

Edited by V.B. SINGH

# INDO SOVIET RELATIONS 1947-77

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# **INDO-SOVIET RELATIONS**

## **1947-77**

*Edited by*  
**V.B. Singh**



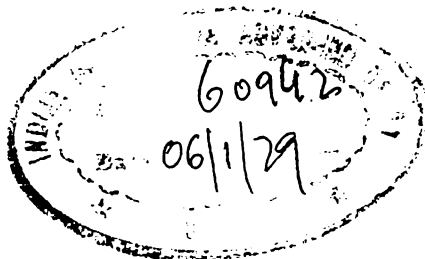
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## PREFACE

In a nation's march of history, a period of 30 years is just a fraction of time. But in the context of building a newly liberated country the same time is a useful reference period for the evaluation of her problems.

It is in this context that the Indo-Soviet relations in respects of diplomacy, culture, science and technology, economics, and defence are reviewed in this book.

It is hoped that this work, meant for the general readers, will be found useful and will further strengthen the Indo-Soviet amity, which has become a critical factor in world peace, and promote social and economic development, specially on this sub-continent.

*Editor*

3 September, 1977

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## ABOUT THE CONTRIBUTORS

1. Mr. D.P. Singh, Bar-at-Law, Senior Advocate Supreme Court, M.P. has been incharge of Foreign Relations Department of the All India Congress Committee, a delegate to the United Nations and a parliamentary expert on International Affairs.
2. Prof. B.S. Upadhyaya is a renowned Indologist, Historian and author of several books. He has been abroad many times on lecture tours.
3. Prof. A. Rahman, Scientist-in-charge, Science Policy Division of the Council of Scientific and Industrial Research, author of books and scientific papers on Science and Technology. He has attended and organised many seminars in his area in India and abroad.
4. Dr. M.A. Qureshi works in the same Division and has several scientific papers to his credit.
5. Dr. Girish Misra of K.M. College, Delhi University, is an eminent economist.

## Diplomatic Relations

*D.P. Singh*

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Several strands have gone into the ties of friendship that have come to mark the current state of the relations between India and the Soviet Union.

### I. Ancient Bond

Forbears of the ancient Vedic Hindus probably came from areas now in the Soviet Union. In later periods of history too, there have been contacts and links, and the mutual contributions to man's progress in these parts. Vestiges of these links and contacts can be seen even now in the Asian Republics of the Soviet Union and in some of the ancient literature of India.

While the mighty Himalayas acted as a major barrier to physical contacts of the peoples, the occasional traveller kept up the links, and interest in India was prevalent in the Imperial Russia of the 18th century, even when its face was decidedly turned towards Europe and the ruling circles looked for inspiration to that side. While some knowledge of India went to Russia of those days through other European travellers, there were also some notable Russian travellers and Indologists whose writings show how the Russians of those days looked at India differently from other Europeans. Mention may be made here of Afanasi Nikitin (who visited India before Vasco da Gama), F.S. Yefremov in the 18th century and G. S. Lebedev who followed Yefremov and lived in Bengal for eight years. Studies of Oriental Languages (Moscow 1851) and Sanskrit (Leningrad 1955) were the further stages of organised studies in Indology.

In the late nineteenth century and the early years of the twentieth century, even as the Russian peoples were struggling against the Tsarist tyranny, there was continued interest in India and



awareness of the evils of the British colonial rule.

Also, while in the nineteenth century, and certainly during and immediately after the 1857 struggle, the Sepoy Mutiny as the British called it, was looked upon by the ruling Tsars as no more than a welcome blow against the British, there were thinkers in Russia and some of the early revolutionaries who looked upon the episode as part of a historical process and necessity. N.A. Dobrolyubov in his *A Glance at History and Present Conditions in East India* (1857), for instance, mentioned that British rulers of those days always evoked the danger of a Russian invasion of India and kept it as a bogey—this despite the fact that such an invasion and occupation across the Himalayas presented so many logistical and other obstacles as to make it absurd. The British used this to prevent any coming together of Indians and Russians. Some Russians, like I. P. Minaev for instance, saw one thread running through British policy of those days whether it be in Khartoum, Armenia or Sofia, “everywhere you can see British interest born out of Britain’s sway over India and the consequent feat of losing that away”, (On the Study of India in Russian Universities)<sup>1</sup>. Minaev himself had visited India three times (between 1874 and 1886) and attended the first session of the Indian National Congress held in Bombay in 1885 and was personally acquainted with leaders like W.C. Banerjee and K.C. Telang.

