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The Role of Territorial Production Complexes in Soviet Economic Policy

A Research Paper

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Overview

Information available as of 12 November 1982 was used in this report.

The Soviet leadership is trying to formalize the role and enhance the status of territorial production complexes (TPKs) in the planning and management of the Soviet economy. TPKs are major regional development projects that are planned and developed as integrated units, bringing together in one area all the related industries and associated infrastructure necessary for the exploitation of important natural resources. There are eight projects given TPK status in the 1981-85 Five-Year Plan, most of them focused on the development of energy resources in the eastern areas of the country.

A TPK-centered development policy is seen by the leadership as having several advantages during a period of slow economic growth when most new supplies of critical energy and other natural resources must come from Siberia and other areas far from industrial consumers. In theory, TPKs would:

- Ease the growing constraints on Soviet capital and labor through economies of scale.
- Reduce the chronic lack of coordination and cooperation among ministries and local authorities while introducing a measure of decentralized decisionmaking.
- Lessen ministerial and regional conflict over resource allocation through the establishment of a hierarchy of officially sanctioned, high-priority projects.

Leadership recognition of this potential has been apparent since three TPKs were singled out for priority development in the 1971-75 Plan period. TPKs were given increased status and recognition in the July 1979 planning reform decree. USSR Gosplan was tasked to plan and manage TPKs without regard to the ministerial affiliation of the enterprises involved. Finally, the 1981-85 Plan called for the creation of a "legal basis" for TPKs—presumably the adoption of statutes that would codify their organizational structure, responsibilities, and prerogatives.

Despite the enhanced status of TPKs, initial indications are that so far the Soviets have not been able to avoid the same chronic deficiencies that pervade the traditional ministerial-based system—low productivity of labor and capital, inadequate supply and poor utilization of raw materials and intermediate products, and lack of attention to social infrastructure. TPK proponents have argued that the solution to these and other problems lies in the designation of overall project managers for the TPKs. Even if such "supermanagers" are appointed and given enhanced authority, however, the history of Soviet regional development projects strongly suggests that inefficiencies in the economy's use of resources will not be alleviated. Put more simply, changing the line of authority does not alter the basic nature of the command economy nor correct its deficiencies.

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Contents

The Role of Territorial Production Complexes in Soviet Economic Policy

25X

Introduction

If Soviet leaders hope to cope with their major economic problems in the 1980s—labor and energy shortages, smaller increments to investment, and declining growth in the productivity of labor and capital—they must come to grips with the accelerating costs associated with an increasingly disparate regional distribution of the nation's resources. Nearly all additional increments to labor will come from Central Asia. A larger share of energy and industrial raw materials will originate from Siberia. European Russia will continue to be the industrial heartland of the USSR. This geographic dilemma presents Soviet leaders and planners with difficult choices because it fosters conflict among sectoral and regional interest groups by encouraging demands for ever larger resource allocations at a time when the leadership is striving to shift the economy's growth strategy from simply adding more resources—"extensive growth" in Soviet parlance—to better use of existing resources—"intensive growth."

An important element of Moscow's growth strategy in the 1980s is to concentrate new capital and energy intensive "green field" industrial investments in the less developed eastern regions near future supplies of critical energy resources and other raw materials, while modernizing outdated and inefficient plant and equipment centered in the old, industrialized areas of the western USSR. Because of the lack of a well-developed transportation network and other supporting infrastructure in Siberia and the Far East and, to a lesser extent in Central Asia and southern Kazakhstan, development and production costs will be enormous. In short, the shift in investment emphasis will provide the Soviets additional incentives to explore ways to achieve savings in investment costs.

Accordingly, Soviet planners have focused increasing attention in recent years on directing investment to a few select centers of development—territorial production complexes (TPKs)—as a means of concentrating finite resources on projects that are most important. Eight projects are accorded TPK status in the 1981-85 Five-Year Plan (FYP), and top Soviet leaders, including the late President Brezhnev, have stressed their importance. Soviet planners have emphasized in their writings that by developing TPKs, better balance can be achieved between centralized planning of long-term, high-priority projects and decentralized decisionmaking that is more responsive to changing conditions at the local level.

Against this background, this paper will briefly review the role of regional planning in Soviet development policy, discuss the major characteristics of TPKs and the increasing official support for their use, and assess the problems of using TPKs as focuses for investment in the 1980s. The appendix briefly describes the TPKs mentioned in the 1981-85 Plan.

The Regional Dimension of Soviet Development Policy

Regional planning has been an integral part of Soviet planning from the inception of national economic planning in the late 1920s. Based on ideology, the goals of regional planning historically have been to equalize regional levels of living and development and to "exploit all resources." Targets and measures to achieve these goals have been explicitly included in each succeeding FYP. Since Brezhnev declared the problem of regional inequality "solved" in 1972, however, the goal of attaining equality among regions has given way to the goal of expanding production in all regions to the maximum extent possible.[1]

The Soviet commitment to regional planning is evident in the various large-scale regional development schemes that were undertaken earlier in Siberia and in the Sovnarkhoz (Regional Council) Reform during the Khrushchev years. The history of Soviet development in Siberia has been characterized by a series of high-cost programs designed to tap its vast natural

[1] This and all subsequent footnotes are at the end of the paper.

resources and to spur subsequent development based on those resources. A prominent example of this pattern is the industrial development of the Kuznetsk Basin (Kuzbas) in the early 1930s, which occurred as part of a campaign to establish new major iron and steel centers in the Urals and in Siberia. Development was initially based on complementary flows of iron ore eastward from the southern Urals and coal westward from the Kuzbas. Today, the Kuzbas is the major industrial center of Siberia with a large, independent iron and steel industry, as well as large machine-building, metalworking, and chemical sectors. Later examples of this approach include the Virgin Lands scheme in the 1950s, which opened up millions of acres of agricultural land in western Siberia and northern Kazakhstan, and the current construction of the Baikal-Amur Railroad, which will provide access to the natural resources of Eastern Siberia.

Historically, however, it has been difficult for Soviet development policy to reconcile the priorities established under regional planning with those characteristic of ministerial (sectoral) planning. Regional planning emphasizes the development of a region's overall economy and related social infrastructure, but it has suffered from its lack of concern for centrally directed national goals and the needs of other regions. Ministerial planning, on the other hand, gives much less attention to local requirements. The central ministries traditionally are concerned primarily with the fulfillment of their own assigned national plan targets and with the well-being of their own workers and managerial hierarchy.

