious fact than the circumstance that Wojtyla is in third place.

[Question] A fair amount has also been said about the answer to the question of when our first worker's council was formed, which read, "10 April 1941 in Zagreb"; and often in the context of the allegedly "typical attitude" of some Split youth.

[Answer] I think that this fact has been misused, since it was the answer of only one single respondent out of the 750 that were involved. And if that is the case, then it cannot be anything typical, but rather the opposite. Consequently, insisting upon this is both funny and malicious.

[Question] One was also struck by the fact of the religious attitudes of young people...

[Answer] You see, when Professor Vrcan conducted his research, the results showed that 33 percent of the secondary school youth in Split were religious. Now, 16 years later, that number has grown to 52 percent. That was immediately striking and was the reason why some people were scandalized; particularly those who do not follow these matters otherwise and who had not heard of the fact that today, not just in Yugoslavia but also elsewhere in the world, there has been a rehabilitation of traditional values, including religion, and accordingly this is not anything peculiar to Split.

But since some people believe that young people are a priori revolutionary, and that religion in turn is a priori reactionary, such a result could not help shocking these circles. Something like: all young people are for us, and now it turns out that 52 percent of them are religious (i.e. against us).

[Question] Perhaps that would not be the case if some other indicators were more favorable. The attitude toward the party, for example.

[Answer] It is true that the fact that only 16 percent of the boys and girls said that they were willing to join the party contributed to this. If we add to this a certain nationalist content revealed by the research, then it is clear why some people were shocked and some of them even concluded that probably the sample was wrong.

[Question] Was the sample surveyed really inadequate?

[Answer] Not at all! A sample that covered 11 percent of the secondary school population (students in the third and fourth grades of guided education), like ours, cannot be unrepresentative. Furthermore, we made sure that in its professional, social, etc. structure it would be a faithful copy of the total Split population of students in guided education. For example, if the total population was 54 percent girls and 46 percent boys, then that

was also the case in our sample. Also, if 30 percent of that population was industrial workers, then there were the same number in the sample as well. This was also taken into account in the statistical processing of the data, which, I should state, was done with a probability of 95 percent, which rules out any serious doubts. Thus, all the relevant elements for the sociological research were absolutely scientifically valid, and therefore there is really no sense in trying to refute the entire research in order to refute the fact that 52 percent of the Split secondary school students (in guided education) are religious.

[Question] Aren't the results of your research atypical, however? For instance, some other studies (in Slovenia, and this one in Zagreb about which our newspaper wrote) show somewhat different trends, at least in regard to religious attitudes.

[Answer] The first thing that I would say is this: it should be kept in mind that our population and the one in the Zagreb study are not the same. Here we have to deal exclusively with one part of youth (youth in guided education), while in the Zagreb version all groups among the inhabitants were polled. In this regard the two studies are not even comparable. In spite of this, however, it should be stated that the Zagreb study showed that 46 percent of the population is religious, which does not differ a great deal from our 52 percent, particularly if it is kept in mind that Dalmatia is somewhat more religious than other areas.

Finally, why wouldn't differences exist -- not just with respect to the Zagreb study, but also the one from 1967-1968? And something has nevertheless changed fundamentally with respect to it. There has not just been a considerable increase in religious belief; there is also a certain nationalistic content...

[Question] Which indicators confirm this?

[Answer] For example, in the questionnaire we asked the following question: "Do you know how many members of other nationalities there are in your class?" A third of the young people answered that they knew, which demonstrates that nationality is in the field of perception of young people. Also, in response to the question "Do you think that national equality rules among us?" -- most of them answered in the negative (18 percent confirm that full national equality of the peoples and nationalities has been achieved, 28 percent state that it has not been achieved, and 52 percent feel that it has only been resolved in principle). And in response to the question "Would you choose as your spouse a person who suits you in every respect except for being of a different nationality?" 21 percent of the respondents said "No." In short, nationalism is beginning to play a much greater role than in 1967-8. Then there was a much higher number of those who thought that full national equality had been achieved than there is now. These are only trends, of course, but they indicate that something is happening on the ideological level.

[Question] What is the reason for this?

[Answer] First, I would say that we should by no means simplify things, and in particular we should not misuse the results that we have reached, but there have been examples of this. Finally, with respect to nationalism, that concept is by no means unambiguous. It has both positive and negative aspects (the nationalism behind the national rebirth of the Croats in the "K und K" monarchy, and the Ustasa nationalism, or even Bulgarian nationalism, which is present today, or the Basque nationalism in Spain). It is a very complex phenomenon, and it seems to me that we have confused the causes, reasons, and catalysts, from the world scene to our Yugoslav and Split one.

There is no doubt that there has been a low tide of the socialist movement and leftist forces in the world, and that the right is on the offensive. This is shown by both Reaganism and Thatcherism. And all of this influences us, of course not by the principle of connected vessels. Finally, is it really by chance that a year or so ago NIN picked Reagan as the man of the year? The question is thus to what extent the wave of conservatism in the world is having an effect on us. Regardless of the answer given to this, I would nevertheless not say that this is the fundamental cause of nationalism or the growth in religious belief. Instead, it is a certain catalyst; that exists. What I see as the cause is two dominant processes in Yugoslavia: parochialization and privatization. We can observe them everywhere -- from culture to politics and sports. Parochialization and privatization are creating a climate in which our community is jeopardized, and this in turn is a chance for the rehabilitation of traditional ideas, from nationalism to various types of religious conservatism.

[Question] Nevertheless, isn't the economic crisis affecting us at the root of all these negative social processes?

[Answer] Let us start with the Split situation. It is true that the Split economy is among the worst. That is also shown by the list of enterprises operating at a loss in Croatia. This, naturally, is above all eliminating the prospects for the younger generation, and so there is no doubt that the economic situation is a factor that has to be reckoned with. Furthermore, I would agree that the economic crisis is the main generator of the problems, but I would not say that it is the only one. We cannot associate nationalism, and many other things, only with the economic crisis. The unemployed undoubtedly include people who are not nationalists. Likewise, I do not believe that we would get rid of nationalism if we had full employment. Finally, 1971 is proof of that. At that time unemployment in Yugoslavia was almost marginal.

Naturally, the fact that the Split economy is one of the worst both structurally and in terms of efficiency has led to the fact that today in Split we have 10,000 unemployed (to 90,000 employed), which is a very high rate. But the trends are bad. Today in Split, and in Dalmatia as a whole, you have very drastic social stratifications: on one hand unemployment, and on the other a penetration of capital relations, rentierism. A stratum of billionaires is being created, who act in such a way that some basic values of this system are brought radically into question.

In regard to Split, the migration factor is also not insignificant for these processes; today in Split only a third of the citizens living there have been in the city for more than 30 years. And it is worthwhile knowing that from the war until the present day Split grew sevenfold! The newcomers partly live in a sort of ghetto (settlements built at random), which has not been without influence upon the processes we are discussing. The study, in fact, showed that nationalist and religious elements, and unwillingness to join the LC, are much greater in these populations, i.e. those from the village, than among urbanized youth.

If we add to this the circumstance that Split is backward in the cultural respect, that schools are doing less and less upbringing and more and more are doing only education, that the faculties have virtually become trade cooperatives, then it is clear that they all have more of an effect on the upbringing of young people than the institutions of this society. This was at any rate confirmed by the research; in response to the question, "How much has school influenced your upbringing?", most answered that the influence was minimal.