For its part India and Indians, looked at and learnt about Russia through British and somewhat rarely, through other European sources, and the occasional contacts such as through travellers like Minaev or A.E. Snesev. However, figures like Leo Tolstoy attracted early attention. Tolstoy undoubtedly influenced Mahatma Gandhi, who was in correspondence with him, even in his early days in South Africa when he evolved the Satyagraha technique. Gorky had been in correspondence with Shyamji Krishna Varma and Madam Cama.

## II. Soviet Revolution

The 1917 Revolution in Russia that overthrew the Tsars and ultimately resulted in the establishment of the Soviet Socialist Republics had a great impact on India. By then the Indian

1. E.N. Komarov, *Indo-Soviet Cooperation: Historical Background and Present Day Developments*, Bombay, 1976, p. 100.

national movement had grown, though it was yet to take the decisive turn under Gandhi that led ultimately to the freedom of India. Even the events preceding the Revolution had been followed with interest in India. The events of 1905-07 and the October 1905 general strike had attracted Gandhi's attention and he wrote: "The Russian workers and all other working people declared a General Strike and stopped all work. They left their jobs and informed the Tsar that unless justice was done they would not resume work...There is much similarity between the governance of India and that of Russia. The power of the Viceroy is in no way less than that of the Tsar...We too can resort to the Russian remedy against tyranny...Our shackles will break this very day if the people of India became united and patient, love their country, and think of the well-being of the motherland disregarding their self-interest. The governance of India is possible only because there exist people who serve (the British rulers). We also can show the same strength as the Russian people have done"<sup>1</sup>. Tilak and Cama were among the other national leaders of that period who commended the Russian example.

The Russian Revolution of 1917 undoubtedly shook the world and had its impact on India. The news of the Revolution and its manifesto reached India despite British efforts to control it and insulate India. The overthrow of Tsarist tyranny was hailed widely including in the Indian nationalist Press; there was also some reservations about the revolutionary violence of the Bolsheviks by no less a personality than Mahatma Gandhi, the apostle of non-violence. However, from Rabindranath Tagore in Bengal to Bharati in Tamilnadu there was sympathy and support for the revolution and the liberation of the workers and the peasantry.

Bharati commended Lenin's principle of distribution of wealth "between the people of the world on the basis of equality." Jawaharlal Nehru, the first Prime Minister of Independent India, wrote in 1919 about the Russian Revolution and called for a dispassionate study of the ideals underlying that revolution.

For their part, Lenin and other leaders were looking at the

1. *Collected Works of Mahatma Gandhi*, Vol. V, New Delhi, p 413.

events in India and the growing struggle in the historical context as the beginning of the inevitable struggle of the colonial peoples to free themselves. Lenin in 1921 spoke of the historical role of India in this matter.

Indian opinion was somewhat mixed too as already pointed out. In 1920 Gandhi himself wrote about the futility of trying to crush Bolshevism by arms and flatly repudiated British contentions about Soviet aggressive designs on India. "I have never believed in the Bolshevik menace", he wrote in May 1921 (*Young India*). However, Gandhi, an exponent of non-violence, was critical of the Soviets for the espousal of "violent means". But Tilak and Lala Lajpat Rai had commended the unity of the working classes of the world that the Soviet Revolution signified. Jawaharlal Nehru, after his participation in the Brussels Anti-Imperialist Conference, and visit to the Soviet Union (1927), came back as an enthusiastic, though not uncritical admirer of the Soviet Union. He influenced Gandhi's subsequent thinking too. In 1928 Gandhi, referring to Bolshevism said "the Bolshevik ideal has behind it the purest sacrifice of countless men and women who have given up their all for its sake, and an ideal sanctified by the sacrifice of such master spirits as Lenin cannot go in vain; the noble example of their renunciation will be emblazoned forever and quicken and purify the ideal as time passes."<sup>1</sup>