During most of the Soviet period, ministries have dominated national economic planning. Regional planning gained ascendancy only for a short period during the Sovnarkhoz Reform from the late 1950s to the mid-1960s. This reform, instituted by Khrushchev in response to the economic problems associated with the narrow "departmentalism" fostered by the ministries, attempted to decentralize planning and management of the economy from the national to the regional level. The reform, however, was largely a failure because of the strong resistance from the still powerful ministerial bureaucracies as well as the tendency on the part of regional authorities to create their own autonomous fiefdoms. In the aftermath of Khrushchev's political demise, in 1964, the Sovnarkhoz Reform was aborted and ministerial planning was in vogue once again.

During Brezhnev's tenure, as the Soviet economy roughly doubled its output and became much more complex, central planners became less able to cope with the myriad of details involved in planning. Plans were seldom realistic, had little flexibility, and were frequently unfulfilled. Moreover, the system of planning and management hampered the ability of managers to cope with supply bottlenecks and retarded innovation on the factory floor. Although Soviet leaders were reluctant to make sharp changes in the basic nature of the central planning system, the stringent economic environment of the 1980s has caused them to adopt numerous marginal reforms.[2] As part of these efforts, planners are attempting to ease the effects of some resource constraints by focusing investment on a limited number of major regional development projects—the TPKs.

The Territorial Production Complex Concept

As conceived in Soviet literature, TPKs consist of a set of interrelated industries and associated economic and social infrastructure located within a relatively compact area and focused on the exploitation of one or more major natural resources.[3] They are dominated by a core of large, growing industries based on these resources that generate the set of forward and backward interindustry linkages that tie the region together and stimulate further development. All aspects of the TPK must be planned together to form an evolving, unified whole.

Thus, conceptually, TPKs have three important characteristics: a focus on large-scale, high-priority, natural resource development projects; a high degree of internal economic, demographic, and geographic interdependence; and a fully coordinated plan for each TPK and all of its parts. At a time of increasing

national resource constraints, Soviet leaders and planners have emphasized the importance of TPKs because they apparently are persuaded that they:

- Address the need to develop hitherto untapped distant sources of energy and other raw materials and establish a hierarchy of regional investment projects.
- Save capital and labor by taking advantage of economies of scale.
- Provide a mechanism to coordinate regional development and to resolve conflicts between various combinations of local authorities and participating ministries.

Official Support for a TPK-Centered Investment Strategy

Widespread support for strengthening regional planning and, more specifically, for the incorporation of TPKs in the planning process has been building since the late 1960s. Probably the biggest, and certainly the most important, booster of this approach has been the USSR State Planning Committee (GOSPLAN).[4] The major theoretical development of the TPK concept including the development of a quantitative (econometric) basis for the concept was provided by the Siberian Division of the USSR Academy of Sciences, especially its Institute of the Economics and Organization of Industrial Production headed by Academician A. G. Aganbegyan. This interest was somewhat self-serving since Siberia is the very area where the TPK approach potentially had the greatest utility.

The 1966-70 Plan hinted at an enhanced role for TPKs when it referred to a national economic complex to be created in West Siberia and to a Bratsk lumber industry complex. TPKs received formal official recognition in the 1971-75 Plan, which elevated ongoing regional development projects at Sayan, Bratsk-Ust'-Ilimsk, and South Tajik to higher priority status by designating them TPKs (see table 1). High-level political support for TPKs as an important element of national planning was first clearly manifested at the 25th Party Congress in February 1976. In his speech to the Congress, Brezhnev pointed out the need to improve methods for the integrated solution of large-scale, nationally important interindustry and regional problems, and he advocated assigning responsibility for these tasks to clearly identified individuals and agencies. Kosygin was even more specific, identifying as one of the top priority tasks for the 1976-80 Plan period the development of a program for the formation of large TPKs.

The draft guidelines of the 1976-80 Plan raised the number of TPKs to nine by designating six new high-priority projects as TPKs: the Kursk Magnetic Anomaly (KMA), West Siberia, South Yakutia, Pavlodar-Ekibastuz, Karatau-Dzhambul, and Mangyshlak. In addition, three other regional development projects mentioned in the plan but not as TPKs—Orenburg, Timan-Pechora, and Kansk-Achinsk—later appeared as TPKs on official maps of basic construction for the plan. (Of these 12 projects only two were located in European Russia—the KMA and Timan-Pechora TPKs—and only one in Central Asia—the South Tajik TPK.)

The 1981-85 Plan reversed the trend of growth in the number of TPKs included in the "Basic Guidelines" for the USSR. Four projects—Mangyshlak, Orenburg, Bratsk-Ust'-Ilimsk, and Karatau-Dzhambul—were summarily dropped as TPKs without any explanation. These cutbacks probably are related to the current squeeze on investment, which has left Soviet planners little choice but to identify the highest priority national projects and eliminate less promising ones from the published guidelines.[5] They also indicate the ease with which projects can be shifted in and out of top priority status and challenge the strength of the commitment to any given TPK and, perhaps, to the TPK concept. Although no new projects were added, the Timan-Pechora and Kansk-Achinsk projects were given full status as TPKs within the plan (see the map).

Table 1
Changing Status of Major Regional Development Projects, 1971-85 [a]

Project	Primary Resource	Industrial Base	Ninth Five-Year Plan (1971-75)	10th Five-Year Plan (1976-80)	11th Five-Year Plan (1981-85)
Timan-Pechora	Petroleum, natural gas	Forest products		Oil/gas province [b]	TPK
Kursk Magnetic Anomaly	Iron ore	Steel	Industrial complex	TPK	TPK
West Siberia	Petroleum, natural gas	Petrochemicals		TPK	TPK
Kansk-Achinsk	Coal	Electric power		Fuel-power complex [b]	TPK
Sayan	Hydroelectric power	Aluminum	TPK	TPK	TPK
South Yakutia	Coal			TPK	TPK
Bratsk-Ust'-Ilimsk	Hydroelectric power	Aluminum, forest products	TPK	TPK	[b]
Orenburg	Natural gas	Petrochemicals		Industrial complex [b]	[b]
Mangyshlak	Petroleum, natural gas			TPK	[b]
Karatau-Dzhambul	Phosphates	Chemical fertilizers		TPK	[b]
Pavlodar-Ekibastuz	Coal	Electric power		TPK	TPK
South Tajik	Hydroelectric power	Aluminum	TPK	TPK	TPK

[a] There are two major regional development programs that are not TPKs, the Russian Nonchernozem Zone and the Baikal Amur Mainline railroad. The latter may spawn several TPKs in addition to the South Yakutia TPK already under development.
[b] Identified as a TPK on official maps of the 10th and 11th FYPs.

