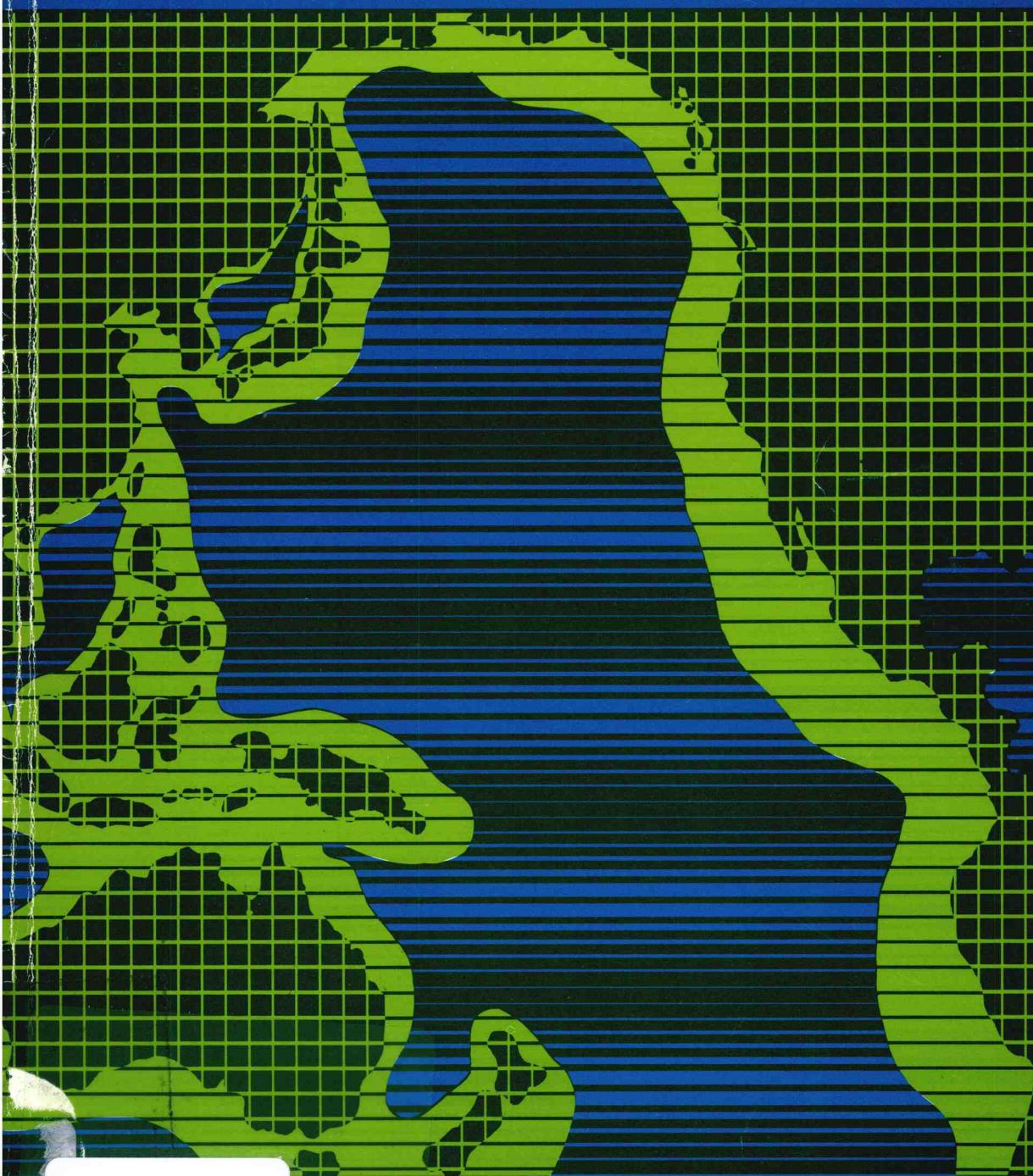


Renewable Resources in the Pacific

Proceedings of the 12th Pacific Trade and Development Conference, held in Vancouver, Canada, 7-11 September 1981