[Question] Could you analyze these influences in more detail?

[Answer] With respect to religious belief, for example, social origin is very important. The study showed that the children of workers are the most religious (if we exclude the children of farmers, who were only 1.5 percent of the respondents and who are all religious). As many as 78 percent of the workers' children are religious. Furthermore, half as many urban young people are religious as young people who travel from villages and smaller towns to school in Split every day. Next, young people being trained for workers' occupations are more religious than others, and the same is true of the poorer ones as well.

[Question] Isn't there a danger that on the basis of these facts and similar ones, religious people might be socially singled out negatively, without distinction, which, I believe, would not correspond to the true state of affairs?

[Answer] Naturally, that danger always exists. Consequently, certain facts should be kept in mind. The increase in religious people is not of a single type; instead, it has more to do with the category of "very religious" (22 percent of the respondents) than the category of "mostly religious" (30 percent). In Vrcan's study, as I said, altogether there were 33 percent religious, of which only 9 percent were very religious (out of all the respondents). And this means that the latter group of one fourth has grown to almost half of all the religious people. And that is precisely what leads one to think.

[Question] Is it because of a certain sociopolitical content of such a type of religious belief?

[Answer] Precisely for that reason. Specifically, the research showed that there are no significant differences in the ideological and political respect between the category "mostly religious" (and they amounted to 30 percent),

and, let us say, those indifferent to religion. But the situation changes fundamentally in regard to the "very religious," however: from a hostile attitude toward self-management as a social relationship (very widespread in that group) to a certain nationalistic content. What should be emphasized and distinguished is therefore the following: religious people are not fundamentally different from others, but among the "very religious" ones an attitude has been revealed that I would call anti-Communist. This is indicated by all of the correlations that we made. For instance, if 28 percent of the respondents stated that there was no national equality among us, 50 percent of them were "very religious." Of the 21 percent who answered that they would not choose a spouse of another nationality, more than half were "very religious." In response to the question about what self-management meant to them, 13 percent answered that it was only ordinary phrases and slogans, but more than 50 percent of these were "very religious," and so on. All of this indicates that this group is fundamentally divergent from the rest, and that it has fairly consistent sociopolitical positions, and therefore they are the only ones who are a real problem. I repeat: not because they are religious, but because their religious belief has a negative social content.

[Question] Are certain church circles also responsible for this?

[Answer] I think that the church is not without fault in this, because if it is not a coincidence (and the study showed that it is not) that those who are more closely tied to the church are, at the same time, not socially integrated anyway, then there is obviously some sort of indoctrination. Also, if these young people are brought up by the church to a greater extent than others, then they are primarily the problem of the church and of Christians. And it should be asked what kind of Christian upbringing forces young people, for instance, not to accept a spouse who suits them in every respect except for being of a different nationality. In short, the question is what is going on when some of our young Catholics are being brought up in a way that directly or indirectly questions the basic principles of this society.

[Question] Why does part of the church indoctrinate young people in that way?

[Answer] As I said, the church is not homogeneous at all; there are very different beliefs and tendencies within it. That is what we should not lose sight of when we answer this question. In any case, there are several reasons for it. Before the war, the Catholic Church in Croatia was definitely conservative and had a definitely anti-Communist attitude. The Second Vatican Council marginalized these anti-Communists in the church, but they did not disappear. Today, under the influence of the wave of conservatism in the world, conservatism is also being renewed in the world; what was marginalized in the 1960's is coming back in the 1980's, and as the dominant force.

[Question] Does this mean that the role of the church in 1971 was different from what it is today?

[Answer] Of course. At that time most of the church was beyond nationalism, and it was not involved in what happened then. The source of nationalism was

elsewhere, and partially in the party, much more than in the church. Consequently, it cannot be said that today the situation is the same as it was then, because today the conservative part of the church, which has somehow come to express itself more, has taken over the banner of nationalism, while in the party the situation is radically different. Thus, the situation is not the same, or even similar, in either the church or the party.

Today nationalism is perhaps more diffuse than in 1971, but it has not been institutionalized. It has somehow become more of an everyday reality, but not just ours: nationalism can be observed in Serbia, Macedonia, Slovenia... just as much as in Croatia.

[Question] Does this mean, however, that Split is not our black sheep?

[Answer] I would say that nothing has happened here that should concern Yugoslavia more than other things. Not because afterwards more serious things happened elsewhere, but simply because the Split situation is not special in any respect, not even according to this study. Its problem is that it is more recent than the others, since the studies done at the end of the 1970's are no longer authoritative for today's circumstances, since the climate has fundamentally changed. Here is just one example: a study that is under way for Croatia as a whole showed literally the same result as ours, that only 16 percent of the young people want to join the party. Consequently, if we looked at everything as something specific to Split, we would conceal the real problems and thus the possibility of analyzing more profoundly and seriously why we have some things happening in society the way they do.

[Question] Could you cite some other indicators that illustrate this change in the social climate?

[Answer] When we asked young people in the questionnaire what brings the most success in life, 59 percent of all the respondents answered that it was not work, or that it was work to a very slight extent, while 83 percent said that it was connections and acquaintances! Thus, if for a majority (53 percent) knowledge and intelligence do not have any influence whatsoever on social position, progress, and success in life, then it is clear that young people are very critical of the real and concrete situation. Even if they were not right about this and they were completely wrong (and they are not), the fact that 83 percent of them feel that connections and acquaintances are the key thing in social and personal promotion is enough to determine their social conduct tomorrow.

Also, in response to the question about what the fundamental factors are that govern sociopolitical life in our country, a majority (51 percent) answered that they were individuals and groups, while 61 percent think that self-managers do not have any influence at all. The question is how one can involve young people with such beliefs, when 78 percent of all the respondents maintain that citizens do not have any influence upon our social trends? All of this, then, indicates why certain traditional ideas are being rehabilitated among us. Without understanding this criticism of our social practice, one cannot understand the trends that we have discussed. Here I am emphasizing the word "practice," since it cannot be said that our young people are

oriented against self-management and against socialism. When we asked them what socialist self-management meant to them as an ideal (and thus not as realized in practice), 73 percent of the respondents gave answers that confirmed this ideal. This means that young people are open to self-management and socialism on the level of ideals. On the level of practice, however, they are much more critical. This is at the root of the fact that at one time in Croatia a third of the young people wanted to join the LC, and now only 16 percent want to! There is no doubt that young people have always been more receptive to the LC when social development was more stable. From 1972 to 1982, most of those admitted to the party were young people -- 75-80 percent! But the reverse is also true: during the periods of social crises, most of those leaving the party have been young people. Indeed, in 1984-5 more young people left the party than joined it, and this indicates that the trends have been completely reversed. Naturally, it has always been too comfortable and convenient to blame the church for this primarily, especially the church as a whole, followed by various types of enemies, which can of course contribute to exacerbating the situation, but the keys to turning things around are undoubtedly economic stabilization and the further democratization of our society.