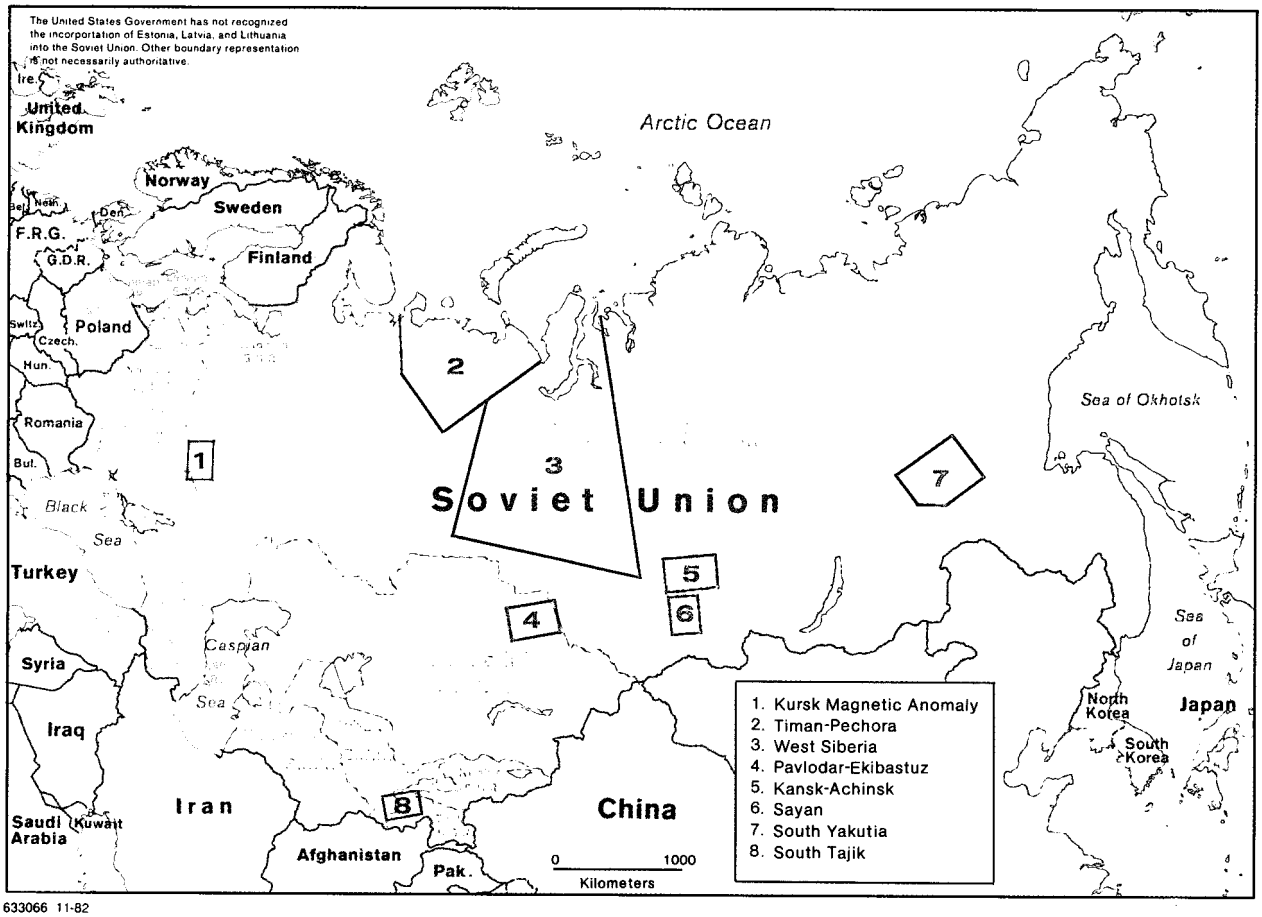
Despite the cutback in the number of TPKs, the 1981-85 Plan provided other evidence that some form of enhanced official role for TPKs is in the wind. According to the plan, a "legal basis" is to be created for the interdepartmental administration of TPKs. The resulting enabling statute, which according to a prominent Soviet regional scientist had been drafted by October 1982, would presumably set out the organizational structure, responsibilities, and rights of TPKs, and define these in relation to both existing ministerial and regional authorities.

Gosplan's Role in Planning TPKs

The July 1979 planning reform decree had anticipated the need to incorporate TPKs more formally into the planning process in order to effectively implement a TPK-centered investment strategy in the 1980s. The decree instructed Gosplan to prepare a set of comprehensive target programs for the development of individual regions and TPKs for inclusion in the 1981-85 Plan. More significantly, Gosplan was given explicit authority to approve the resulting plan indicators and to exercise control over the fulfillment of these plans regardless of the ministerial or local affiliation of the individual components involved.

The relatively general directives in the July 1979 planning decree were formalized later in a set of Instructions on developing target programs to solve regional problems and develop TPKs issued by Gosplan in January 1980. USSR and republic Gosplans,

Territorial Production Complexes of the 11th Five-Year Plan



in coordination with and approved by their respective Councils of Ministers, were directed to identify the most important regional problems and prepare plans for their solution.[6] The Instructions provide for territorial programs both for revitalizing the economy of developed regions and for bringing into production the natural resources of new territories. Only the KMA TPK, however, is located in the relatively benign environment of the industrialized areas of the European USSR. The remaining TPKs generally focus on developing resources located in sparsely settled, remote areas with harsh environments and only the barest of infrastructure to support further development. Specifically, these are the areas where almost all of the critical energy and other natural resources that the Soviets must develop are located.

These two actions—explicitly assigning responsibility for planning and overseeing TPKs to USSR Gosplan and providing TPKs with legal status—are indicative of the importance the leadership attaches to TPKs. Substantial decisionmaking authority for the most important regional projects is being concentrated in a single planning agency at the center, Gosplan, while the influence of individual economic ministries on these projects is being reduced. The measures also reflect the tension between the leadership's desire to retain centralized control of the economy and the need to tap the initiative and knowledge of local authorities who are being urged to respond effectively to admonitions for greater productivity.

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Brezhnev announced the first step in implementing these moves at the 26th Party Congress in February 1981. After noting that TPKs were to play a growing role in the economy of the Asian regions, Brezhnev said that integrated interindustry subunits had been set up in Gosplan to deal with the problem of lack of coordination among ministries participating in TPK developments. In particular, he revealed that both a USSR Council of Ministers' Commission and a Gosplan commission located at Tyumen' had been established for the West Siberia TPK.[7]

This is the first time that a USSR Gosplan subdivision has been established outside Moscow. The Tyumen' commission includes representatives of large production associations, science research centers, regional government and party organizations, and USSR and RSFSR Gosplans. Soviet assessments of the effectiveness of the Gosplan Commission are mixed. Although its authority was limited to convening conferences and submitting recommendations, V. Kuramin, the commission's chief, was claiming by early 1982 that it was having considerable success in resolving both long-term and day-to-day problems of coordination and planning between ministries, and he called for even further expansion of its responsibilities.[8]

This rather rosy view, however, must be balanced against the comments of the commission's deputy chairman, T. K. Alpatov.[9] Although Alpatov agreed that the commission was having some degree of success, he also insisted that many difficulties remained:

- The statute creating the commission does not make clear whether it has responsibilities in those aspects of the West Siberian TPK not directly related to the development of the oil and gas industries.
- The commission has to route all its suggestions through Gosplan in Moscow even on routine matters and cannot deal with the ministries directly.
- Responsible ministries often respond only partially or not at all to the needs of other ministries, much less to simple suggestions from other authorities when it is in their own interests to ignore them.