In 1930 Tagore after his visit to the Soviet Union, wrote: "In Russia at last! Whichever way I look, I am filled with wonder. It is unlike any other country. It is radically different; from top to bottom they are rousing everybody up without distinction. What has pleased me most here is the complete disappearance of the vulgar conceit of wealth. For this reason alone the self-respect of the people has been restored; peasants and workers have all shaken off the load of disrespect and raised their head. How wonderfully easy have become man's relations with his fellows. The dumb have found their voice, the ignorant have cast the veil from their minds, the helpless have become conscious of their own power and those who were in the depths of degradation have come out of society's black hole to claim

1. Prasad, Bimal, *Indo-Soviet Relations. A Documented Study*, Bombay, 1973, p. 39.

equality with everybody else. This is Soviet Russia's achievement in less than eight years time."<sup>1</sup>

The course of the Second World War proved more complex. Undoubtedly, India's sympathy lay with the victims of Hitler. And when Hitler's forces invaded the Soviet Union, there was awareness that the future of the world lay in balance. However, at the same time nationalist India felt that it could do nothing without freedom, and the struggle against British Imperialism went on in India.

### III. India Attains Freedom

The attainment of freedom by India in 1947 ushered in a new chapter and the beginnings of the relationship between the two states and later on the even wider relationship between the two peoples.

Even before India became formally free, on assuming office in the Interim Government in 1946, Jawaharlal Nehru sent his greetings in his very first broadcast. Nehru said: "To that other great nation of the modern world the Soviet Union, which also carries a vast responsibility for shaping world events, we send our greetings. They are our neighbours in Asia and inevitably we shall have to undertake many common tasks and have much to do with each other."<sup>2</sup>

After conversations in New York between the Soviet Foreign Minister, V. M. Molotov and V.K. Krishna Menon and K.P.S. Menon, Indian delegates to the UN General Assembly, India and the USSR agreed to establish diplomatic relations, the actual agreement being reached in April 1947. India sent its Ambassador, Mrs Vijay Lakshmi Pandit to Moscow just on the eve of her Independence.

The decision to establish diplomatic relations was widely welcomed in India and as *The Hindustan Times* put it, "one of the most fruitful consequences of the establishment of an Indian Embassy in Moscow and a Russian Embassy in Delhi should be the exchange of *accurate information* between the two countries." (emphasis added) (*The Hindustan Times*, New Delhi, 15

1. *ibid*, p. 43.
2. Nehru J. *India's Foreign Policy, Selected Speeches, September, 1946-April 1961*, Publications Division, Delhi, 1961, p. 3.

April, 1947). It also expressed the hope that the exchange of Embassies would result in early arrangements "for the training of Indian scientists in Russia and the engagement for short periods of Soviet technicians to advise the Provincial and Central Governments in this country regarding the applicability of Russian experience to Indian economic problems."<sup>1</sup>

The ties between the two countries took on a new stand. In the 18th and 19th centuries, Moscow's face was essentially turned towards London and Paris. In the early 20th century, and immediately after the Revolution, India was being looked at and studied with interest as part of the Marxian dialectical process of the inevitable end of Imperialism as the last phase of Capitalism. The early revolutionary years after Lenin, when the Soviet State turned inwards in an effort at consolidation, the distractions of the Second World War and its aftermath, all of which contributed to misunderstandings about events in India, was now giving place to a new phase. The Soviet Union was an Asian power too. With the independence of India and the beginning of the decolonisation process in Asia, and later on in Africa, a new phase of relations began.