9909

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SCIENCE AND TECHNOLOGY

BULGARIA

REPORTAGE ON ACHIEVEMENTS IN HIGH TECHNOLOGY, ROBOTICS

New Machine Building Product

Sofia ZEMEDEL'SKO ZNAME in Bulgarian 18 Feb 86 p 1

[Article by Marin Linkov: "A New Page in Bulgarian Machine Building"]

[Text] The news of today is that the Beroe Combine in Stara Zagora has won new positions in machine building. Bulgaria is now the third nation in the world producing wave regulators using its own designs and equipment. Up to now only the United States and Japan have supplied the international market with these widely used, highly reliable and effective articles.

This news is even more pertinent if we add that the new enterprise was established as a result of carrying out a small development program. Additional information was provided by Engr Kircho Bonev, director of the Vulna [Wave] Enterprise: "The Bulgarian wave regulators were the child of the collective led by the Honored Technician, Engr Vasil Tyurkedzhiev, the Chief Director of the Beroe NPSKR [Scientific-Production Economic Combine]. These are marked by a very high gain and exceptionally small size in comparison with the classic regulators.

Just one example: a traditional regulator with a gain of 160 weighs up to 40 kg while a wave regulator with the same capability weighs just 500 gm. This year, around 15,000 wave regulators will be offered on the domestic and international market. There have been orders for them from FRG, Austria and Great Britain. Particular interest has been shown by the socialist countries and primarily the Soviet Union. The enterprise has "written" the first sentence of its labor biography and has made a start to opening a series of pre-congress facilities at the Beroe NPSKR.

Another three new facilities will go into operation during the week: the Beroe Program Enterprise, the School for Automating Engineer Labor and the GAPS [a training school] for training students of the third level of instruction and which will also take students from the base school.

The Beroe program enterprise will meet the needs of the combine and other enterprises for software products and in the near future will prepare the "intellectual charge" for the robotics installations of the Bulgarian-Soviet

Krasnyy Proletariy-Beroe Association. The school for automating engineer work will also be very effective. Its contribution will be measured by a significant rise in the creative activities of designers and production engineers in the process of preparing the products.

Wider Use of Automation Urged

Sofia TRUD in Bulgarian 19 Feb 86 p 1

[Unattributed article: "Automation With Socioeconomic Effectiveness in Practice; A Meeting at the Institute for Technical Cybernetics and Robotics (ITKR) Under the Bulgarian Academy of Sciences"]

[Text] The February Plenum of the BCP Central Committee held a year ago, like the January Plenum this year and which discussed the main areas and tasks for carrying out its decisions, rightly hold a historic place in the chronicle of modern socialist Bulgaria. The program outlined by them for ubiquitous intensification on a basis of the scientific and technical revolution and the maximum use of its achievements will be at the center of attention at the forthcoming 13th Party Congress.

During these days of taking stock and mobilizing forces to properly greet the party forum, the creative ambitions of the labor collectives and the workers in science and technical progress are aimed at the reserves to more quickly achieve the designated strategic goals. And it is natural that these are being disclosed and employed on the leading front of scientific and technical progress, including: efficient production methods and technological reequipping, electronization, full mechanization and automation of production as well as the broader use of computers.

Robots, one of the highest achievements of modern scientific thought are evermore confidently becoming part of our everyday life and are entering our plans and deeds aimed at a higher level of social labor productivity and product quality. Robotization with its leading role in creating flexible automated production systems (GAPS) at present is becoming the decisive factor in modernizing the plants into combines as well as entire industrial sectors and branches of social administration.

The Institute for Technical Cybernetics and Robotics (ITKR) Under the BAN [Bulgarian Academy of Sciences] holds an indisputable place and has made a real contribution to the successful development of this process. A meeting with its leaders and leading specialists, as depicted in this issue of the newspaper, will familiarize the readers with the accomplishments and searches of this advanced scientific collective. The creating and strengthening of its ties with practice and the accelerated elaboration and introduction of highly efficient scientific ideas for the electronization and automation of production undoubtedly merit attention as a timely and exceptionally useful social experiment.

For this reason the creative unity of the collectives from science and production is a timely and important measure as well as a strong catalyst for the social activeness of our contemporary man. To a large degree this

activeness determines the importance and real contribution of a person's participation in the ongoing scientific and technical revolution of which we are all contemporaries....

Key to Scientific, Technical Progress

Sofia TRUD in Bulgarian 19 Feb 86 pp 1, 2

[Article by Senior Science Associate, Doctor of Technical Sciences, Vasil Sgurev, acting institute director: "The Key to the Intensification of Scientific and Technical Progress; The Effective Interaction Between Developers and Producers; Self-Management Is Impelling the Economic Leaders to Search for the New and to Market-Oriented Thinking"]

[Text] The January Plenum of the BCP Central Committee sharply posed the question of intensifying scientific and technical research and through this, all our economy. In the spirit of what was pointed out at the February (1985) Plenum, electronization and automation were recognized as two of the most important areas of scientific and technical progress.

In this area, our Institute for Technical Cybernetics and Robotics (ITKR) Under the BAN has assumed substantial tasks related to the development, production and extensive introduction of microprocessor equipment and robotized systems in various areas of material production and social practice. From this standpoint, at present of particularly important significance is the establishing of effective scientific-organizational and economic prerequisites for the rapid and effective introduction, for the effective transfer of scientific and technical achievements into practice. The academy organizations manage these processes on a centralized basis through budget funds (this is the practice in virtually all countries for financing fundamental research). The experience of our institute indisputably has shown that any primitivizing and a desire to "economize" on fundamental research can entail very unpleasant consequences.

Along with this, the January Plenum of the BCP Central Committee drew serious attention to the need for effectively utilizing another method of introducing scientific achievements into practice, that is, by direct (immediate) ties between the scientific research and economic organizations. This process to a significant degree will help to turn the socialist organizations into self-managing organizations. The element of self-management for the economic organizations presupposes the possibility of freely disposing of their capital, an active market and investment policy, flexible management and the entering into mutually advantageous, contractual relations with external organizations, including scientific research ones. With such prerequisites, natural objective demands must impel the economic leaders to seek out the new and progressive and to promptly utilize this. The strengthening of self-management of socialist organizations, as the experience up to now has shown at our institute, is also advantageous for the scientific research organizations themselves. Let me illustrate this by several examples from the practice of the ITKR Under the BAN.

The development, introduction and series production of the personal computer at the Scientific-Production Combine for Microprocessor Equipment in the town of Pravets is the most eloquent example of such effective horizontal ties between a plant and an institute. After the ITKR developed in 1980 the first Bulgarian personal computer, the IMKO-1, and after the introduction of the IMKO-2 (PRAVETS-2), the leadership of the then Instrument Building Plant in Pravets, at its own initiative (without instructions "from above") got in touch with the developers and proposed that series production be undertaken for this computer. Since then, for 5 years now, the combine and the institute have moved side by side and together are carrying out the common task of developing and serially producing ever-newer and more advanced personal computers. During this time much has been done: the plant has become a combine and has been equipped with the most modern equipment for the mass production of personal computers, while the institute has established a section "Personal Computers" and has begun building an affiliate of the ITKR on the territory of the Combine for Microprocessor Equipment in Pravets for the technological support of production. The two organizations -- the combine and the institute -- are linked by common economic interests within the Pravets association for economic activity. Prerequisites have been established for the transferral of personnel from one organization to another and for exceptionally close cooperation in common work. Such horizontal ties with significant elements of self-management are beneficial for all, and they develop activity, creative search, market-oriented thinking, collectivism in the pursuit of common goals and the turning of leading specialists from the two organizations into partners and ardent partisans. And although not all the problems have been resolved as they should be or completely (the combine, institute and its affiliate at Pravets are "in motion," in strengthening and increasing development and production capacity), the taking of stock of what has been done up to now is positive. It shows optimistic prospects for effective large-series production of the personal computers.