Those concerns have been echoed by economist A. Kochetkov, who praises the creation of the parallel Council of Ministers and Gosplan commissions as a progressive step but one that is not necessarily applicable to other TPKs.[10] He suggests that this structure may only complicate management by adding another bureaucratic step to the decisionmaking process. Kochetkov proposes giving future interdepartmental coordinating bodies direct authority over the activities in the TPK. In essence, without additional authority the Tyumen' commission and any similar ones created in the future will suffer the fate of other attempts to decentralize decisionmaking through regional planning—that is, they will be hard pressed to force implementation of proposals which the ministries do not like.

Investment Cost Savings: Promises and Obstacles

Despite these problems, the actions since 1979 strongly suggest that the leadership has been convinced by planners and economists that a formal policy for concentrating investment in production facilities and infrastructure in TPKs will result in substantial savings. Aganbegyan, for instance, estimates that developing industries, natural resources, and infrastructure in a TPK framework could result in a savings of 15 to 20 percent of total capital investment compared with a less coordinated location policy.[11] Probst claims that the savings in infrastructure costs alone would run 25 to 30 percent on the average.[12]

Thus, the economies resulting from the successful implementation of a TPK-centered investment strategy would be quite significant given the estimated cost of the current list of TPKs. For example, the cost of development at the Pavlodar-Ekibastuz TPK has been estimated at nearly 8 billion rubles.[13] Investment in the South Yakutia TPK is expected to approach at least 2 billion rubles.[14] Investment in the Kansk Achinsk TPK is estimated at 5 to 6 billion rubles for industrial construction and 1.2 billion rubles for municipal construction.[15] The aggregate anticipated outlays for these three TPKs alone of about 17 billion rubles is equivalent to over 7 percent of industrial investments in the 1976-80 plan. Investment savings on the order of those envisioned by Aganbegyan and Probst in projects of this magnitude would be very attractive to Soviet leaders.

Notwithstanding these optimistic estimates for investment savings, TPKs remain subject to the same kinds of problems that have bred inefficiency throughout the entire economy (see table 2). The Soviet press contains numerous references to shortages of funds, materials, and labor at these supposedly high-priority development projects. Similarly, despite the enhanced authority Gosplan has been accorded since 1979 in planning TPKs, there continue to be numerous complaints of lack of cooperation and coordination between ministries and between ministries and local authorities that leads to duplication of effort, waste of resources, and failure to meet development plans on time. Problems in cooperation have also arisen when a TPK includes more than one regional administrative unit.

The demand for investment in TPKs, most of which are major energy projects located in Siberia, also comes at a time when the older industrialized regions of the European USSR—especially the central industrial region centered on Moscow, the Ukrainian industrial region centered on the Krivoy Rog and Donets Basin, and the industrial zone of the Ural Mountains between Serov and Magnitogorsk—are seeking substantial funds to modernize existing facilities. The competition for investment between the relatively undeveloped east and the more industrialized west will intensify during the coming decade, if as expected, investment continues to grow slowly. Should the Central Asian republics enter the competition for capital more energetically in the near future, basing their demands for a larger share on the needs of their rapidly growing populations, the potential for conflict would become even more severe. Finally, if TPKs evolve into politically viable, independent entities, they might easily add to the investment problem by competing among themselves for already limited resources.

Implementing the TPK Concept

The current list of TPKs illustrates well the potential advantages and problems just discussed that the Soviet leadership will encounter as it tries to enhance the role of TPKs. Each of the projects included in the 11th Five-Year Plan satisfies the first characteristic of a TPK: they all are long-term, large-scale projects of national significance. Most of them also directly address the fundamental regional development problem facing the USSR today—the concentration of future sources of most raw materials in remote eastern regions, separated by great distances from the bulk of the existing industrial base in the western areas of the country.

The potential for a successful TPK policy will be reduced, however, by Soviet inability to implement effectively the other two basic characteristics of TPKs: that they should be planned as distinct entities and that they should have a maximum degree of internal economic, technologic, and geographic interdependence. Many of the problems commonly found within the present set of officially supported TPKs derive directly from the conflict between these characteristics and the everyday reality of the Soviet economic system. The inability of Gosplan to ensure adequate resources for important projects, the long history of bureaucratic resistance to economic reforms, interministerial conflict and lack of cooperation over the allocation of scarce resources, and the consistent failure of responsible ministries and local authorities to provide adequate social infrastructure are all problems endemic to the Soviet system that work against successful implementation of a TPK policy. Its present ineffectiveness is testified to by the fact that these problems are just as rampant in the projects that have enjoyed TPK status the longest, the South Tajik and Sayan TPKs, as those most recently given TPK status, Timan-Pechora and Kansk Achinsk.

Recognizing these problems, Soviet writers have stated that the best way to resolve them is by planning and developing TPKs as integrated projects, each under the control of a single project manager with full decisionmaking authority. They argue that a strong project manager might clearly see all the many elements of a TPK and would be able to allocate resources so as to reinforce interdependence among its parts, while fostering a greater degree of cooperation within the TPK between the various sectoral and regional participants.

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To be effective, however, these measures must be accompanied by enough political clout to obtain necessary resources from the center and by adequate