At first, the relations between India and the Soviet Union were as Nation States who saw a common approach and common interest in the struggle against imperialism and in the fight for preservation of peace. For the Soviet Union, that had just undergone the experience of the Second World War, peace was vital, for reconstruction. For India, that had just emerged into political independence and was starting the long struggle to give an economic content to it. Peace was also a vital necessity. And Jawaharlal Nehru clearly saw war as inevitably leading to destruction of not only the victor and vanquished but even the mere spectators.

This common awareness gave rise to the beginnings of the co-operation between the two countries. The cooperation was in the beginning essentially political and diplomatic, and mainly in the corridors and chambers of the United Nations, the scene of post-war multilateral diplomacy (commercial links which began with a \$3 million trade soon dropped to less than one million in 1952-53).

1. Quoted by Jagdish Vibhakar in his *A Model Relationship*, New Delhi, 1972, p. 8.

Even before Independence, India had used the UN forum to begin the fight against racialism and apartheid in South Africa, and got ready support from the Soviet Union. The Korean war (1950-53) saw India playing a major role in efforts to dampen the fires of war from being lighted again and bring that conflict to an end. Meanwhile Dr S. Radhakrishnan, India's philosopher-statesman had become India's envoy to the USSR. His meeting with Stalin on March 5, 1952, was a high point. Speaking about his discussions, which were wide-ranging and as much philosophical as dialectic, Radhakrishnan said then: "there is no outstanding problem now dividing the world which cannot be settled by discussions and negotiations" and that Stalin "showed the friendliest interest in our progress and I may say that never...was there the slightest suggestion, implicit or explicit, that we should line up with the Soviet Union."<sup>1</sup>

#### IV. Non-Alignment

During this period, India had adopted a neutralist stance. The Western powers, after the initial retreat from colonial territories in Asia, were involved in their Cold War against socialist countries. Efforts were being made to rope in their former colonial territories and others in Asia and Middle East to form a ring around the Soviet Union. The various pacts were being planned and brought into being linking NATO, with the rest of the world, through the metropolitan powers.

India, under Jawaharlal Nehru, set its face against this retrograde step, and came out openly against attempts of the United States and the European powers to dominate Asia. The Soviet Union supported this attitude of India.

Meanwhile the first Indo-China war was raging in Asia. The Korean war had ended in an armistice and the preliminary discussions about it in Geneva yielded little but ushered in talks on the Indo-China war. India played a crucial role in these talks that resulted in the Indo-China agreements for withdrawal of French power from the area. The Soviet Union proposed India's name for the Chairmanship of the Neutral Nations Commissions to supervise the cease-fire, and ultimately India was chosen the Chairman.

1. *ibid*, p. 12.

The growing nature of the relationship was signified by India finding a place in the slogans or calls issued by the Central Committee of the Communist Party of the Soviet Union marking the 37th anniversary of the October Revolution (in 1954). The CPSU called for the development and further strengthening of the "friendship and cooperation" between the peoples of India and the USSR "for the protection of peace throughout the world."

The visit of Jawaharlal Nehru to the Soviet Union in 1955 marked the beginning of a new high in the relations between the two countries. The diplomatic and political relations at state level were consolidated during this visit by the opening of a people-to-people relationship.

The Soviets had even earlier expressed their support for the principles of peaceful co-existence evolved at Bandung at the initiative of India, among others. The principle found its formal approval in the Joint Indo-Soviet Statement in which it was stated that each "country following a system, which is moulded by its own genius, traditions and environment, should be no bar to such cooperation. Indeed, the essence of true co-existence, in which both Prime Ministers have profound faith, is that states of different social structures can exist side by side in peace and concord and work for common good". The two countries also resolved that the relations between them would continue to be guided and informed by the Five Principles of Peaceful Co-existence.

The return visit of Soviet leaders, in November 1955, and the tumultuous welcome given to them all over the country further cemented the bonds of friendship.