Equally instructive for us has been the positive experience of working with the leading economic organizations of Stara Zagora Okrug: the Beroe Scientific-Production Economic Complex, the United Storage Units Plant and the Friedrich Engels Plant. Irrespective of the fact that a portion of the articles developed by the institute and introduced at these plants were controlled by central programs, of crucial significance for the success were the direct contacts between the developers and the producers as well as the objectively existing interest on the part of the two parties to introduce the RB-251 welding robot, the microprocessor devices for milling control and the RB-241 robot. On the basis of the previous experience, the further joint activities of the ITKR with the mentioned plants of Stara Zagora Okrug will develop by cooperating on economic activities and bringing the institute units to the status of individual plants.

We must emphasize the significant role which party leadership of Stara Zagora Okrug has in introducing the microprocessor systems and industrial robots which have been developed at the institute. Practice shows that (as a rule) where the party bodies actively aid the scientific research units and economic organizations on the problems of scientific and technical progress, there and only there can promising, highly effective introduction of the new production methods and articles be expected.

On the basis of years-long direct contacts with the Main Computer Center (GITs) of the Ministry of Chemical Industry, articles and systems of the MIK family were developed and successfully introduced in various economic organizations. Here between the two collectives there has been a reasonable specialization within the contracts with the investor: at the ITKR they have developed and worked out the corresponding equipment and systems while the GITs specialists are concerned with engineering activities. The interest of the two organizations from such joint activity is an objective fact and the benefit for the economic organizations is obvious!

Our institute maintains very good direct contacts on a contractual basis with the G. Damyanov Combine in Srednogorie, the Combine for Automation and Installation in Plovdiv, the printed circuits plant in Ruse and others. It is actively involved in two associations for economic activity, with the Optical Electron Plant in Panagyurishte and Balkankarpodem [Balkan Plant Truck and Lift] in Sofia. Together with the Sofia Plant for Medical Electronic Equipment (ZEMA) we are in the process of building a small enterprise for producing the training robots developed at the ITKR.

In establishing, maintaining and strengthening these direct ties, we have adhered to the main rule of having a reciprocal interest, the elements of self-management, flexibility and adaptability to constantly changing reality. There are objective conditions for introducing scientific-intensive articles and production methods. The engineering and technical personnel is intelligent and competent!

I would like to point out that the ITKR Under the BAN has an awareness of the need to seek out and realize effective direct ties with industry because of the fact that it itself relies on the diverse collective of the BAN, the largest comprehensive scientific organization in our country.

Of course, we must not idealize reality, as horizontal integration ties do not lead automatically to a complete success, all the more as the introduction of scientific achievements is a diverse activity involving the most different problems. Whomever has been involved in an introduction under specific production conditions can imagine how many difficulties of a subjective and objective nature are found along this path and how difficult and tedious it is! But there are no easy ways as the process of raising the standard of living depends directly upon the introduction of modern production methods and the production of modern articles realized by modern-thinking personnel.

The collective of our institute is endeavoring to carry out those high demands stemming from the decisions of this year's January Plenum of the BCP Central Committee. Our task is to effectively utilize these capabilities and not to permit ourselves to be stifled by the bureaucratic inertia of certain backward-looking, hidebound persons.

Appeal for Wider Development Cooperation

Sofia TRUD in Bulgarian 19 Feb 86 p 1, 3

[Article by Engr Vladimir Khristov, chief specialist at the Robot Control Section: "Why Are We Seeking Partners?; Attractive Articles With Guaranteed Quality and High Productivity Is the Reply to This Question"]

[Text] The first microprocessor control device, IZOMATIK-T, was used to control the transmanipulators for automatic warehouses. Introduced at the Elektronika Plant of the DSO IZOT [Computer and Office Equipment State Production Trust], it provided an opportunity for the Bulgarian-Hungarian Intransmash [International Transport Machinery] Company to supply the KAMAZ plants with the first 17 automatic warehouses. Thus, a start was made to an original series of Bulgarian microprocessor control devices. For more than 10 years, the IZOMATIK family has been following new trends in the development of microprocessor equipment and is the symbol of high technical-economic and operational qualities.

The experience of introducing the first control device and scientific research in the area of control of so-called parallel processes on real time helped develop a unified notion of developing such articles for industrial robots. This made it possible to work out and develop a family of microprocessor modules IZOMATIK-M realized completely with electronic components produced (without exception) in the CEMA member countries. As a result of this the importing of a number of extremely essential types of equipment could be stopped.

The systems approach, the unified design facilities and the conceptual structure of the products of the IZOMATIK family significantly facilitated the elaboration and introduction of new articles. This can be seen from the fact that in 1984-1985, production was started on five completely new products and in 1986 alone we plan to develop another four. As an illustration let me point to the record short time for developing models of control devices for portal manipulators the RB-281 and for installation robots known as Kadratnik in less than half a year!

The circumstance that in creating the system we have used only socialist circuitry makes the articles very "attractive" for CEMA markets. Automatic warehouses have been exported to the USSR and the other CEMA nations since 1978 and the robots with IZOMATIK control devices since 1984 (RB-251, RB-241 and RB-242). These devices will be delivered in a significant series for the new Soviet-Bulgarian Krasnyy Proletariy-Beroe Scientific-Production Association; orders have been received from other enterprises of the USSR. The high dynamics and precision in the movement of Kadratnik have interested the French Sormel Firm.

This is without considering the effect for the consumer of the automated equipment (which, for example, for the PAM-2 assembly semi-automatic device means an increase in labor productivity of nearly 60 percent and a reduction in errors of 80 percent).

Due to cooperation with the CEMA member nations, productivity of control devices is growing rapidly in our country. This once again emphasizes the timeliness of developing the IZOMATIK family at our institute. At present, a number of nations are sending their specialists for consultation and specialization at the ITKR in order to study our experience. The recognition of Bulgaria's achievements in this area was also the international ROBKO Conference which was organized for a third time in 1985.

Development of Family of Robots

Sofia TRUD in Bulgarian 19 Feb 86 p 2

[Article by Senior Science Associate Nedko Shivarov, institute deputy director: "ROBKO -- A Name With Promise"]

[Text] Undoubtedly, robotics is one of the most promising areas of technical progress and the flexible automated production systems (GAPS) have already fundamentally altered the appearance of production processes. However, this new equipment requires knowledgeable and capable people. We are doing everything possible (post-diploma skill training, courses at enterprises, courses under the NTS [scientific-technical council] and many other forms) to acquaint our engineers and technicians with robotics and the GAPS. The experience of the ITKR has shown that the best solution will be to familiarize the secondary school and VUZ [Higher Institute of Learning] youth with this new area of technology in order to promptly form a fundamentally new attitude toward the automating and computerizing of production processes.