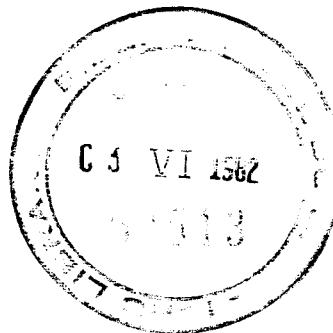


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Renewable Resources in the Pacific

**Proceedings of the 12th Pacific Trade and
Development Conference, held in Vancouver, Canada,
7-11 September 1981**

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Resources of the Eastern USSR¹

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East of the Ural Mountains in Siberia, the Soviet Union has vast resources — 85% of all its fuel and energy resources are located in the region. Forests, oil, natural gas, and hydropower are all abundant and, with changes in transportation, are increasingly being exploited. At present, Pacific markets are easier for Siberia to reach with its products than are major population centres in the Soviet Union, and trade flows, especially toward Japan, are expanding. However, plans for improved trans-Siberian rail links may have a strong impact on the direction of the flow eastward.

L'Union soviétique possède des richesses considérables à l'est des monts Oural, en Sibérie : c'est dans cette région que se trouvent 85 % des combustibles et des ressources énergétiques et pétrolières. On y trouve en abondance des forêts, du gaz naturel, du pétrole et de l'eau qui sont de plus en plus exploités à mesure que se développent les moyens de transport. La Russie atteint aujourd'hui les marchés du Pacifique plus facilement que ses grands centres populaires et le commerce prend de l'expansion surtout avec le Japon. Le plan d'amélioration du réseau ferroviaire trans-sibérien pourrait produire un impact considérable sur l'avenir du commerce.

The part of the Soviet Union that lies east of the Ural Mountains is usually divided into three economic regions: western Siberia, eastern Siberia, and the far eastern USSR. These three regions cover an area of $11.7 \times 10^6 \text{ km}^2$ (50.9% of the Soviet Union) compared with $9.9 \times 10^6 \text{ km}^2$ for Canada. On 1 January 1980, the population of these three regions was 26.6 million and, for the entire USSR, 264.5 million compared with 23.8 million for Canada.

These three regions account for 85.7% of the overall fuel and energy resources of the USSR — 87.2% of mineral fuel resources and 62.5% of the hydro resources (Krushchev 1979: 189). They also have $81.8 \times 10^9 \text{ m}^3$ (74.8%) of the USSR's timber stands but account for only 33.5% ($3.88 \times 10^8 \text{ m}^3$) of the volume of logging and 27% ($1.16 \times 10^8 \text{ m}^3$) of lumber production (Krushchev 1979: 302).

The three regions are linked with the Pacific basin by trans-Siberian railroad, by air, and by the Northern Sea route, which has been function-

ing for increasing periods through the construction and use of heavy-duty, nuclear-powered and diesel ice breakers.

Each of the three regions owes its development to the availability of fuel and energy resources, and each one is endowed with a different resource.

The relationship between the three regions and the Pacific basin is primarily determined by geographical location.

Western Siberia lies the furthest from the Pacific basin, and, although it is the most important of the three regions for the USSR, it is probably least important at present for the Pacific-basin countries.

The region lies in the basin of the Ob' and its tributary the Irtysh. The Ob' is the first of the three large rivers east of the Ural Mountains flowing from south to north.

Western Siberia owes its present importance to the oil and gas industries, developed during the past decade and a half. As late as 1960, no significant amount of oil was produced here. In 1965, western Siberia still accounted for only 0.4% of the national oil output; in 1970 for 8.8%; in 1975

¹These comments were prepared at the request of the conference organizers when the invited participant from the Soviet Union was unable to attend.

for 30.1% (Shniper 1980); in 1980 for 51.74% (312 Mt) (*Ekonomicheskai Gazeta* 1981b). In 1981, western Siberia is to produce 59.3% of the USSR's output of oil. Although the output of oil in the country as a whole is to drop in 1981 by 57.8 Mt, it is to increase in western Siberia by 11.5 Mt.