Already by this time, India and the Soviet Union had begun economic and trade relations and the statements of Soviet leaders about continued Indo-Soviet cooperation in these fields, and their pronouncements on Kashmir and Goa were received with great satisfaction and hope by the public of India.

Later visits of other Indian leaders, including Presidents Rajendra Prasad, Radhakrishnan, Zakir Husain and V.V. Giri, Prime Ministers Jawaharlal Nehru, Lal Bahadur Shastri and Indira Gandhi, and Soviet Presidents and Prime Ministers and the 1973 visits of Leonid Brezhnev as First Secretary of the CPSU have all helped in further strengthening the relationships at all levels of the two countries.

## V. Kashmir

The general bonds of friendship between the two peoples, have been strengthened from time to time by State actions of the two countries in support of each other, and for wider causes like decolonisation and the fight against imperialism, racialism and apartheid and for preserving peace.

India and the Soviet Union have also largely cooperated in International forums in the field of disarmament. From the beginning India understood and appreciated the Soviet experience of the horrors of the Second World War and thus looked with sympathetic understanding Soviet desires and moves for ending the vestiges of the war in Europe and a more permanent peace.

The Soviet Union too has supported India against the machinations of outside Imperialist powers in matters of vital interest to India.

On Kashmir, when India first took the case to the United Nations, for a while, the Soviet attitude could best be described as neutral but non-cooperative to the Anglo-American efforts to pressurise India on the issue. But from the latter part of 1951, the Soviets began taking a more active interest in the problem. In a Security Council speech in January 1952, the Soviet delegate strongly criticised the USA and the UK for their interference in Kashmir and held them largely responsible for the United Nation's failure on the Kashmir problem. The Soviet delegate also suggested that the people of Kashmir should be enabled to decide their own future destiny through a Constituent Assembly, unhindered by outside interference. The Soviet position, on the first report of Dr Graham, made in the Council in January 1952 was reinforced even more strongly in the Soviet speech in December 1952 when the second report of Graham was placed before the Council with an Anglo-American resolution for the introduction of the UN troops. The Soviet delegate opposed this move and made it clear that he could not support the move and the resolution.

The Soviet positions of January and December 1952, it may be noted, was during the period when Stalin was at the helm of affairs. This goes to show the true historical nature of the Soviet stand and their interest in support of India's policies to keep outside elements out of the area.

The Soviet position on Kashmir was made even more explicit



when Soviet leaders visited India in November 1955. By then the intentions of Anglo-American powers in the subcontinent had become even more clear. The USA had come out in April 1954 openly with a military aid agreement for Pakistan and soon after the CENTO and SEATO Pacts had been unveiled. These were purportedly aimed against the Soviet Union. But Nehru clearly saw too the threat to India, and the attempts of imperialism to stage a comeback into Asia through these pacts.

It was against this background that the Soviets came out openly recognising Kashmir as an integral part of India. In February 1957 when the UK and the USA came up with proposals in the Security Council for induction of a UN force into Jammu and Kashmir, the Soviets opposed it and vetoed the resolution. This electrified Indian public opinion, but was the logical culmination of the stand taken by the Soviets five years earlier when they had strongly criticised Dr Graham for having proposed such a step (without the authority of the Council and contrary to the UN charter) in his communications to the two governments of India and Pakistan. When the Anglo-Americans again came up with similar proposals and sought to renew the Graham mission in November 1957, the Soviet Union reiterated its position and made it clear that she would veto the Western resolution as before.

Again in 1961, about Goa, protracted attempts to negotiate with Portugal had yielded no results. Portugal, in fact, said there was nothing to negotiate. India moved to liberate Goa and other remnants of Portuguese colonialism. Britain and the US again tried to intervene through the Security Council, but the Soviet Union vetoed the Western moves and gave full political and diplomatic support to India in her efforts to complete its decolonisation.