Table 2
Summaries of Soviet Press Comments on Problems at TPKs

Pavlodar-Ekibastuz TPK	Coal industry is criticized for failure to prepare plans on time *(Sotialisticheskaya industriya,* 15 July 1980, p. 2). Furthermore, mine construction is lagging so badly because of insufficient construction capacity that the construction combine in charge has not utilized even one-tenth of the funds alloted *(Izvestiya,* 20 June 1980, p. 2).
Karatau-Dzhambul TPK	Construction of needed housing and cultural facilities is proceeding too slowly *(Ekonomicheskaya gazeta,* 20 May 1978, pp. 1-2). There is a shortage of at least 7,000 workers and the vocational-technical school which was to supply workers will not open until 1980 with its first graduates available only three years later *(Tekhnika i nauka,* August 1977, pp. 2-5).
Mangyshlak TPK	There exists a persistent shortage of skilled workers, a decline in production efficiency, and a high rate of labor turnover due to lack of decent housing and facilities *(Pravda,* 28 October 1979, p. 2).
South Tajik TPK	Construction of a few large enterprises and major hydroelectric plants does not contribute to effective utilization of the region's growing labor resources. Nonetheless, there is a chronic shortage of manpower *(Izvestiya academii nauk Tadzhikskoy SSR,* Otdeleniye obshchestvennykh nauk, March 1979, pp. 41-46). Bottlenecks and lack of coordination in development of the TPK will continue until an overall plan for the formation of the complex, a uniform system of financing and material and technical supply, and a special agency to direct such a plan and system are created *(Pravda,* 4 August 1979, p. 2). USSR Ministry of Nonferrous Metallurgy annually allocates only half as much capital to housing construction as is required *(Stroitel' naya gazeta,* 10 January 1979, p. 2).
South Yakutia TPK	An acute shortage of manpower exists. The lack of coordination requires a single unified TPK development management agency above ministry level which could go directly to USSR Gosplan or the USSR Council of Ministers *(Trud,* 27 July 1980, p. 2).
West Siberia TPK	This region suffers from a chronic shortage of manpower, transportation linkages, and social infrastructure, and it needs improved management structures *(Sotsialisticheskaya industriya,* 1 July 1980, p. 2; *Stroitel'stvo trudoprovodov,* April 1980, pp. 22-24; *Pravda,* 17 May 1979, p. 2).
Kansk-Achinsk TPK	There are many problems in the construction of housing and transportation facilities *(Trud,* 27 June 1980, p. 2) plus inadequate financing and lack of coordination in construction *(Sovetskaya rossiya,* 1 November 1979, pp. 1-2).
Sayan TPK	Only 18 of 35 installations planned for construction in the Khakass A. O. between 1971 and 1980 are in production, and construction is proceeding very slowly at many other plants, including the centerpiece of the TPK, the Sayansk aluminum plant *(Sotsialisticheskaya industriya,* 14 Feb 81, p. 2). Social infrastructure development is lagging badly, and the attention of the appropriate ministries has been directed toward this problem *(Ekonomicheskaya gazeta,* No. 50, December 1981, p. 10).
Timan-Pechora TPK	The Ministry of Transport Construction has built less than 50 percent of the badly needed roads called for by the plan over the past five years *(Sotsialisticheskaya industriya,* 9 May 1981, p. 2). In six years, USSR Gosplan has not drawn up a program for the development of the TPK, and the problems associated with conflict between the Komi ASSR and Nenets A. O. administrations have not been resolved *(Khozyaystvo i pravo,* April 1982, pp. 14-18).

authority to assure ministerial compliance for decisions related to matters within the TPK. Although it appears that Gosplan has been given primary responsibility for guiding the comprehensive development of TPKs, there seems little question that the central ministries will struggle to retain their economic decisionmaking prerogatives and will not relinquish them willingly to Gosplan. Thus the forthcoming statute defining the legal basis of TPKs will play a critical role in determining the success or failure of the TPK policy.

Future Prospects

All these problems will be exacerbated by the current squeeze on investment, so that in most TPKs only limited development of the most essential facilities will take place during the 1981-85 Plan period. There simply will not be adequate resources available to provide for the kind of comprehensive development that might produce substantial savings in the long run. The West Siberia TPK will be allocated the lion's share of the increment to investment for the production of oil and natural gas that is absolutely essential to the Soviet economy. This TPK, however, is much too large and its environment too harsh for diversified development.

Several other energy-related TPKs also will undergo limited development. The Kansk-Achinsk and Pavlodar-Ekibastuz TPKs are expected to supply large amounts of strip-mined coal and electric power from coal-fired thermal plants to other regions of the country to help ease the nation's energy problems. But the successful exploitation of the energy resources of these two TPKs will be hindered by the current lack of a proven technology for efficiently transmitting electricity over the long distances involved and by the inability of the already overburdened rail system to move the amounts of coal required if the transmission problem cannot be solved. Development of coal resources at the South Yakutia TPK will continue, but its national importance results from its foreign exchange earnings potential rather than from its contribution to national energy production except within the Far East. Finally, the Timan-Pechora TPK will receive considerable attention because its oil and natural gas reserves, although small compared to those of West Siberia, are located much closer to the main centers of energy demand.

Truly diversified development will probably take place only in the Sayan TPK, located in one of the more environmentally benign areas of Asiatic Russia. The region possesses good supplies of coal and other minerals and has a relatively well-developed transportation network. The Soviets have already made a substantial commitment to the region's development beyond the basic industries—a hydroelectric power plant and associated aluminum refinery—which define its core. A railroad car plant is under construction at Abakan, and several plants of the Ministry of Electrical Equipment are planned at Minusinsk. 25X

Thus, Soviet leaders are probably faced with an insolvable dilemma. We assume they perceive that a TPK-centered regional development policy offers many potential economic benefits, but their ability to implement the policy is greatly circumscribed both by powerful institutional interests and by major economic and geographic constraints. The July 1979 planning decree and the creation of the two interdepartmental commissions for West Siberia make clear that the Soviets are trying to institute such a policy with primary responsibility being assigned to Gosplan. According to a Soviet regional economist, similar commissions will be created for other TPKs in the future. It is not clear, however, how these commissions will relate to the new legal status to be created for TPKs in accordance with the Draft Directives of the 11th FYP. 25X

Whatever its form, this new TPK authority will require time to develop its operational capabilities. Whether it will be successful, and to what degree, or whether it will result only in another layer on the bureaucracy, emasculated by powerful ministries and economic forces beyond its control, is a question whose answer will not be known for several years. The history of the Soviet economic system, however, strongly suggests that the TPK policy will not substantially improve the operation of the Soviet economy.

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Appendix

Territorial Production Complexes Cited in the 1981-85 Five-Year Plan

The natural resources and industrial core of the eight TPKs in the 11th Five-Year Plan are described, and the role of each in the Soviet economy is assessed. When possible, the expected investment costs are provided.

West Siberia TPK

The West Siberia TPK is vast, spread out over much of Tyumen', Tomsk, and now perhaps part of Novosibirsk Oblasts. Its critical oil and gas resources are located in its more remote northern regions, in areas of harsh environment, limited transportation facilities, sparse population, and virtually no social infrastructure other than a few small urban centers. This TPK will develop an integrated and diversified industrial structure only to a limited extent in the more hospitable narrow southern zone along the Trans-Siberian Railroad. It would be difficult, however, to overstate the importance of this region to the Soviet economy. It contains the critically important oil and gas reserves from which the Soviets will obtain an ever-increasing proportion of their production. The cost of obtaining these resources has been and will continue to be enormous. Investment in the development of West Siberian oil and natural gas was more than 25 billion rubles from 1976 to 1980 alone [16]—nearly 4 percent of total USSR investment for the period. The Soviets have had to resort to a variety of methods to secure labor for the region, including bringing crews in for short rotations from far outside the region. In addition to extraction of oil and gas, the Soviets are building major petrochemical plants at Tomsk and Tobolsk. Surgut is being developed as the main support center for the oil and gas fields; it was linked by rail to the Trans-Siberian Railroad at Tyumen' in 1973, and an extension to the gasfields at Urengoy is nearly complete. A major electric power plant using associated gas from Samotlar also has been built there.