The region experienced similar development of the natural gas industry. Its share in the national output increased from 0.3% in 1965 to 4.9% in 1970 when total national output was 1.98×10^{11} m³, 13.3% in 1975 (Shniper 1980), to 35% in 1980 (national output, 4.35×10^{11} m³). By 1985, this percentage is to reach 55–58 (*Ekonomicheskai Gazeta* 1981a). Oil and gas pipelines are currently being built to link western Siberian reserves with the Ural and the European USSR. Should such pipelines be built to the Pacific coast, the new supplies may have a considerable effect on the availability of oil and gas to the Pacific-rim countries.

The development of the oil and gas industries has triggered similar expansion in transportation, forestry, agriculture, and even fisheries through fish breeding in the numerous lakes of the region and in coastal waters. However, because of the proximity of the region to the Urals and to European USSR, western Siberia has gravitated westward rather than to the Pacific basin.

Western Siberia has 12.6% of the country's timber stand but accounts only for 8.1% of the logging operations and 7.2% of the lumber produced. Although there are possibilities for a substantial increase in both logging and processing, such expansion is not likely to have much effect on the Pacific-rim countries' trade in wood-based commodities because of the long distances and the high costs of transportation. This finding applies equally to the fishing industry.

Of the three regions, western Siberia is the smallest (2.4×10^6 km²), but has the largest population (13 million).

To the east of western Siberia lies eastern Siberia, occupying the basin of the Yenisei and its tributary the Angara. The Yenisei is the middle one of the three great Siberian rivers. The territory of the region amounts to 3.7×10^6 km², and the population numbers 8.2 million.

If western Siberia, with its oil and gas resources, is the region of today, eastern Siberia is a region of yesterday and tomorrow. The main resource is hydropower, which the Soviet Union has been developing since the mid-1950s. There are four important hydro projects on the Yenisei and four on the Angara, completed, currently under construction, or planned. Using this

hydroelectric power, wood processing and wood chemical industries have been developed in the region.

The main industrial centres are in Irkutsk, which is an important machine-building centre for the mining industry of the region and the far east and also an important transportation centre. Bratsk is the first giant hydropower station in eastern Siberia (4.5 MkW installed capacity) and is also the site of a large lumber-producing and wood-processing plant (*Ekonomicheskai Gazeta* 1980). Bratsk stands on the banks of the Angara, which is the only river flowing out of Lake Baikal. It is the largest tributary of the Yenisei. More than 300 rivers flow into Lake Baikal. In other words, Lake Baikal is a huge natural reservoir, and a result is that the volume of water flowing in the Angara does not vary much from season to season.

Ust Ilimsk hydroelectric-power plant, also on the Angara (4.3 MkW installed capacity) is currently nearing completion. Here is also being built a collection of plants to produce wood products. Ust Ilimsk is also a site of a joint project, which is being built by the East European countries and the USSR to produce pulp and paper. The last of the three giant power stations on the Angara is to be at Boguchany, which is down the river from Ust Ilimsk. Work is just beginning on the construction of the 3-MkW, installed-capacity power station, which will have attached to it another large wood-processing centre (*Ekonomicheskai Gazeta* 1980). On the Yenisei, are Sayano-Shushenskaia hydroelectric-power station (6.4 MkW), which is currently under construction, Krasnoiarskaia hydroelectric-power station (6.0 MkW), which is already in operation, and Sredne-Yeniseiskaia hydroelectric-power station (7.5 MkW), which is yet to be built (*Ekonomicheskai Gazeta* 1980).

Besides these three large hydroelectric-power stations and the industrial centres attached to them, the region has a smaller hydroelectric station, as well as nonferrous metallurgy- and lumber-processing centres close to the mouth of the Yenisei and a scatter of small industrial towns around Lake Baikal.

