

No. 19744

**UNION OF SOVIET SOCIALIST REPUBLICS
and
INDIA**

**Long-term Programme of economic, trade, scientific and
technical co-operation. Signed at New Delhi on
14 March 1979**

Authentic texts: Russian, Hindi and English.

Registered by the Union of Soviet Socialist Republics on 16 April 1981.

**UNION DES RÉPUBLIQUES SOCIALISTES
SOVIÉTIQUES
et
INDE**

**Programme de coopération économique, commerciale,
scientifique et technique à long terme. Signé à New
Delhi le 14 mars 1979**

Textes authentiques: russe, hindi et anglais.

*Enregistré par l'Union des Républiques socialistes soviétiques le 16 avril
1981.*

LONG-TERM PROGRAMME¹ OF ECONOMIC, TRADE, SCIENTIFIC AND TECHNICAL COOPERATION BETWEEN THE UNION OF SOVIET SOCIALIST REPUBLICS AND THE REPUBLIC OF INDIA

The Government of the Union of Soviet Socialist Republics and the Government of the Republic of India,

Reaffirming their aspiration to continue the development and deepening of the relationships of traditional friendship between the two countries and mutually beneficial many-sided cooperation in various fields;

Guided by the Joint Soviet-Indian Declaration of October 26, 1977;

Following the spirit of the Treaty of peace, friendship and cooperation between the Union of Soviet Socialist Republics and the Republic of India of August 9, 1971;

Taking into consideration the Agreement for further development of economic and trade cooperation between the Union of Soviet Socialist Republics and the Republic of India of November 29, 1973;

Have adopted the present Long-term Programme of economic, trade, scientific and technical cooperation between the Union of Soviet Socialist Republics and the Republic of India for the period of 10-15 years.

The purpose of the Programme is to determine specific and perspective directions, projects and forms of mutually beneficial economic, trade, scientific and technical cooperation between the Union of Soviet Socialist Republics and India in order to expand and deepen this cooperation on a long-term basis. The Programme has been drawn up bearing in mind the requirements of the economic development of both countries.

Section 1. COOPERATION IN CONSTRUCTION IN INDIA OF INDUSTRIAL AND OTHER PROJECTS INCLUDING COOPERATION ON A COMPENSATION BASIS

Both sides note with satisfaction that economic and technical cooperation between the USSR and India has shown good progress and is of many-sided, stable and mutually beneficial character. As a result of this cooperation a number of major industrial enterprises and projects have been built, or are under construction and expansion, including those in such important branches of the national economy as ferrous and non-ferrous metallurgy, machine building, power, oil and natural gas production and processing, coal industry and in other fields.

Both sides reaffirm their intention to further develop and deepen cooperation in construction of industrial and other projects as well as to explore new directions and forms of its further development in the following branches, the list of which may be specified and supplemented by mutual agreement.

¹ Came into force on 14 March 1979 by signature, in accordance with section 7.

1.1. *Ferrous metallurgy*

Both sides note with satisfaction that cooperation between the USSR and India in the field of ferrous metallurgy, which started in 1955 at the time of the Bhilai Steel Plant construction, is progressing successfully.

Bearing in mind that the development of ferrous metallurgy is an important factor in the process of industrialisation of India, both sides will expand cooperation in this field along the following lines:

- Expansion of the Bhilai and Bokaro Steel Plants up to the capacity of 4 million tonnes of steel per annum each, and further expansion of the said plants taking into account the design work being carried out and to be carried out in future by the relevant Soviet and Indian organisations;
- Design and construction of the Vizakhapatnam steel plant;
- Exploring the possibilities of cooperation in design and construction of new iron and steel plants, ferrovanadium and other ferro-alloys projects, iron and manganese ores mines, refractory plants and other projects of ferrous metallurgy.

1.2. *Non-ferrous metallurgy*

Taking into consideration the importance of non-ferrous metallurgy for the economy of India, which has a considerable demand in a number of non-ferrous metals, as well as the progress made in the USSR in the production of these metals, both sides consider it expedient to carry on further cooperation in this field along the following directions:

- For setting up on a compensation basis of an alumina plant in Andhra Pradesh with the capacity of 600-800 thousand tonnes of alumina per annum;
- Working out the technology of processing the nickel-bearing ores of Sukinda deposit for determining the feasibility of setting up a nickel and cobalt producing plant;
- Working out technological process for extraction of cobalt and nickel from cobalt-rich converter slags produced at the Ghatsila Smelter of Hindustan Copper Ltd.;
- Working out the efficient methods of complex polymetallic ores beneficiation for optimum exploitation of the deposits;
- Early completion of the construction of the Korba Aluminium Plant.

Both sides will also cooperate in respect of other projects in various fields of non-ferrous metallurgy including alumina, aluminium, copper, tin, titanium, magnesium, silicon, diamonds and other non-ferrous metals as well as by-products by way of research, design and production, etc.