The personal computers developed at the ITKR and introduced at the Combine for Microprocessor Equipment in Pravets are the main technical means for the "second" computer literacy. In order to acquaint the youth with robotics and the GAPS, however, new special technical equipment is required. The ROBKO line of training robots and equipment for establishing training GAPS, as developed at the institute, along with computer literacy is aimed at providing our youth with literacy in robotics and the GAPS.

Personal computers and training robotics are very complementary. It is very important that from the outset the youth is convinced that a computer is a means not just for calculations and the display of textual information! It is essential to demonstrate the enormous capabilities of a computer to control various machines and mechanisms, to design parts, and control entire production systems and processes as this actually is in modern production.

The ROBKO robots and equipment for setting up training GAPS are programmed and controlled using 8-digit personal computers of the Pravets family. They provide the possibility gradually (with increasing complexity) to develop the knowledge of the young person, his creative thinking and his inventiveness.

The ROBKO is primarily a set of training minirobots which are simplified models of the industrial robots which are most widespread in the world and the so-called peripheral equipment and working models of manufacturing machines,

robot truck plants and automated training warehouses (all of this is controlled by the personal computers).

For example, ROBKO-01 has five degrees of freedom and can manipulate objects weighing up to 250 gm and can position them with a repeated accuracy of better than 0.1 mm. It comes with a rich range of peripheral devices: a conveyor, a rotating table, a sensor and magnetic grab, sensor units and so forth and with their aid it is possible to create diverse operating systems.

ROBKO-10 has borrowed the mechanical system of ROBKO-01, but possesses its own microprocessor control device and is programmed and instructed using a control panel. It can also operate in tandem with a personal computer as well as with an entire range of peripheral training devices.

ROBKO-111 is a stylized model of the most widely found robot in the world of the class "articulated mechanical hand." This is controlled by an 8-digit PRAVETS-82 personal computer and can operate with all the peripheral devices.

ROBKO-09 is a mobile robot with a built-in microcomputer and 9 degrees of freedom, it manipulates objects weighing up to 250 gm, it synthesizes speech, it has a built-in programmable clock-calendar, it recognizes levels of sound and light, it measures distances to articles, it goes around obstacles and has many other capabilities....

Among the equipment for developing the training GAPS are a milling machine with 3 degrees of freedom and a DC motor for the working tool with adjustable speed; a lathe controlled by a personal computer; an automated warehouse (essentially a reduced operating transmanipulator with which miniature pallets are manipulated with stock or articles produced by the training GAPS). The ROBKO-1000 training robot plant truck is programmed by a personal computer and transports miniature pallets of the training GAPS.

All these representatives of the line are in various stages of development or introduction into regular production. They are being manufactured by the Combine for Medical Equipment in Sofia while the actual introducers of the articles into the schools and computer clubs are Uchtekhprom [Training Equipment Industry] and Avangard [Vanguard]. Certainly this process is only just beginning. The institutes of the Ministry of Public Education, the NTS, the Organization for Assisting Defense and others have joined in popularizing the robots. At many VUZ an initiative has been made to study robots by the students of all specialties (electively) and the V. I. Lenin VMEI [Higher Electrical Equipment Institute] has developed several models of training robots.

Along with the development of training robotics it is also very important to quickly train the necessary instructors and circle leaders as well as establish the training programs, textbooks and aids such as tables, slides, films, and video films. In this regard, the work pace could be significantly accelerated on the part of a number of central departments. It seems to me that the assistance also of the Bulgarian Trade Unions could be much greater.

At present, our nation is a pioneer in the area of training robotics and we are already exporting these products to a number of countries and an interest has been shown in them on the part of certain organizations such as UNESCO, UNIDO and others. Success is due undoubtedly to the fact that our integration with production is integrated from the planning stage to introduction. Taking an active part also in the process of developing the articles at the Combine for Medical Equipment is a joint group consisting of specialists from the combine and our institute. Crucial however will be the pooling of forces in the very creation of the articles in a laboratory form, when their high indicators will be assessed by the manufacturing plant and incorporated in its immediate or more distant plans.

In order for this to happen, we, the scientific workers and designers, must also give some thought and see the long run and we must forecast the needs of socioeconomic development. Obviously, the ROBKO line will answer one of them....

Social Aspects of Product Development

Sofia TRUD in Bulgarian 19 Feb 86 p 2

[Article by Senior Science Associate Nikola Milev, chairman of the trade union committee: "A Conformity of Interests and Incentives Is Essential.... Or What the ITKR Collective Has and What Is Still Missing"]

[Text] Everything being done in our institute bears directly on increasing labor productivity, reducing manual and unattractive labor and eliminating work conditions which are detrimental to man. In other words, the end result of the "science-introduction" process is to further satisfy the material and spiritual needs of the people and accelerate the socioeconomic development of all our society.

Naturally the institute collective also has its own socioeconomic program. There is a plan which we must carry out in order to form our own consumption funds. Three years ago we decided to strengthen the contribution of each of us to the supplementary income of the institute in adjusting (by a certain amount) the personal contribution to profit from outside contracts for scientific and introduction developments. At present, 20 percent of this goes to the SBKM [Fund for Socioservice and Cultural Measures] and hence, along with better economic results, our possibilities have also been broadened in the social sphere. A good deal has been done: two hothouses have been built for cheap and fresh vegetables, the cost of food in our dining rooms is 50 percent cheaper, we possess a summer recreational facility on the Veleka River and recently we have opened a creative club in Vladaya. In the future we will build our own vacation facility for year-round use. We are also investing a good deal of money for labor safety, for public health and for the development of physical culture and sports.

Obviously, this social program is an important aspect in encouraging higher efficiency from the developments of the institute. It is an expression of the necessary conformity between personal, collective and state interests. But the scientific collective can and must work continuously to strengthen this

unity of interests and resolve in an even more mature manner the questions of organizing material and moral incentives. In particular the following question confronts the ITKR collective.

The median age of the scientific workers and specialists at the institute is around 34 years; they come to use after a competition, and many of them are from other okrugs. The aim is to assemble the most capable in our scientific area, but these young and gifted persons cannot always obtain truly normal working conditions. We are aware of the serious difficulties of Sofia in the area of housing construction. For this reason we have decided to build our own residential block: its "spot" has already been established, the plans are ready and we are ready to participate in its construction in the spirit of the well-known decree of the Council of Ministers and the Central Council of Bulgarian Trade Unions. However, it turns out that what is permitted to any enterprise is not permitted to a running scientific institute. In order for us to begin construction, we must first invest 40 percent of its cost for landscaping and amenities. But the problem is we are a budget-supported institute and have nowhere to secure such funds! The money for our construction is being provided in the form of a bank loan which we will pay back by the efforts of the entire collective. It turns out that whether or not we build the departmental unit is a "magic circle" which not we but somebody else must break.

Hence, accelerated development of scientific and technical progress for the sake of our common goal requires each to do his job better and not waste time in overcoming daily concerns created by someone else.

Economic Results of ITKR Activities

Sofia TRUD in Bulgarian 19 Feb 86 p 2

[Unattributed information: "The ITKR in a Few Words"]

[Text] The ITKR collective finished off the Eighth Five-Year Plan with the successful fulfillment of the tasks included in the national programs for the development and application of technical cybernetics and robotics, automation and electronization. The promise to achieve a high economic effect from the introduction of developments was significantly overfulfilled and the national economy received around 53 million leva.