Wood products from Bratsk and other processing plants on the Yenisei and the Angara are transported both east and west, either by rail or by oceangoing vessels through the port of Dudinka on the Yenisei and through the Northern Sea route.

Located further away from the European USSR, eastern Siberia naturally gravitates more to the Pacific basin than does western Siberia. Nevertheless, distances to the Pacific are still

great, and transportation costs are a factor in determining the commodities that enter Pacific-basin markets.

To improve transportation facilities from eastern Siberia and the far eastern USSR to the Pacific, the Soviet Union is currently building Baikalsk-Amurskaia trunkline, which is the continuation of the existing branch line from Taishet on the trans-Siberian railroad to Bratsk and then to Ust Kut. From here, the newly planned railroad will run to Nizhneangarsk on the northern tip of Lake Baikal, then to Tynda — the halfway point — where it will intersect the north-south railway running from the trans-Siberian railroad to Berkakit. From Tynda, the new line will run to Komsomolsk on the Amur and then to the Pacific coast at Sovetskaia Gavan in Tartar Straits between the mainland and the Sakhalin Island, or to Vladivostok and Nakhodka in the Sea of Japan.

The construction of the railroad was announced without warning in mid-1974. The part to be newly constructed is 3145 km. The railway will cross seven mountain ranges, will require construction of 142 bridges and 25.3 km of tunnels, one of which is to be 15 km. Twenty thousand comsomol members were directed to volunteer for the project. The total labour force working on the project is close to half a million. The estimated cost is U.S.\$10 billion.

Apart from providing the USSR with an alternative rail communication link with the Pacific (because the trans-Siberian railroad along this sector runs dangerously close to the Chinese border), the new railroad will provide access to massive resources in the far eastern region (coal in south Yakutia, to Udokan copper deposits, and to some $5 \times 10^6 \text{ m}^3$ of lumber annually). The railway was to have been completed by 1982 but will probably be ready sometime between 1985 and 1990.

The availability in eastern Siberia of the huge reserves of hydropower and also of various inputs for nonferrous metallurgy, chemical, wood-processing, and machine-building industries promises significant development in the future in the region. The main obstacles up to now have been the unwillingness on the part of the Soviet people to settle here and the lack of capital resources, which are currently going toward development of the oil industry in western Siberia.

The far eastern region is $5.5 \times 10^6 \text{ km}^2$ and has a population of 5.3 million. It lies directly on the Pacific and, consequently, is the most likely of the three regions to influence the development and trade in the Pacific basin. Because of the

remoteness from the population centres of the USSR, the natural resources of the region, such as coal and wood, have been considered mainly as export commodities. Administratively, the region was recently increased at the expense of eastern Siberia when Yakut ASSR with its rich deposits of diamonds and coal and copper was incorporated into the far eastern region.

Except for the southern fringes, the region has remained underdeveloped because of the severity of the climate. However, local development of such valuable resources as gold, mica, and tin has been taking place. In the Lena basin are located deposits of diamonds as well as extensive deposits of coking coal and brown coal. Some oil and gas is also thought to be present. The Soviet Union expects to be able to export this coal to Japan and other countries in the Pacific basin once Baikalsk-Amurskaia trunkline has been completed. The other major resource is copper ore from the Udokan deposits, which are conveniently located south of the coal deposits. In the more distant future, the Soviet Union plans to develop in the region a chemical industry centre that will utilize brown coal unsuitable for export.

In the far eastern region, an important fishing industry exists and has important fish landing and processing bases, such as Vladivostok, Nakhodka, Petropavlovsk in Kamchatka, Okhotsk, and others (Solecki 1979). In 1970, the far eastern fishing administration was responsible for 33.6% of the Soviet fish landings and in 1975 for 34.9%, or 3.6 Mt. In 1975 Soviet catch in the north Pacific amounted to 3.4 Mt (Sysoev 1977: 317, 327). In spite of the high domestic demand, the USSR was able to export 162 million rubles (not freely convertible to U.S.\$, fixed arbitrarily; in September 1981 U.S.\$100 was R.76.30) worth of fish in 1975 and 124 million rubles in 1979, of which 10.2% went to Japan (Table 1). By volume, 1979 exports to Japan amounted to 77624 t of 474471 t or 16.4% (Statistika 1980).