Timan-Pechora TPK

Located in the Komi ASSR in northern European Russia, Timan-Pechora is one of two TPKs located west of the Ural Mountains. In terms of environment, population, and level of development, however, it resembles the West Siberia TPK with which it shares a common boundary. Like West Siberia, its development is based on energy resources, including oil, natural gas, and the Vorkuta coal reserves. About half of the coal produced is suitable for coking. The region's importance in oil and gas production has been growing. During the 1976-80 Plan period, Komineft (Komi Autonomous Republic Petroleum Association) increased petroleum production by 50 percent (still only slightly more than 3 percent of Soviet production) and moved from 16th to fifth place in the absolute volume of production.[17] The volume of gas production has also grown, although the region's share of production has declined as West Siberia's has expanded. The TPK has significant timber reserves; an important forest products complex has developed at Syktyvkar, which also serves as the main support and supply center of the region. Exploitation of potentially important titanium and bauxite deposits remains in the planning stage. The value of the resources of the Timan-Pechora TPK is increased substantially by its proximity to the European part of the USSR. A Russian Republic Commission for Coordinating Questions Involving the Formation of the Timan-Pechora Territorial-Production Complex apparently existed at one time, but nothing is known about its actual operation.[18] Investment in the Timan-Pechora TPK during the 11th FYP is expected to exceed 7 billion rubles.[19]

South Yakutia TPK

The South Yakutia TPK, the first and so far the only TPK in the Baikul-Amur Mainline (BAM) zone, is oriented toward the Pacific coast to which it has been

linked via the Trans-Siberian Railroad. It is currently being developed as part of a long-term compensation agreement with the Japanese Government initiated in 1974, in which Japan agreed to provide the Soviet Union with credits worth $450 million for purchase of equipment and some consumer goods. In return it received the right to purchase 104 million tons of coking coal from 1983 to 1999. An additional $90 million in loans has been granted subsequently.[20] Total cost for development of the South Yakutia TPK has been estimated by Western experts at $1.6 billion.[21] According to Soviet accounts, approximately 700 million rubles were spent on development in the TPK from 1976 to 1980; an additional 1 billion rubles were needed during the next two and a half years.[22] Assimilation of these funds has been very slow—only half of the investment planned for 1979 was actually accomplished —and living conditions remain very poor. It seems unlikely that production of coking coal from Neryungri will meet the level required by 1983, forcing the Soviets to rely on the Kuznetsk coal basin to meet their export obligations. Future development will almost certainly include the large iron ore deposits near Aldan, and probably other nearby mineral deposits, including mica. Much of the region's new mineral production probably will be used, at least initially, for export where it will be able to earn valuable hard currency.

South Tajik TPK

The South Tajik TPK covers over one-third of the territory of the Tajik Republic, includes the capital, Dushanbe, and contains nearly two-thirds of the republic's population. Its core is hydroelectric power from the Vakhsh River. The Nurek hydroelectric power plant with a capacity of 2.7 million kilowatts has been completed, and construction has begun on the Rogun power plant upstream, which will have an even larger capacity of 3.6 million kilowatts. Construction of the two large energy-intensive plants—an aluminum plant at Tursunzade and an electrochemical plant at Yavan based on locally mined minerals—has been extremely slow (over 15 years so far). Although parts of the plants are in operation, they are still far from complete.

The reason for the sluggish development, according to a Tajik SSR Gosplan official, is the failure of the responsible central ministries to allocate sufficient funds.[23] Furthermore, the funds that have been provided have gone to industrial construction; housing and other infrastructure development lag far behind current requirements. The slow pace of industrial development has left the region with substantial excess electric power capacity. The dams are also expected to stimulate agriculture, especially cotton production, by providing water for irrigation. Although this TPK is located in Central Asia where the population is growing rapidly, labor shortages have been common because most of the local labor force is not adequately trained for the types of jobs being created. In addition, there have been complaints that not enough attention is being paid to expansion of the more labor-intensive industries, such as textiles, which are already established in the region and could absorb some of this unemployed or underemployed labor force.

Kansk-Achinsk TPK

The Kansk-Achinsk TPK or KATEK (Kansk Achinsk Fuel and Power Complex) is based on the development of massive deposits of relatively low-grade coal spread out over 60,000 square kilometers along 800 kilometers of the Trans-Siberian Railroad in East Siberia. Most of the coal lies in thick horizontal seams suitable for strip mining. Party and government decrees for the development of KATEK were issued in March 1979, but the region will begin to make a significant contribution to Soviet energy production only after 1990. Annual production from old mines undergoing reconstruction and new mines being opened was about 35 million tons in 1980. Output will approach 50 million tons by 1985, with final production capacity expected to reach seven to eight times that amount. The first of from eight to 10 large (6,400 megawatts), mine-mouth, thermal electric power plants projected for the coal basin is slowly being built. The projected cost for development of the Kansk-Achinsk TPK was estimated at 5 to 6 billion rubles for industrial construction and an additional 1.2 billion rubles in municipal construction.[24]

The potential for KATEK coals to contribute directly to satisfying energy demand by consumers in the western USSR is sharply limited by an inability to

withstand long-distance hauls without preliminary processing. The coals have a high moisture content, are friable, and are given to spontaneous combustion. In addition, the technology for the planned direct current, high voltage, 1,500 kilovolt long-distance transmission lines to carry electricity westward is still undeveloped. Moreover, the railroad system could not handle the greatly increased volume of freight required should the technology for transmission not be available. For the foreseeable future, therefore, KATEK energy production will be used mainly in Siberia. Another possible use of KATEK coals that is being given support is the production of synthetic liquid fuels, but the conversion technology required remains uncertain.[25] The major industrial center of this TPK is Krasnoyarsk, a city of over 1 million inhabitants with a large established industrial base. The only major new manufacturing facility currently planned for the Kansk-Achinsk TPK, a plant to manufacture the large shovels and excavators needed for strip-mining operations in KATEK, is located there.

Pavlodar-Ekibastuz TPK

The key element in the Pavlodar-Ekibastuz TPK is the Ekibastuz Fuel and Power Complex (ETEK). Its development and high-priority status were confirmed in a joint CPSU Central Committee–USSR Council of Ministers Decree in 1977. Development of ETEK is based on large deposits of low-quality bituminous coals with a relatively low caloric value and high ash content. Reserves are estimated at over 7 billion tons, and much of the coal is suitable for strip mining. The Bogatyr' strip mine is the complex's star with production now approaching 50 million tons per year from a base of 100,000 tons in 1970. Coal extraction costs in this mine are just over one ruble per ton—less than one-third of the cost of other open-pit mines.[26] The entire complex now produces about 70 million tons and is scheduled to reach 84 million tons by 1985. It is projected to have a final capacity of more than 150 million tons.