The introduced 54 inventions and developments of the institute had an effect of nearly 8.5 million leva. At the Expo-85 World Fair in Plovdiv, three of them received a gold medal, one of the systems received the BAN award and Engr Zdravko Marchev received a major award of the World Organization of Intellectual Property.

Leader Interviewed on Market Share

Sofia TRUD in Bulgarian 19 Feb 86 p 3

[Interview with Senior Science Associate and Candidate of Technical Sciences Nikolay Iliev, scientific secretary of the institute; date and place of interview not given]

[Text] [Question] There are already scores of enterprises which operate the institute's equipment, industrial microprocessor controllers. The effect from their use runs into many millions. However, how have they reached the economic units -- "by force," that is, "from orders from above" or by other non-administrative ways?

[Answer] Every attempt for us to introduce our scientific developments by force ended in a failure or at least the results were below the expected. In the areas in which we have had undisputed successes, the selected path was different. On the basis of direct "plant -- institute" contracts and the organizing of common collectives, so-called pilot developments have been carried out. In this way we have been able to demonstrate its effectiveness and also eliminate the eventual shortcomings. In this manner we "break into" the market in the nation. The wide production of the article is then taken up by the enterprises of the Ministry of Machine Building. This applies both to the control systems of the MIK series as well as personal computers and all the remaining developments which may expand widely in the sectors of material production.

[Question] Such an organization is reminiscent of the small firms and technological centers which turn risky scientific developments into a specific market product....

[Answer] In truth, in some ways we look like a firm, but I would not agree with such definitions. The ITKR is not a TPK [territorial-production complex] which fulfills the orders of different clients using standard materials and models. As a part of the BAN, our institute carries out long-term state policy in its scientific area. Along with this, for a more dependable assessment of the arising fundamental and practical problems, we are endeavoring to develop a broad network of horizontal ties with the plants in the nation. We receive many proposals for contracts but we accept only those which require a new scientific solution.

[Question] What has been the most difficult moment in the fate of an already-found new solution?

[Answer] It is quite natural for a scientist to lose interest in a problem which he has solved. Has he shown that the device which he has developed actually works? For this reason, we feel that the most difficult thing -- and absolutely crucial for development! -- is to maintain the motivation of the scientific collective after the pilot introduction of the project....

[Question] At last year's spring fair in Plovdiv, several control systems were demonstrated developed on the basis of our personal computers. This means that they can produce, design and assume routine administrative operations not only abroad but also in Bulgaria.

[Answer] The personal computer is not only an object for "doing" but also an element of more complex systems. Thus, the field of its application is infinite. At the same time, conditions are being established for easing and altering human labor and for gradually bringing it into accord with the jobs

in various social activities. You are aware of the world trends -- industrial and agricultural workers are declining at the expense of an increase in service workers and the number of scientific workers is growing. The computer is a powerful accelerator of these processes.

[Question] Then what must be done in order to use the computer as effectively as possible?

[Answer] In the so-called "hardware" (the equipment part) we lag seriously behind the world trends. However, we are even farther behind in "software" (program support). The lag is most serious in "textware," that is, the training literature needed to master the personal computer. In the heavily industrialized countries, these publications both in terms of volume and the number of chapters the available series for such essential technical knowledge as, for example, the operating of a motor vehicle. The market breakthrough is combined with a breakthrough in the mind of people as neither of these two things can be done separately and must always be carried out together....

Interview With 'Father' of Personal Computers

Sofia TRUD in Bulgarian 19 Feb 86 p 3

[Interview with Honored Technician, Engr Ivan Maragozov, sector head and "father" of Bulgarian personal computers; time and place of interview not given]

[Text] [Answer] Everything started at the end of 1980, when a group of specialists from the ITKR under the BAN was swept up in a new problem, the designing of a Bulgarian personal computer. After hard work and creative search, our young collective designed the first Bulgarian personal computer known as the IMKO-1, now recalled the leader of this collective, Honored Technician, Engr Ivan Marangozov. Only 50 of these machines were produced and they were allocated to institutes and laboratories according to the instructions of the DKNTF [State Committee for Science and Technical Progress]. The results were encouraging and in 1982, the next computer IMKO-2 appeared. In the autumn of the same year, for the needs of the Ministry of Public Education, 250 machines were produced at the Experimental Facility of the ITKR, and in 1983, the then Instrument Building Plant in Pravets began producing the machine under the name of the PRAVETS-82. At present, this is a mass computer which is being introduced into Bulgarian education, science and other areas of the nation's economic and cultural life.

[Question] But the searches (and the successes!) are not limited to this, are they?

[Answer] A group of dedicated specialists have been working on developing new models of personal computers, their software and the designing of modules and equipment for broadening their capabilities. A particular feature in this instance is that all the developments are being introduced into practice and a majority of them is being produced serially. The pride of the collective is the development of the PRAVETS-16 which is a machine with very great capabilities.

[Question] What, in your mind, is the crucial thing for the obviously high quality of the scientific developments in this area?

[Answer] The series of personal computers has been developed on the basis of advanced world experience and our own research of many years. They have high technical performance and are on a level of the best world achievements in this area. All the designs and products developed by the group have encountered great interest from our specialists and the responses have been more than positive.

[Question] Would you please generalize the results achieved by the comparatively rapid development and production of the Bulgarian personal computers?

[Answer] Briefly, these are expressed in the following:

- 1) A new sector of the electronics industry has been created with large production volumes and export prospects;
- 2) New advanced production methods have been mastered which are in full accord with the requirements of scientific and technical progress for the automation and intellectualization of human activity;
- 3) The advisability of producing personal computers in Bulgaria has been confirmed as their mass introduction and use in a number of areas are in full swing.

The development and production of personal computers have been truly timely and effective. This has been caused by the fact that in the nations of the socialist community the equal of ours is not (yet) being produced. The activities of our group can be seen from the figures with over 19 million leva of economic contributions during the Eighth Five-Year Plan....

[Question] The phrase "group"...in essence is this not something like a prototype of the program collectives which were mentioned at the February and January Plenums of the party Central Committee?

[Answer] Yes, on the team which is concerned with the development and introduction of the personal computers are 11 engineers, technicians, a mathematician and an economist. From the standpoint of the prospects and the large amount of work which will be required by future development, this will increase. And in essence this will be a true program collective! In our many years of fruitful cooperation with the collective at Pravets, the dominant theme has been complete conformity of interests and of creative searches. And it is very pleasant to work along with such leaders and specialists from the combine as Plamen Vachkov, Khristo Khristov, Stoyan Kutsarov and others. And we have "matured" precisely for a program organization, for a program collective. With good reason one can say that as a thing starts out so it will be! Our integration with this collective began successfully and is developing at a pace where one can expect new, more meaningful achievements.