1.3. *Coal industry*

The Soviet-Indian cooperation in the coal industry has been successfully developing for many years as a result of which a number of coal mining and coal processing projects have been set up in India.

Both sides will develop cooperation in the coal industry along the following directions:

- Undertaking of complex scientific-technological research and design work for utilisation of high ash content coking coal for blast furnaces;
- Designing and construction of coal industry projects at the Singrauli, Ramgarh coal deposits and in other areas of India (the Jayant open cast mine, Jhanjra mine, central mechanical workshop in Singrauli and other projects);
- Introduction of up-to-date technology of underground coal mining, including working of thick inclined and steep seams, completion of mining of coal left in operating mines at the Karanpura deposit, study of the possibilities of cooperation in hydraulic mining and sinking of vertical shafts, execution of experimental work in Chinakuri and other mines with a view to determining the possibility of introduction of mechanised longwall caving method, deputation of Soviet specialists and reception in the USSR of Indian specialists for familiarisation with the operational experience in the USSR mines with similar conditions;
- Development of methods for providing safety arrangements in mining including prevention of shock bumps and sudden outbursts of coal and gas, dust control, prevention and extinguishing of spontaneous coal fires, provision of deep open pits' banks with stability, counterlandslide arrangements, etc.;
- Scientific-technical cooperation by means of exchanging information pertaining to execution of design work;
- Application of up-to-date processes of coal preparation;
- Cooperation in the field of coal utilisation, development of processes for production of fuel gas, liquid fuel and chemicals from coal, use of mineral components recovered from coal preparation wastes.

1.4. *Oil exploration, production and refining*

As a result of long-term Soviet-Indian cooperation in the field of oil exploration, production and refining in India a number of oil and natural gas deposits have been discovered, the Barauni and Koyali refineries have been constructed and commissioned and the Mathura oil refinery is under construction. In the interests of achieving further progress in this field, both sides consider it expedient to explore the possibilities of developing cooperation along the following directions:

- Exploration and production of oil and natural gas including geological investigations by drilling operations in the State of Tripura;
- Undertaking of electroprospecting operations with magnetotelluric method including in Saurashtra and Tripura regions;
- Application of up-to-date methods in geophysical exploration;
- Organisation of research institute for drilling technology and deputation of Soviet experts to the institute of reservoir studies;
- Introduction of mechanised methods of oil production in India;
- Preparation of a long-term techno-economic perspective plan for the exploration and exploitation of onland oil and natural gas reserves in India for 1981-1990;
- Cooperation in the existing oil refineries expansion and construction of new ones.

Both sides will cooperate in the construction of the Mathura oil refinery with the capacity of 6 million tonnes per year.

1.5. *Machine building*

Taking into consideration that machine-building plays an important role in the national economy, both sides shall continue to develop cooperation in the field of machine building along the following main directions:

- Development of production capacities, renovation of equipment and diversification of production in the machine-building plants in Ranchi, Hardwar and Durgapur by delivery from the USSR of technical documentation, balancing equipment, components and materials, by sending Soviet specialists and receiving Indian specialists for training in the USSR;
- Study of the possibility of organisation of production cooperation and specialisation in manufacturing certain types of steel, electrical, power, mining and other equipment;
- Study of the possibility of cooperation in production of transport, earth-moving, mining, aerodrome and port equipment, as well as of other types of machine-building products.

1.6. *Irrigation*

Taking into consideration that a large-scale programmes of irrigation projects is being implemented in the USSR and India, both sides note that there are favourable possibilities for developing cooperation in various areas of water projects pertaining to carrying out investigations, design and other works required for effecting the proposed irrigation programmes.

Both sides will develop cooperation in the field of irrigation along the following lines:

- Study of the technology of transference of surface stream flow both within and between the river basins as well as the technology of utilisation of underground waters;
- Joint study of specific problems in connection with building high dams with earth and rockfill including dams on non-rocky foundations; joint study of specific problems connected with the construction of large canal systems;
- Utilisation of the directed explosion method for construction of dams and canals; study of pre-fabrication techniques for canal lining in the construction of large canal systems and other irrigation projects;
- Use of mathematical models for solution of engineering problems in water resources;
- Working out of the methods for extending the life of reservoirs (silt sedimentation).

1.7. *Agriculture and animal husbandry*

Taking into consideration the great importance attached to the development of agriculture and animal husbandry in the USSR and India, both sides shall cooperate in this field along the following main directions:

1.7.1. Agricultural crops

- Exchange of germ-plasm of both cultivated and wild plants with the main object of utilising such materials in breeding programmes for improving the productivity of the crops;
- Exchange of materials of new high-yielding varieties with the purpose of testing them under different agro-climatic conditions of the two countries for appraisal and identification of suitable varieties with respect to yield, pest and disease resistance and quality for commercial cultivation;
- Carrying out joint projects on plant breeding, seed production and agronomy of wheat, rice, sorghum, cotton, sunflower, sugarbeet, grams, peas, triticale and other crops at the existing institutions and experimental stations;
- Development of techniques for the control of pests and diseases of cultivated plants including control of insects of stored grains;
- Exchange of scientific information, students, scientists and experts and arrangement of joint symposia, for carrying out the mutually agreed programmes.