The Soviets plan to use this capacity to generate a significant proportion of their electricity requirements. As of 1981, Ekibastuz coal fueled 20 power stations in the Urals, Siberia, and Kazakhstan with a total capacity of over 12 million kW.[27] The overall planned capacity of power stations using ETEK coal is 36 to 38 million kW. Most of the increased capacity will come from four 4-million-kW power plants to be built near Ekibastuz using the same basic designs. Construction of the first of these plants is in progress while construction of the second is just beginning. Ekibastuz coals cannot stand the cost of transportation beyond the Urals because of their high ash content, and, even if they could, the increased burden would probably be too great for the already strained railroads. The Soviets, therefore, plan to feed electricity to the power grids of the European USSR and especially to the Ural industrial zone through a system of long-distance, high-tension transmission lines. The centerpiece of this scheme is a 1,500 kilovolt (kV) direct current line. As noted earlier for Kansk-Achinsk, the technology for this type of line has not been developed. The Soviets are much further along in the development of technology for a 1,150 kV alternating current line that also is to be built.

The Pavlodar-Ekibastuz TPK has been under development since the early 1970s. About 2 billion rubles were invested between 1971 and 1975,[28] and total investment during the 20 to 25 years the Soviets project it will take to develop ETEK completely is pegged at 7.6 to 8.0 billion rubles, or three-fourths of the estimated cost of the BAM railroad.[29] Interestingly, one of the major problems experienced at the TPK is the inability to absorb efficiently all the available investment because of insufficient construction personnel and equipment.[30] Other important construction projects at the TPK are the Pavlodar Alumina Plant, the Yermak Ferroalloy Plant, and expansion of the Pavlodar Tractor Plant. In addition, the railroad lines serving the area and associated facilities are being improved.

Kursk Magnetic Anomaly TPK

The Kursk Magnetic Anomaly TPK is one of two located in the European USSR and the only one included in the 11th FYP that is not related to the development of energy resources. Its name refers to the major iron ore deposit that forms its basis. Reserves in the zone between the cities of Belgorod

and Kursk that define its heart are estimated at over 43 billion tons.[31] About 60 percent of the reserves are rich ore (56 to 66 percent iron content) while the remaining but more accessible 40 percent are relatively low-grade quartzites (35 to 37 percent iron content) that require beneficiation. Creation of the KMA TPK was called for in the Ninth FYP, and with that decision, iron ore output began to grow dramatically. Production grew from 17.6 million tons in 1970 to 37 million tons in 1977. Output reached about 39 million tons in 1980 or about 16 percent of total USSR iron ore production. This growth catapulted the KMA into second place behind only the Ukraine's Krivoy Rog Basin. About 30 percent of the ore produced is shipped to iron and steel plants in the Urals, a similar amount to the iron and steel plant at nearby Lipetsk, and lesser amounts to plants at Tula and Cherepovets. Ore from the KMA is also shipped to the Katowice plant in Poland.[32]

The increase in production has come from the construction and expansion of open-pit mines and concentrators at deposits in the Gubkin-Staryy Oskol and Zheleznogorsk districts. The Soviets originally hoped to build a conventional 8-12 million ton integrated iron and steel plant at the KMA with the participation of CEMA countries. This idea has been dropped, and the main industrial project of the KMA TPK now is construction of a direct conversion electric steel plant being built by a West German consortium headed by Krupp at Staryy Oskol. The plant will have an initial annual steelmaking capacity of about 2 million metric tons, with further expansion to over 4 million tons planned. The ongoing industrial development in the region will create a heavy burden on local water resources. These are to be augmented by the planned construction of a 300 kilometer Oka-Don-Oskol Canal. Much of the electricity for the plant is to be supplied by a nuclear power plant at Kursk.[33]

Sayan TPK

Creation of the Sayan TPK was initially called for in the Ninth FYP (1971-75). This TPK is located at the southern tip of Krasnoyarsk Kray in East Siberia, along the Yenesey River just south of the major industrial city of Krasnoyarsk and the coal-based Kansk-Achinsk TPK. Because of the proximity of these two TPKs and the relatively well-developed transportation network linking them together, the entire region has been the focus of a major Soviet development effort begun during the 1970s, which will continue during the 1980s.

At the core of the TPK is the partially completed Sayan hydroelectric power station that will have a final capacity of 6.4 million kW. The principal industrial consumer of the power from this station will be an aluminum plant being built nearby at the new town of Sayanogorsk. The plant will be built by Klockner of West Germany under a compensation agreement worth $310 million, which was signed after Alcoa withdrew because of US sanctions related to the Soviet invasion of Afghanistan.[34] The other major developments planned for the TPK are a large railroad car plant at Abakan and an industrial park of about a dozen plants of the electrical equipment industry that are to be colocated on a single site in Minusinsk.[35]

The Krasnoyarsk Kray Executive Committee and Kray Gosplan apparently have taken an unusually active role in planning the development of the Sayan TPK as well as other areas of the Kray.[36] As part of the effort to improve coordination among responsible ministries involved in developing the Sayan TPK, an Interdepartmental Commission for the Distribution of Productive Forces was organized under the Kray Executive Committee. In addition the Kray Gosplan has had its responsibilities for short- and long-term planning enlarged. Of course, these regional organizations still possess little real authority over the more powerful central ministries. Their role in the development of the Sayan TPK apparently is largely advisory. Nonetheless, it is possible that other oblast-level governments may try to emulate these organizational structures, especially if Krasnoyarsk begins to enjoy success with them.

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Footnotes

[1] Brezhnev's statement on regional inequality appeared in *Pravda,* 22 December 1972, p. 5. For a review of studies of regional inequality in the Soviet Union, see Roland J. Fuchs and George J. Demko, "Geographic Inequality Under Socialism," *Annals of the Association of American Geographers,* 69 (June 1979), pp. 304-318.