18 April 1986

Crucial Role of Institute Examined

Sofia TRUD in Bulgarian 19 Feb 86 p 3

[Unattributed article: "An Adjustment With Timely Measures"]

[Text] In sociopsychological research there is no fully unanimous opinion on the content of the notion of "social adjustment," but the range of definitions provides a rather full idea of it including "inclination," "direction," "readiness" and so forth. The most important thing is that it is a question of attitude, the attitude of an individual to one or another action in behavior, in life and social activity. If we broaden (although not very precisely) the concept, it can be said that in one way or another it is possible to characterize -- and express! -- the inclination or readiness for action of entire collectives. Then what is typical and characteristic for the social adjustment in the ITKR collective of its cooperation with practice and in its desire for a more rapid pace in the electronization and automation of production and social administration in our country? The answer to a large degree is found in the contents of the conversation which the readers have already discovered.

First of all, the impression may be gained that we are in a solid, modern academy institute (its significant theoretical developments are a good subject for another interesting discussion). But here the soundness and academicness are completely different from the traditional ones! Scientists with merited high titles and serious achievements in such difficult-to-understand areas as control theory and cybernetics, the electronization of processes and so forth discuss, worry about and offer solutions for a purely professional (and even "prosaic"!) sphere of the introduction and sales of finished products, the capital and profit of plants.... Is this by chance or merely a formal insincere matter?....

No, this is perhaps the first and most important component of a new type of collective adjustment in our scientific front which has already been formed and is apparent in full strength in the collective of the ITKR of the BAN. The creative goals and ambitions are not easy ones and are accompanied by long experiments and at times disappointing problems in the scientific laboratories here are subordinate to a single common, collective value: the rapid realization of a scientific development in practice and demonstrating its significant socioeconomic effectiveness. For this reason, the persons we have spoken with have talked in such detail (many of them have been set aside due to a lack of space) on the already achieved real benefit from the development of the Bulgarian computers and robots and of the recognition which the products already have in other countries. For them this is the most important moment of assessment in the long and difficult creative process, that is, the proof of utility. A utility combining personal, collective and social, state interests subordinate to the strategic goals of intensifying the economy on a basis of the achievements of scientific and technical progress.

Such a collective value orientation cannot help but be reinforced and nourished by the new approach to the demand for integrating science and practice. A unity of action is sought and created not by the positions of the

partners from the two sides in "no man's land." This is established purposefully even in the planning stage, in the process of discussing and adopting the counterplans of the labor collectives. In order to move after this into new, modern forms such as combined collectives, territorial affiliates and associations for economic activity. And to provide a content for the ideas concerning the further democratization of production management. To develop the economic and scientific units as self-governing systems in which self-initiative and innovation will provide a significant impetus in the dynamism of all our integrated socioeconomic development along the path outlined by the February (1985) and January Plenums.

There is one other important aspect of this adjustment. It is most apparent possibly in the arguments (no, in what has been done by this collective!) for the mastery of the "second" computer literacy by our younger generation first of all. The inevitable influence of objective processes on the modern world scientific-technical revolution has been thought of, sought in the long run and taken into account. And with much ambition the results have been achieved which now rank Bulgaria among the pioneers in training robotics and in developing and widely introducing personal computers. In this way this has realized the indisputably leading, directing role of science and the scientific search. Then the qualitative changes of the realized developments are materialized not only in "developed production" by the plants and combines, in exports and so forth, but also in the social, spiritual sphere in the personal development of each of our contemporaries.

This explains also the obvious presence of personal responsibility of "personal engagement" in the collective adjustment of the co-workers of the ITKR. Here many of the people are responsible "by name" for the level of the research and its realization in practice, for the results of comparison with world models. The collective adjustment is not an impersonal creative personality. Its contribution to scientific and technical progress is sought, encouraged and promptly judged as to whether it conforms to the common collaboration with the production collectives. In other words, the so-called horizontal ties of one academy institute do not undermine the previous, traditional academy approach in science but merely enrich this, develop it and make it in harmony with our today.

Precisely this makes the adjustment of this leading scientific institute so timely. Certainly it is neither an ossified, once-set thing or is it without problems. But it is an obviously real prerequisite for social activity of that type which the accelerated rates of our socialist development categorically define as the most essential and meriting high recognition by society.

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SCIENCE AND TECHNOLOGY

POLAND

BETTER UTILIZATION OF MINERAL RESOURCES RECOMMENDED

Krakow AURA in Polish No 12, Dec 85 pp 5-7

[Article by Dr Ewa Taylor, Main School of Planning and Statistics, Warsaw:
"Mining Mineral Resources in Poland"]

[Text] It is often believed that in the past the management of mineral resources has been wasteful, even destructive. As a result, not only have resources been rapidly depleted, but this kind of management has contributed to environmental degradation and pollution.

The country's economic development has been based mainly on the mining industry and the metallurgical processing that accompanies it. Such management has been very capital-intensive and has been directed at production of raw materials which are not highly processed. Also, basing the foreign-trade balance on the export of raw materials has made it necessary to undertake new and expensive mining investments. The functioning of these processes was revealed very clearly during the period of economic difficulties, for it turned out that in such a situation the most simple solution was to increase the mining and export of coal, copper and sulfur. Today it is believed that the former concept of development should definitely be modified. One of the ways in which the state of the national economy can be improved is through efficient and economical management of mineral resources.

Of the several dozen mines in Poland, only nine are of decisive importance to the economy, accounting for 96 percent of all mine resources. These are: hard coal (64 percent), road and building stone (9 percent), rock salt (8.5 percent), copper ore (4 percent), brown coal (3.5 percent), limestone (3 percent), building ceramic clay (1.5 percent), sulfur (1.5 percent), and natural aggregate (1 percent).

There are two basically negative aspects in Poland's mining industry.

First, mining quotas for hard and brown coal, copper, zinc, lead and sulfur have been set absolutely too high and they have been filled at the expense of wasteful exploitation. In the case of hard coal, deposits which are difficult to mine due to geological conditions have been left unmined. Losses caused by the mining system used amount to approximately 30 percent. To a large

extent, hasty and not always advisable mechanization is responsible for this state of affairs. Therefore, in extracting one ton of coal, as many as four tons are allowed to remain in the beds. As one bed is depleted, new mines are constructed, thus destroying more and more of the natural environment.

Of course, the greater the damage to the environment, the smaller its ability to adapt. We are dealing with just such a situation in the case of the recently built Lublin Coal Basin. Efficiency-improvement would better be effected by activating the Walbrzych region, which from the standpoint of land-use management and the quality of the environment, particularly an agricultural area selected for future mining, would be more desirable. However, whether or not this is profitable depends on what kind of mining technology can be used as well as the price of coal. If we continue this wasteful exploitation of coal deposits, we can expect that the discovered hard-coal resources in Poland will be depleted in 100 years, brown coal will be depleted in 70 years, copper ore in 50, and zinc, lead and sulfur ore in about 30 years.

The second negative aspect of Poland's mining industry relates to the underestimation of the so-called "companion minerals" and the lack of a comprehensive plan to neutralize industrial wastes (an ecological aspect) and use them as secondary raw materials (an economic and ecological aspect). For example, in 1980 over 900 million tons of wastes were collected on spoil banks and dumps, covering over 10,000 hectares. The surface covered by spoil banks and dumps is equivalent to approximately 150,000 building lots for single-family houses. The situation is complicated by the fact that over 80 percent of the wastes were located in six provinces, namely: Katowice, Legnica, Walbrzych, Krakow City, Tarnobrzeg and Bydgoszcz.