1.7.2. Animal husbandry

- Breeding of Merino sheep and Pashmina goats (supplying to India pure-bred Merino sheep and Pashmina goats, exchanging specialists, scientific information and experience in the fields of genetic work and training of personnel in the field of artificial insemination);
- Exchange of specialists and of information relating to methods and scientific-technical research work in the field of Karakul sheep breeding;
- Breeding and genetics of cattle and buffalo using local breeds from both countries, working out long-term programmes on this matter.

1.7.3. State farms, land reclamation and other matters

- Examination of the possibility of purchase in the USSR or manufacture in India under licence of an agricultural single-engined helicopter;
- Consideration of the possibility of studying by Indian specialists Soviet experience in using agro-aviation techniques for seeding, fertilisation and herbicides application for pasture improvement;
- Study of the Soviet technology in the production of cereals, oilseeds including sunflower, sugarbeet, livestock production, through training of Indian specialists in postgraduate courses and conducting short courses including practical study;
- Consideration of the possibility of exchange of groups of Indian farmers and specialists and Soviet specialists in the field of agriculture;
- Study of the Soviet and Indian experience in technology of reclamation and exploitation of desert and saline/alkaline soil;
- Examination of the possibility of supplying vegetable seeds from India to the Soviet Union;
- Consideration of the possibility of supplying machines and spare parts for the Soviet gifted machinery of Suratgarh farm.

1.8. *Inland fisheries*

Taking into consideration that inland fisheries is of great importance in providing the population with fish products, both sides will cooperate in this field along the following lines:

- Conducting of joint investigations in breeding and rearing fish;
- Study of problems pertaining to the feeding of fish and creation in inland reservoirs the conditions facilitating the increase of per hectare catch of fish;
- Study of matters pertaining to the arrangements for catching fish, its storage and processing.

1.9. *Transport and communications*

Both sides note the important role of transport and communications in the effective development of the Indian economy. In this connection, both sides have already started cooperation in setting up a troposcatter communication link between the USSR and India as well as in the construction of the underground in Calcutta.

Both sides consider it expedient to explore the possibilities of further cooperation in the above-mentioned areas.

1.10. *Geology*

Both sides consider it expedient to carry out cooperation in the field of geology along the following directions:

- Carrying out of regional geological and metallogenic investigations in certain regions including compilation of respective maps;
- Exploration and prospecting for non-ferrous metals in promising areas and sites including application of appropriate complex of geological, geochemical, geophysical, airborne geophysical methods, drilling and mining techniques; supply of requisite equipment from the USSR;
- Prospecting for coking coal deposits;
- Training of Indian experts in modern methods and techniques of geological investigations, both in the process of field and other activities in India, as well as by means of training Indian experts in research institutions of the USSR;
- Exchange of specialists to get acquainted with new achievements in the fields of geology and of exploration of minerals.

1.11. *Food industry*

Given the important significance of conservation, distribution and effective utilisation of food resources, both sides will develop cooperation in the food processing industry along the following directions:

- Research in improving technology and equipment for the production and processing of fruits and vegetables and black tea and research in improving technology for essential oils processing;
- Studying the possibilities of cooperation in expansion and modernisation of the existing fruit and vegetable processing enterprises, as well as setting up of export-oriented plants for production of nutritious food for children;

- Studying the possibilities of cooperation in the aseptic canning of fruit and vegetable products and establishing capacities for production of specialised can items and other types of packing containers;
- Exchange of specialists, scientific research, licences, know-how, technical information, including in the fields of production of tea dye-stuff and tea-based beverages, new techniques and advanced technology.

1.12. *Pulp and paper industry*

Taking into consideration the necessity of increasing the output and enlarging the varieties of pulp and paper products, both sides will study the possibilities of cooperation in:

- Developing forest-rich areas of India by means of setting up pulp and paper production units integrated with new wood-based projects;
- Setting up in India enterprises for the manufacture of condensor paper, capacitor tissue and other types of fine technical paper, industrial filter paper and boards;
- Carrying out joint research and development work for pulp and paper industry including production of certain types of synthetic papers, as well as in the field of purification of industrial effluent of new and existing enterprises of pulp and paper industry in India.

1.13. *Light industry*

Both sides consider it expedient to study the possibilities of cooperation in the field of use and development of open-end spinning machines as well as using equipment from both countries for reconstruction/modernisation of textile enterprises both in the USSR and India.