[2] See "The Soviet Economy on a Treadmill of Reforms," Joint Economic Committee on the *Soviet Economy in a Time of Change,* I (Washington, D. C. 1979), pp. 312-340

[redacted]

[3] An extensive bibliography of the vast Soviet literature on TPKs is contained in A. Kibal'chich and M. N. Stepanov, "Problems in the Economic Regionalization of the USSR and the Formation of Territorial Production Complexes," *Itogi naukii tekhniki, Seriya Geografiya SSSR,* 15 (Moscow 1979), pp. 66-99. For Western reviews of the TPK concept, see Richard E. Lonsdale, "The Soviet Concept of the Territorial-Production Complex," *Slavic Review,* 24 (September 1965), pp. 466-478; G. J. R. Linge, Gerald J. Karaska, and F. E. Ian Hamilton, "An Appraisal of the Soviet Concept of the Territorial Production Complex," *Soviet Geography: Review and Translation,* 19 (December 1978), pp. 681-695. For a review of the relationship between TPKs and Western theories of geographically focused development, see George A. Huzinec, "Some Initial Comparisons of Soviet and Western Regional Development Models," *Soviet Geography: Review and Translation,* 17 (October 1976), pp. 552-65. Alternatively, for a Soviet view of the relevancy of such Western theories to the Soviet Union, see A. L. Belov, "Polarized Regional Development: Theoretical Aspects," *Soviet Geography: Review and Translation,* 31 (November, 1980), pp. 599-603.

[4] TPKs have been strongly endorsed in articles and editorials in *Planovoye khozyaystvo,* the Gosplan journal, by the Council for the Study of Productive Forces (SOPS) under N. N. Nekrasov within USSR Gosplan, and in speeches by officials of both USSR and republican Gosplans.

[5] The dropping of a TPK from the national plan does not mean that development at the project will stop. On the contrary, some dropped projects have been listed as priority projects in the five-year plans of their own republics. Thus, the Karatau-Dzhambul, Mangyshlak, and Pavlodar-Ekibastuz projects are included as TPKs in the FYP for the Kazakh SSR, even though only the last one is accorded TPK status in the national guidelines. Nonetheless, it seems reasonable that within the hierarchy of development projects, a TPK mentioned in the authoritative guidelines for the USSR FYP would have a higher priority, that is, a stronger claim to scarce resources, than one only included at the republic level.

[6] These plans are to be drawn up for the life of the project and are supposed to include (1) justification for the project, (2) a list of sectoral and regional participants included in the plan and an appropriate administrative structure to implement it, (3) a description of the related production and social infrastructure to be developed, (4) a timetable for the project, and (5) estimates of the amounts of different resources required. 25X

[7] Very little is currently known about the Council of Ministers' Commission. The commission met, probably for the first time, in Tyumen' Oblast from 25 to 27 March 1981, to acquaint itself with the situation in the region and to map out its program. The head of the commission is V. Dymshits, deputy chairman of the USSR Council of Ministers, who has a long history of involvement in energy-related matters. See *Ekonomicheskaya gazeta,* No. 14 (April 1981), p. 6. The first secretary of the Komi ASSR Obkom has called for a similar set of commissions to be established for the Timan-Pechora TPK located in his ASSR. See I. Morozov, *Khozyaystvo i pravo* (April 1982), pp. 14-18. 25X

[8] *Ekonomicheskaya gazeta,* No. 3, January 1982, p. 15; *Pravda* 3 March 1982; and *Sotsialisticheskaya industriya,* 19 June 1981, p. 1.

[9] *Planovoye khozyaystvo,* May 1982, pp. 114-120.

[10] A. Kochetkov, *Pravda,* 24 February 1981.

[11] A. Aganbegyan, *Zhurnalist,* No. 7 (July 1978), pp. 12-15.

[12] A. Ye. Probst, "Territorial Production Complexes," *Soviet Geography: Review and Translation,* 28 (March 1977), pp. 195-203.

[13] *Izvestiya,* 20 June 1980, p. 2.

[14] *Trud,* 27 July 1980, p. 2.

[15] L. G. Sizov, *Ugol,* June 1978, pp. 9-12.

[16] A. Aganbegyan, *Liturnaya gazeta,* 7 November 1979, p. 11.

[17] *Pravda,* 1 September 1980, p. 2.

[18] *Pravda,* 1 April 1977, p. 3.

[19] I. Morozov, *Sotsialisticheskaya industriya,* 9 May 1981, p. 2.

[20] Richard L. Edmonds, *Siberian Resource Development and the Japanese Economy: The Japanese Perspective,* Discussion Paper No. 12, Association of American Geographers Project on Soviet Natural Resources in the World Economy, Washington, D. C., August 1979, pp. 9-10.

[21] *Mining Journal,* 21 September 1979, p. 244.

[22] *Trud,* 27 July 1980, p. 2.

[23] Ye. Akimov, *Stroitel' naya gazeta,* 10 January 1979, p. 2.

[24] *Ugol',* January 1978, pp. 9-12.

[25] A. Sheyndlin and I. Kalechits, *Izvestiya,* 24 April 1981, p. 2.

[26] *Ekonomicheskaya gazeta,* No. 23, June 1980, p. 1.

[27] *Kazakhstanskaya pravda,* 7 October 81, p. 1.

[28] *Partiynaya zhizn',* February 1979, pp. 36-42.

[29] *Kazakhstanskaya pravda,* 11 April 1980, p. 2; *Izvestiya,* 20 June 1980, p. 2.

[30] *Izvestiya,* 20 June 1980, p. 2.

[31] The entire KMA deposit stretches 850 kilometers between Smolensk and Rostov. In combination with other smaller deposits in the center region it contains about 42 percent of Soviet iron ore reserves. Paul Lydolph notes, however, "Most of this great reserve of ore lies deep beneath the surface and under thick water-bearing rocks which make exploitation difficult. . . [and] explains why the KMA ore has not been exploited to any extent previously." Paul E. Lydolph, *Geography of the USSR,* Elkhart Lake, Wisconsin: Misty Valley Publishing, 1979, p. 309.

[32] Theodore Shabad, "News Notes," *Soviet Geography: Review and Translation,* 21 (April 1980), p. 254.

[33] Lydolph, 1979, pp. 318-320.

[34] *New York Times,* 5 October 1980.

[35] The Abakan Railroad Car Plant is a classic case of the kind of problems that afflict TPK development. The decision to build the plant, which has a planned capacity of 40,000 cars per year, was made in 1968, before creation of the Sayan TPK formally began. Work on this all-union construction project began in 1970 with completion expected in 1976. But work on the project practically ceased. The Ministry of Heavy Machine Building cut planned capital investment to the project in response to Gosplan's demand to begin construction on a higher priority project, a large shipping container manufacturing plant at the same site. In 1975, the railroad car project was allocated only 12 million of the 80 million rubles of planned investment. Yet even after the container plant was finished, the railroad car plant did not benefit because the construction trust was diverted to work on the Krasnoyarsk excavator plant. Although much of the support base and the exterior building construction of the railroad car plant now have been completed, much work remains to be done before it reaches full capacity. See *Pravda,* 12 December 1980, p. 3.

[36] G. Shabayev, *Ekonomicheskaya gazeta,* No. 50, December 1981, p. 10.

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