The far eastern region has 226.3 Mha of the 637.4 Mha of forestland in the USSR, or 35.5%. It has 27.6% of the nation's stand, which indicates that the forest-covered areas are poorer than for the nation as a whole. Annual increment for the area is $2.01 \times 10^8 \text{ m}^3$, whereas the volume logged in 1977 was only $3.84 \times 10^7 \text{ m}^3$. The imbalance results from poor accessibility to and poor quality of the northern forest areas and inadequate utilization of stands in the south. But it shows that a substantial potential exists here for exports to the Pacific-basin countries.

Also, exports of forest products from the three regions east of the Ural Mountains will probably depend on the ability of the Soviet forest industry

Table I. USSR exports of fish and fish products, 1967-79.

	Exports (million rubles)		Imports (million rubles)	
	Total	Fish products	Total	Fish products
1967	8687.1	68.4	7683.0	13.4
1968	9570.9	78.0	8469.0	9.7
1969	10490.0	80.0	9294.1	13.2
1970	11520.0	88.3	10565.1	14.9
1971	12425.0	90.6	11231.9	13.6
1972	12734.0	84.3	13309.2	14.0
1973	15802.0	97.5	15540.8	9.6
1974	20738.0	129.6	18829.2	17.1
1975	24030.0	162.7	26669.2	18.8
1976	28022.2	89.0	28730.7	20.3
1977	33256.3	80.7	30097.0	28.6
1978	35670.0	90.2	34554.1	29.9
1979	42426.3	123.8	37864.0	34.1

Source: Vneshnia Torgovla SSSR (USSR Foreign Trade) statistical yearbooks for the appropriate years, Moscow, USSR, Statistika, 1968-79.

to make use of larch. In all, 258.3 Mha of the forests in the USSR are larch. As this species appears almost exclusively in the three regions (Lesnaia Promyshlennost 1980), it accounts for almost exactly half of the forested area in them. The stands of larch amount to $2.6 \times 10^{10} \text{ m}^3$ or 45% of the total. Yet, as the Soviet economists admit, larch has not been utilized sufficiently.

An examination of the map of the USSR's forests shows that the new major wood processing centres, namely Bratsk, Ust Ilimsk, and Boguchany (currently under construction) are sited on the patches of pine stands. Baikalsk and Selenginsk are supplied from spruce and Siberian stone pine forests, and Komsomolsk on the Amur from spruce forests. As far as is known, no major plants have been sited on larch stands. Larch is difficult to transport by water and difficult to process, hence the unwillingness on the part of the Soviet industrial enterprises to use it. However, once scientists find a way to overcome these difficulties, the availability of larch-based forest products may have a significant effect on the Pacific-basin markets.

The allowable cut for the USSR as a whole in the accessible areas has been estimated at

$6.8 \times 10^8 \text{ m}^3$ of which 61.5% is in the conifer stands and 36% in soft-leaf forests. Hard-leaf stands account for only 2.5% of the allowable cut. Furthermore, 40.8% of the allowable cut is found in the European USSR.

Conclusion

An increase in the Soviet participation in the Pacific-rim markets can be expected with the completion of the Baikalsk-Amurskaia trunk-line. More would be possible if there were a scientific breakthrough that would allow wide utilization of larch as an input for the production of export commodities. Some increase is likely simply because of the overall economic development of the far eastern region, entailing population increase and, with it, an increase in the demand for consumer and capital goods, some of which it will be more economic to buy from the Pacific-rim countries than to bring from the European USSR. Overall economic development of the three regions will depend to a considerable extent on the growth of the fuel and energy sectors of the three regions.