The relevant organisations of the two sides will determine possible fields of cooperation in scientific research in improving textile technology including machinery and instrumentation.

1.14. *Pharmaceutical industry*

Acknowledging the vital importance of the pharmaceutical industry for the effective fight against diseases and for the improvement of the health services, both sides will cooperate in this field along the following lines:

- Exploration of the possibility of mutual supply of equipment, materials, bulk drugs and formulations as well as production of formulations in India based on bulk drugs and antibiotics to be supplied by the USSR for supply to third countries;
- Exchange of information on production and packaging of formulations as well as on technical data for updating the existing technologies.

1.15. *Building materials industry*

Taking into consideration the expansion of housing and industrial construction in the USSR and India and the necessity in this connection of further developing the building materials industry, both sides will cooperate in this field along the following directions:

- Examination of the possibilities of production of locally available building materials including clay bricks, cement-plaster-puzzolonic binding, Keramzite, slagsytalls, mineral wool, items made of mineral wool;
- Scientific and technical cooperation in developing the technology of utilisation of ash from thermal power stations in the production of building materials;
- Exchange of information on the trends in the development of cement production by dry method at plants with a unit capacity of above 3000 tonnes of clinker per day, production of asbestos and cement items and standardisation of design of cement mills including dust control of production processes.

Section 2. COOPERATION IN FURTHER IMPROVEMENT OF WORK OF INDUSTRIAL AND OTHER PROJECTS BUILT IN INDIA WITH THE USSR ASSISTANCE

In the course of economic and technical cooperation, a considerable number of industrial enterprises playing an important role in the industrialisation of the country and consolidation of the economic independence of India has been built in various branches of the national economy of India with the USSR assistance. The projects of the Soviet-Indian cooperation are successfully attaining their designed capacities and manufacture a wide range of products. The most important of them are the Bhilai and Bokaro Steel Plants, Ranchi Heavy Machine-Building Plant, Durgapur Mining and Allied Machinery Plant, Hardwar Heavy Electrical Equipment Plant, Pharmaceutical Plants in Rishikesh and Hyderabad, MECON designing organisation and others.

For the purpose of ensuring the modern level of production and manufacture of new types of products and improving the performance of the projects of cooperation, both sides will develop cooperation on the basis of Soviet expertise in improving the available technology and introducing new ones, updating the available equipment, training skilled personnel, introducing the achievements of science and technology for the following projects of Soviet-Indian cooperation.

2.1. Ferrous metallurgy

2.1.1. Bhilai Steel Plant

Both sides note that, with a view to raise the productivity and to enhance economic efficiency of the Plant through the application of advanced technology, optimisation of alternative solutions of increase in the productivity of the basic and auxiliary shops of the Plant and modernisation of the metallurgical units, the relevant Soviet and Indian organisations will prepare the Basic Technical and Economic Considerations for further development of the Plant, which will specify various stages of joint introduction of planned activities with a view to achieve the maximum effect with minimum capital investments. In particular acceptable ways and means of possible considerable improvement of the economics of the Plant's main production units and setting up scientific-research laboratories of the Plant as well as carrying out research works in shops will be studied.

2.1.2. Bokaro Steel Plant

Both sides note that the relevant Soviet and Indian organisations have prepared technical recommendations for increasing the production capacity of the Bokaro Steel Plant up to 5.5 million tonnes of steel per annum. The recommendations envisage the application of advanced technology in the areas of

sintering, blast furnaces, steel making and rolling mills. The organisations of both sides will specify the concrete scope and content of their participation in the task of increasing the production capacity of the Bokaro Steel Plant to mutually agreed level.

2.1.3. MECON

Both sides note the fruitful and growing cooperation existing between the Soviet organisations and the Indian Design and Consultancy Organisation, MECON, in the designing of iron and steel enterprises.

Both sides will make efforts to further develop cooperation between the USSR organisations and MECON in the field of designing metallurgical enterprises.

2.1.4. Scientific-research organisation of SAIL

The Soviet organisations and the Research and Development Centre of SAIL will carry out the research work on Bhilai Steel Plant by elaboration of the perspective programme, determination of requirements of skilled personnel and laboratory equipment, deputation of Soviet specialists to India and receiving of Indian specialists for training in the USSR, etc., and also in fulfilment of other work stipulated by the programme of R&D centre of SAIL.

2.2. *Machine building*

2.2.1. Both sides note that as a result of fruitful economic and technical cooperation, modern machine-building plants have been established in India producing a wide range of metallurgical, mining, electrical, power and other types of equipment and instruments. The Heavy Machine Building Plant in Ranchi, the Heavy Electrical Equipment Plant in Hardwar and the Mining and Allied Machinery Plant in Durgapur have developed capabilities and capacities for production of sophisticated metallurgical, electrical, power and mining equipment and for supply of equipment for export to third countries.