Thus the management of spoil banks and dumps is not satisfactory. In 1980 only 52 percent of the wastes were utilized, and not in the best manner. The wastes were mainly used as material to fill excavations and to level-out areas after mining had been completed. Many valuable raw materials which could have been utilized, if not now then in the future, were irretrievably lost. Of a total of 454 production plants surveyed by the Main Statistical Office in 1954, in mining and energy 64 percent of the plants, in heavy industry scarcely 36 percent, in the machines industry 37 percent, in the chemical industry 51 percent, in the food industry 28 percent, in the light industry 64 percent, and in the building materials industry barely 17 percent of the plants, made use of over 50 percent of the wastes.

The utilization of production wastes, and especially mining wastes, is important not only from the economic standpoint: it also protects the environment against pollution, and it protects the soil, which should be utilized in a more effective way. Therefore, a method must be worked out to make use of the deposits and the raw material itself in a way which would reduce the present high losses to a minimum in all phases of production. The proper extraction of minerals and the selective storage of companion minerals, is very important.

The situation in mines other than those mentioned above is much different. For example, there was been no development in the mining of kaolin, chalk or

gypsum, despite the fact that there are large reserves of these raw materials in Poland. Many times we have been forced to import them!

Because the value of the environment's resources, including mineral resources, has not been appreciated, there has been no concern about using them economically. Environmental problems, until now, have lain outside the economic sphere. This kind of thinking justified the lack of interest by the economic sciences in the damage being done to the environment as a result of the increased mining operations and improper processing. The problem is of fundamental importance in the efficient and economical management of the country's resources. For example, the accounts-settling price system now in use complicates better utilization of mineral resources through reduction of losses during the mining phase and in processing. One possible solution is wide-scale introduction of mining pensions. This problem is of primary importance for brown coal, where losses during mining and processing amount to 78 percent, and for hard coal, zinc, lead, copper and sulfur, where losses exceed 50 percent of value.

Heavy economic losses are incurred due to pollution of the environment, mainly during industrial processing. Recent estimates show 400 billion zlotys annually. The money spent on pollution control is a ridiculous amount when compared with these figures. Two percent of the total outlays in the country's economy, i.e., approximately 45 billion zlotys, cannot significantly halt the destruction of the already badly polluted environment. Reports and forecasts for the next few years on the pollution and destruction of the environment are disturbing, particularly for the areas where mining of mineral resources has been increased. At this point we should state that losses connected with mining and processing of copper in LGOM, for example, greatly reduced the economic results achieved here. In 1982, in the Legnica and Glogow copper mills alone, over 330,000 tons of toxic gases were released into the atmosphere, and over 13,000 tons of dust, of which half was metalliferous. The crops which were totally destroyed in the area surrounding the mills covered 500 hectares, and yields on 2,500 hectares were greatly reduced. Nineteen factories of the Copper Mining and Metallurgical Works released over 36 million cubic meters of liquid wastes, of which over 20 percent was untreated. The waste yards here cover 2,300 hectares, where year after year over 20 million tons of flotation wastes, 1 million tons of slag and several score thousand tons of lead sludge, are collected.

Under economic reform the destruction of environmental resources has increased. In pursuit of larger profits, many enterprises are no longer concerned with environmental protection. It should be expected that pressure for further mining of resources as a way of obtaining immediate profits will grow. On the other hand, all measures aimed at obtaining immediate economic benefits without regard to the quality of the environment must, in the end, turn again man. Therefore, in making decisions about expanding the country's raw materials base, consideration should be given to the economic and ecological consequences. The greater importance of coal in the Polish power industry will result in much heavier emission of gases, especially sulfur dioxide. It is estimated that at present, over 8 tons of sulfur compounds per square kilometer fall on the soil surface, and on a surface equivalent to 10 percent of the country, over 50 tons per square kilometer fall. As a result,

the acidity of the soil is constantly increasing, which has an adverse effect on its productivity. If immediate steps are not taken to counteract this, the soil will be completely destroyed and elements, damaging to man, will migrate to the crops. Very shortly it will become necessary to prohibit the burning of coal in power plants located in large population centers. The pollution to the environment accumulates in that environment and after it crosses a difficult-to-define ecological barrier it may lead to an ecological disaster. The amount of damage to the environment will differ according to the stage to which the mining and capital-investment work has advanced.

The environment can be disturbed even during large-scale exploration and documentation work, particularly if geophysical explorations are done by seismic methods. During the building of mining plants, especially work being done by the stripping method, serious transformations are occurring in the environment. In addition to the morphological changes to the earth's surface, the water tables of the underground waters are disturbed and the surface water relationships undergo change, including their physical and chemical properties as a result of pollution by mine waters (e.g., salinity). The soil is also completely destroyed as a result of mining and waste-storing, and it can also be destroyed as a result of dehydration or drying-out near a mine. It is estimated that over 100,000 hectares of soil have been destroyed in Poland due to dehydration. At the same time, in settling regions, where raw materials are being mined by the deep-water method, waterlogged areas form. Soil losses connected with flooding are estimated at 20,000 hectares.

During normal mining operations, the type of threat to the environment is similar to that mentioned earlier. During this period recultivation should be conducted simultaneously with the mining operation.

Taking into account the general principles of environmental policy as well as the alarming state of the natural environment in Poland, certain rules can be set which should be binding in locating new mining projects:

--Decisions on mining projects should be preceded by a detailed analysis of the changes that these projects will cause to the environment. This analysis should cover both the current and future state of the environment. At this stage of planning we should know what the environment will be after recultivation work is done and the mining areas are suitably developed.

--The analysis should cover every deposit and in addition, it should be supported by detailed economic studies.

--The preparation of geologic and mining documentation should be aimed at facilitating a thorough mining of the deposit and ensuring that the access work and the later mining operations will be done with the least damage to the environment.

--Comprehensive studies should be made of the changes to the environment caused by the investment project and the plants which accompanied it. It is very important that there be constant control over the changes.

--The problems mentioned should be coordinated during preparation of national and regional land-use management plans. This is particularly important because there are many discovered deposits of raw materials in the country which may be mined in the next few years. For example, there are the brown coal beds in the LGOM region whose mining may lead to an ecological disaster unprecedented in this country. The threat to the environment caused by new mining and power plants in this region will be added on to the already existing sources of pollution and danger (copper mines, sand pits, mills, etc.). Similarly, the mining of rock salt and potassium salt in the Puck area may lead to changes in the land and economic structure of this entire area and conflicts with its present function, which is farming and tourism.

In accordance with the previously accepted principles of environmental control, some investment projects may not be approved. This could affect, for example, brown coal deposits around Mosina. Strip mining in this area would endanger the existence of the Great Poland National Park.

If the environment and its resources is to be saved, fundamental changes must be made in the general concept of development. Poland is now in the zone of the most contaminated environment in Europe. Because of this, the process of socioeconomic development now being promoted must take into account the limitations of nature, raw materials and land area. We cannot afford to make the same mistakes which have caused a reduction in the natural resistance of the environment, as in the case of the Upper Silesia Industrial District, LGOM, TOS, Krakow and Puck Bay. However, in the 3-year plan approved in 1982 and in the assumptions of the 1986-1990 plan, there continues to be a lack of understanding of the problems of protecting the environment and its resources. Management of the country in accordance with ecological exigencies is not only essential but possible, even though large outlays are necessary.

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