Both sides consider that further cooperation in the development of the said projects will be directed along the following lines:

- Production of new types of equipment according to the Soviet technical documentation for meeting the requirements of India, the USSR and third countries;
- Manufacture of equipment for the projects being implemented in third countries with USSR technical assistance;
- Development of production cooperation with the respective plants in the USSR.

2.2.2. Both sides will cooperate in establishing the Institute for designing metallurgical equipment in Ranchi. For that purpose both sides will promote the development of cooperation between the VNIImetmash Institute, Moscow, and the Design Institute in Ranchi along the following lines:

- Handing over to the Design Institute, Ranchi, technical documentation for certain types of metallurgical equipment, manufactured in the USSR;

- Carrying out jointly the design and research works on updating the existing and elaborating new types of metallurgical equipment for the steel plants in India;
- Organisation of lectures to be given by Soviet specialists at the Design Institute in Ranchi on certain themes of investigation and designing of metallurgical equipment;
- Deputation of Soviet specialists for rendering technical assistance in carrying out research and design works at the Design Institute in Ranchi;
- Receiving of Indian specialists from the Design Institute in Ranchi for training in the USSR in designing and investigation of metallurgical equipment.

2.3. *Pharmaceutical industry*

Both sides note the successful working of the Rishikesh Antibiotics Plant and the Hyderabad Synthetic Drugs Plant and consider that further cooperation as regards these projects can be carried out along the following lines:

- Improvement of the technological process of production of streptomycin;
- Exploration of the possibility of cooperation for the production of semi-synthetic antibiotics (penicillins, cephalosporine, rifampicin) and intermediates for the production thereof, as well as new drugs such as aminolone, nitroxoline, etc.;
- Scientific and research work concerning the manufacture of Vitamin B6 and utilisation of mycelium.

2.4. *Oil refining*

Both sides note the successful operation of the Barauni and Koyali oil refineries, constructed and commissioned with the USSR cooperation, which have attained the rated capacities.

The two sides consider that further cooperation in the development of the above refineries can be carried out through modernisation of the existing equipment, improvement of technologies, introduction of new oil refining technology, supply of spare parts, exchange of expertise and know-how, output of new products, suitable for the requirements of the Indian market.

2.5. *Optical glass production*

Both sides agreed that joint examination of possibilities of increasing the output of optical glass in the Bharat Ophthalmic Glass factory set up in Durgapur with USSR assistance would be carried out.

Section 3. COOPERATION IN DESIGNING AND CONSTRUCTION OF INDUSTRIAL AND OTHER PROJECTS IN THIRD COUNTRIES

Both sides note that joint cooperation in third countries is a promising form of economic ties acquiring great significance for expansion of economic relations between the USSR and India. Proceeding from economic feasibility and interest of the USSR and India in expansion of economic ties with third countries, cooperation might be developed by means of reciprocal employment of organisations of the two sides for joint participation in designing, deliveries of

equipment and execution of construction and erection works in third countries based on the principles of mutual benefit and equitable terms and conditions.

Both sides consider that possible fields of cooperation in the construction of industrial and other projects in third countries are, in particular, metallurgy, mining, machine building, power, oil exploration, production and refining, cement, light, paper and pulp and pharmaceutical industries, irrigation, civil engineering, consultancy, etc.

The organisations of the two sides will inform each other in due time of the requirements as may arise for equipment, steel structurals, etc., for deliveries to third countries and possible concrete projects for joint execution including designing, construction, erection and commissioning.

Section 4. PRODUCTION COOPERATION AND SPECIALISATION

Considering that international division of labour opens up possibilities for optimum utilisation of resource endowments, investments, experience and technology of each country, both sides deem it feasible to develop production cooperation and specialisation between themselves, facilitating increased efficiency of production and scientific and technological progress in the USSR and India and in diversification of their economic ties through both international and bilateral relations.

While promoting this cooperation the two sides will take into consideration the existing possibilities and potential:

- Of the economies of the USSR and India in those areas where the Soviet-Indian cooperation is already being effected;
- Of the economy of India in production of labour intensive commodities in light, small-scale and cottage industries as well as in the production of certain other commodities (in the field of light machine building, electronics, production of individual components, auxiliary parts, certain chemicals, etc.) and in rendering services with a high share of skilled and semi-skilled labour;
- Of the economy of the USSR in the development of technology and delivery of commodities in respect of which the resources and possibilities of India are limited.

The production cooperation can take the following forms:

- Cooperation on the basis of presentation and exchange of licences, patents, know-how, technical information and new technology;
- Joint designing, detailed engineering and development of technological processes;
- Specialisation in production and in the exchange of certain types of finished products;
- Complementary production and delivery based on part and unit-wise specialisation;
- Construction, expansion and modernisation of industrial complexes and enterprises.

The two sides would examine the possibility of utilising the above forms of cooperation and specialisation for collaboration in agriculture, industry, energy, transport, communication and other fields, in which the two sides have the potential for efficient production.

The concerned organisations and enterprises of both sides will take steps to develop production cooperation in manufacturing machinery and equipment in the following branches of industry on the basis of the latest achievements in science and technology: ferrous metallurgy; non-ferrous metallurgy; coal mining; oil prospecting; production and refining; machine-building (in particular, manufacturing of electrical, mining, metallurgical, crushing and milling equipment); drugs and pharmaceuticals.

Further both sides would also examine possibilities of development of production cooperation and specialisation in the following branches of industry or types of production: textiles; leather; footwear; chemicals; food products; electronics and telecommunications equipment; building materials including cement; consumer durables and optical glass.

The list of forms and areas of cooperation given above is not exhaustive and may be extended by mutual agreement. Both sides shall promote, depending on their possibilities and market conditions, the initiative and exchange of information directed to the development of production cooperation by their respective organisations and enterprises.

Mutual deliveries of commodities flowing from production cooperation and specialisation will be additive to the traditional commodity turnover, and the trade and economic cooperation shall be balanced on the whole. It is understood that the terms and conditions upon which respective agreements and contracts will be concluded shall be mutually beneficial and shall be based on commercial terms and conditions, including prices, as followed in international practice.

Section 5. COOPERATION IN THE FIELD OF TRADE

Both sides stress that trade is the cornerstone of economic cooperation between the USSR and India and note with satisfaction that it has developed successfully on the basis of five-year agreements on trade exchanges and annual protocols on mutual deliveries of goods which specify them.

Both sides will continue to make efforts to further develop mutual trade on the basis of long-term trade agreements keeping in view the potentials and requirements of the economies of both the countries and using the advantages provided by the international division of labour.

5.1. General principles

In order to secure the stable growth of mutual trade exchanges, both sides consider it expedient to outline the principal directions of trade development till 1990 which will be specified while preparing future five-year trade agreements and annual protocols on mutual deliveries of goods.

Both sides note that although the established pattern meets their requirements adequately in general, they consider it necessary to make efforts to attain further expansion of trade and range of goods delivered under the provisions of the Joint Soviet-Indian Declaration signed on October 26, 1977, keeping in view the changes in the structure of trade that have emerged over the last three five-year agreement periods, by the inclusion in trade exchange of new items of mutual interest. It is understood that the trade and economic cooperation will be generally effected on a balanced basis with sufficient flexibility.

Both sides also agreed to identify new forms of trade.

5.2. *Trade promotional measures*

To facilitate the further development of trade, both sides consider it expedient to implement the following measures:

- To prepare and review the recommendations as to the main directions of the development of trade in the next five-year period well in advance of the expiry of each five-year trade agreement;
- To facilitate the conclusion of long-term contracts between the Soviet organisations and the Indian organisations and firms;
- To facilitate the conclusion of contracts between the Soviet foreign trade organisations and the Indian organisations and firms on the basis of mutual benefit with observance of the principle of competitiveness of goods in respect of world prices, quality and other terms of delivery;
- To maintain operative contacts on issues concerning the implementation of trade agreements and protocols, determination of further prospects of trade development both by way of trade delegation exchanges as well as within the framework of the Inter-Governmental Soviet-Indian Commission on economic, scientific and technical cooperation;
- To strengthen business relations between the foreign trade organisations of both countries;
- To facilitate the organisation of and participation in specialised exhibitions and fairs.

5.3. *Trade turnover*

Both sides note with satisfaction that the volume of mutual trade during the period 1976-1980 will increase by 1.5 to 2 times which corresponds to the provisions of the Joint Soviet-Indian Declaration of November 29, 1973.

Both sides undertake as their task achievement of a rate of growth of the mutual trade in 1981-1985 not less than that envisaged by the Trade Agreement of April 15, 1976, for 1976-1980.

Both sides will make efforts to maintain and increase the achieved trade development rates also over a period till 1990.

In determining the trade development prospects, both sides proceed from the fact that the lists of mutual deliveries under the Trade Agreement shall not be of a restrictive character, in connection with which there is a possibility to exceed the volumes of trade turnover by way of incorporating therein new items in the process of agreeing on the annual protocols on trade turnover between the two countries.

The development of trade over the said period by main commodity groups will be characterised as follows:

5.3.1. Exports from the USSR to India

Both sides will endeavour to expand the volume of deliveries of machinery and equipment from the USSR to India particularly for the technology-intensive sectors, taking into account the development of the Indian economy.

The detailed range of machinery and equipment will be determined in the Trade Agreement for 1981-1985.

Both sides consider it expedient to determine later on the prospects for deliveries from the USSR to India of the said commodity group over a period till 1990 taking into account the 1981-1985 Trade Agreement fulfilment results.

Both sides proceed from the understanding that export of raw materials and manufactured goods from the USSR to India is an important constituent part of the Trade Agreement for 1981-1985 and for the period up to the year 1990 and that it will continue to include the deliveries of crude oil and petroleum products, fertilisers, metals, newsprint, sulphur and other commodities of importance for the Indian economy, consistent with requirements and possibilities of the two sides.

In the perspective, the possibility of supply of coking coal to India after 1985 will be also studied.

The concrete range of products and their volumes will be determined in the course of negotiations on the new Trade Agreement.

5.3.2. Exports from India to the USSR

In determining the Indian export volumes to the USSR, both sides proceed from the fact that a number of Indian goods whose deliveries have acquired a traditional character are important for the USSR economy and that they will continue to be delivered to the USSR, consistent with the requirements and possibilities of the two sides.

Alongside this, considering the potential of the Indian economy in production of industrial and agricultural goods including labour-intensive goods, a strong basis exists for the expansion of exports to the USSR of certain types of commodities, finished and semi-finished products, including many consumer goods and metal products.

Concrete range of these products and volumes will be determined in the course of negotiations of the new Trade Agreement.

Section 6. COOPERATION IN THE FIELD OF SCIENCE AND TECHNOLOGY

6.1. *Guiding principles and forms of cooperation*

Considering the satisfactory results of cooperation in the field of science and technology within the framework of Agreements between the Government of the USSR and the Government of India on cooperation in the field of applied science and technology of October 2, 1972, and on scientific and technical cooperation in the field of agriculture of June 18, 1971, the Agreement of February 18, 1975, between the Academy of Sciences of the USSR and the Department of Science and Technology, Government of India, the Agreement of April 22, 1975, between the USSR Academy of Sciences and the Indian Space Research Organisation, the Protocol of May 14, 1970, between the Hydrometeorological Services of the USSR and the Department of Atomic Energy, Government of India,¹ the Agreement of November 20, 1975, between the USSR Academy of Sciences and the Indian Space Research Organisation on a joint programme of space research by means of observation of artificial earth satellites and space objects, both sides deem it necessary to further develop this cooperation with the aim of more effectively utilising the scientific and technical potential of the two countries in order to solve vital scientific and technical problems of mutual interest on a long-term basis.

¹ United Nations, *Treaty Series*, vol. 778, p. 213.

Both sides have agreed to develop and strengthen cooperation within the framework of the above agreements on a mutually beneficial basis, using such forms of cooperation as exchange of information and documentation, exchange of delegations of scientists and specialists, joint research and development, sharing of results of joint work, exchange of scientific equipment and know-how, training of scientific and technical personnel, organisation of conferences and seminars and so on.

On the basis of this Programme, the delegations of scientists will work out detailed, concrete plans of cooperation of specified duration in selected fields, indicating organisations of the two sides for their implementation.

6.2. *Areas of cooperation*

Both sides will develop cooperation in the following areas:

6.2.1. Energy and energy resources

- Choice of optimal energy strategies and methods and appraisals of interconnections between the energy development and national economy; research and development of alternative energy systems; study of ways and means of using renewable sources of energy (wind, geothermal, solar, tidal, bio-mass); economical methods of using fossils fuels; new methods of obtaining energy including M.H.D. generators, hydrogen energy system; energy storage systems; problems of energy transmission including microwave and ultra-high frequency and ultra-high voltage transmission; investigation on super-conductivity; high dam design and construction; hydroturbine development; high voltage and high temperature materials.

6.2.2. Natural resources and environment

- Research and development on the optimal ways of using regional water resources including forecasting for industry and agriculture; study of inter- and intra-basin transfer of rivers and their ecological and economic implications; problems of improving saline soil; comprehensive utilisation and protection of forest resources; intensification of protective and re-creation functions of water reservoirs.

6.2.3. Meteorology

- Climate dynamics; numerical weather prediction; instrumentation for weather forecasting including radar techniques; use of remote sensing and satellite techniques for cyclone prediction; physics and chemistry of the atmosphere.

6.2.4. Agriculture

6.2.5. Human settlements

- Urban and rural populated area planning and construction; developing scientific foundations for urban development; rational methods of designing engineering facilities in cities and other populated areas; study of architectural-planning solutions for residential complexes for building in different natural conditions; study of various building materials and their production techniques; construction of residential and industrial buildings in different natural conditions, including exchange between the USSR and India of operating building norms, rules and standards; design and technology of construction for high seismic conditions.

6.2.6. Public health and medicine

- Ambulance service; cardiology and cardio-vascular systems; traumatology; yoga therapy; indigenous systems of medicine; infectious and tropical diseases; nutrition, immunology and virology; ophthalmology; adaptation and development of instrumentation for de-centralised health service; development of new drugs using plant derivatives; methodology for early diagnosis of carcinogenesis and its treatment; orthopedics and development of artificial organs, septic surgery.

6.2.7. Ferrous and non-ferrous metallurgy

- Electro-slag refining; welding technology; powder metallurgy; metal working and forming processes; non-ferrous metallurgy including rare metals; high temperature refractories; development of special and super alloys.

6.2.8. Corrosion prevention

- Testing metals, alloys and coatings for corrosion resistance.

6.2.9. Tropicalisation

- Joint design and development of machine tools and other equipment for functioning in tropical climates in particular employing electro-physical methods.

6.2.10. Industrial design

6.2.11. Electronics, computer science and technology

- Semiconductors; joint development of computer software; computer networks (both close-coupled and distributed); operating systems to provide a sophisticated computing environment; natural language understanding systems; picture processing and speech recognition.

6.2.12. Communications

- Fibre optics; use of lasers for communications; millimeter wave astronomy.

6.2.13. Light industry

6.2.14. Standardisation and metrology

- Coordination of standards in the field of rolled steel products, ferro alloys and refractories; quality certification; training of specialists; information systems; measurement, reproduction and transfer of units of measurements at radio frequencies; electrical circuit processes and parameters; reproduction and transmission of time and frequency measurements; joint laboratory studies on tropicalisation; environmental testing and reliability of electric and electronic components and materials; standard reference data on physical constants and properties of substances; other related topics.

6.2.15. Patent information

- Forming a bank of patents and arranging patent information, the exchange of publications on legal, patent and licence issues; cooperation in expert evaluation of inventions; assistance to the cooperating organisations in solving problems concerning industrial property (formulizing joint inventions produced by the cooperating organisations and the use thereof); training of

personnel in the field of inventions and patents and the improvement of their qualifications.

6.2.16. Cooperation in the field of scientific and technical information system

6.2.17. Fundamental sciences

— Geomagnetic and geoelectrical micropulsations; deep seismic sounding; geothermal studies; radiation and evolution history of the moon and other, extra-terrestrial materials, nuclear processes and their application to astrophysical and geophysical problems; plasma physics (astro-physical aspects); mechanism of crystal growth; low temperature physics; chemistry and use of natural products; physico-chemical study of peptides and macro-molecules of biological importance; genetics and selection of cultivated plants; study in the field of taphonomy; statistics and theory of probability; radio astronomy (radiointerferometry on superlong base line); neutrino astronomy; microbiological transformations and biochemical engineering; study of paramagnetic complexes, inorganic materials and minerals by magnetic resonance spectroscopic methods.

6.2.18. Space research

— Study of the upper atmospheric layers by means of rocket probing; investigations in the field of gamma astronomy; investigations on the basis of observation of artificial earth satellites; cooperation in the field of artificial earth satellites and their launch.

Section 7. COOPERATION IN THE FIELD OF PLANNING

Both sides note with satisfaction that the signing of the Agreement on cooperation between the State Planning Committee of the Union of Soviet Socialist Republics and the Planning Commission of the Republic of India on November 29, 1973, and consequent establishment of the Soviet-Indian Study Group on planning within the framework of the Intergovernmental Soviet-Indian Commission on economic, scientific and technical cooperation has provided favourable conditions for the exchange of experience and knowledge on economic forecasting, annual, medium and perspective planning methodologies, project and programme formulations, monitoring and information for planned programmes and projects as well as other problems connected with planning.

In the meetings already held by the Soviet-Indian Study Group on planning both sides recognised their importance and the benefit for them from such meetings.

Both sides will promote further cooperation by exchange of knowledge and experience in areas of mathematical methods of planning short-term, medium-term and long-term models of forecasting, material balance techniques, linkage of industry models with macro-models and formulation, selection, monitoring and appraisal of projects and programmes, and through the exchange of published reports and material and of specialists for training and research in the field of planning.

Both sides express their strong conviction that the intensification of the above-mentioned cooperation in the field of planning will make a major contribution to the economic, scientific and technical progress of both countries.

Both sides have agreed that in regard to mutual requirements and possibilities their concerned organisations will further specify and carry out cooperation as stipulated in the Programme. For this purpose, intergovernmental agreements as well as agreements and contracts between Soviet organisations and Indian organisations and firms will be concluded.

Both sides have agreed that the arrangements of cooperation on the basis of the present Programme and supervision of the execution of arrangements stipulated by the Programme shall be effected by the Intergovernmental Soviet-Indian Commission on economic, scientific and technical cooperation which shall regularly examine the said matters and make recommendations, when necessary, directed towards the successful implementation of the Programme.

The two sides may by mutual consent supplement further the present Programme on the basis of new requirements and possibilities.

The present Programme shall come into force from the date of its signature.

DONE in New Delhi on March 14, 1979, in two original copies, each in Russian, Hindi and English, all texts being equally authentic, the English text being the operative one.

[Signed]

A. N. KOSYGIN

For the Government of the Union
of Soviet Socialist Republics

[Signed]

MORARJI DESAI

For the Government
of the Republic of India