At the time of Indian operation in Goa, Leonid Brezhnev came to India on an official visit as Chairman of the Presidium of the USSR Supreme Soviet. Affirming the Soviet support to India's action, he declared, "The Indian people have got now the opportunity to see clearly who are their real friends and supporters of national liberation of the peoples, and who are the peoples who merely camouflage their intentions with talk about friendship and, renouncing colonialism in words, are trying in fact to hamper, by all means, the liquidation of the last bases of their system of plunder."<sup>1</sup>

1. Vibhakar, *J. op. cit*, p. 4.

The Soviet Prime Minister in a telegram to Nehru, conveying his cordial and sincere congratulations on the liberation of Goa and its reunification with India said the Indian Government's step was a great contribution to the cause of the noble struggle of the peoples for complete and immediate abolition of the disgraceful system of colonialism."

## **VI. Treaty of Peace and Friendship**

It was in the context of events in East Pakistan, in 1971 that India and the Soviet Union signed the Treaty of Peace, Friendship and Cooperation (see Annex I). The Treaty was in a sense merely the formalisation of the state of relations between the two countries; relations that had gradually grown over the years and had ripened into one based on maturity and understanding and perception of mutual interests.

The Treaty, affirming peace and friendship between the two countries and their peoples, specifically affirmed Soviet respect to India's policy of non-alignment and recognised that this policy constituted an important factor in the maintenance of universal peace and international security and in the lessening of tensions in the world. India, on its part, recognised the peace loving policy of the Soviet Union.

The Treaty pledged regular contacts and exchange of views for achieving mutual aims of universal peace and security, consolidating and expanding mutually advantageous economic relations, and further promotion and development of ties in the fields of science, technology, art etc.

In other important articles the two parties pledged themselves not to enter into any treaty or military alliance directed against the other party and prevent use of its territory for any actions likely to cause military damage on the other party. Third parties engaged in armed conflict with a party to the treaty would be denied assistance by the other and "in the event of either party being subjected to an attack or a threat thereof, the high contracting parties shall immediately enter into mutual consultations in order to remove such threat and to take appropriate effective measures to ensure peace and security of their countries."

The importance and relevance of this Treaty was soon demonstrated in the Bangladesh crisis that culminated in the war of

December 1971. Peking made threatening noises but was quite chary of supporting Pakistan militarily against India. The United States at the last moment resorted to gunboat diplomacy by sending the US Seventh Fleet. All these manoeuvres failed to help the military regime in Islamabad to keep its hold over the Bengalees who with the help of the Indian army liberated themselves. The Soviet Union also stood once again steadfastly by the side of India in the United Nations in vetoing the US sponsored resolutions in the Security Council aimed against India.

After citing for their positive effect various other Soviet steps including measures to help India meet the energy crisis in the wake of the world oil crisis, help in coal mining, refractory bricks plants etc. Remnek says "Moscow is also concerned with upgrading the performance of their economic collaboration with India. The fifteen year pact on trade and economic cooperation (reached during the Brezhnev visit) calls for improvement in the terms of credit and methods of account, which mean longer grace and repayment periods on credits."<sup>1</sup>

One of the frequent criticisms of Indo-Soviet relations in the economic field has been that Soviet assistance has not been really towards promotion of Indian self-reliance and that India's capacity for development on her own has not been helped. Again one has to quote US critics for grudging acceptance of just the opposite. "It should be added herein that such charges were not entirely accurate... Thus they (Soviets) have helped to set up a number of state sector engineering consultancy units for designing oil refineries, pipelines and petro-chemical plants in addition to handing the main part of the technical design work for Bhilai's sixth blast furnace over to Indian designers. Their intent may be not so much to check the growth of India's indigenous designing capabilities as to promote its development without the state sector."<sup>2</sup>

Again Remnek says, in reviewing the outcome of the Brezhnev visit: "A final area of emphasis in the recent economic agreements is the effort to provide India with an independent research and design capacity within the state sector—long considered by Soviet observers to be a weakness in India's economic development. While they they have thus far concentrated their attention on the

1. *ibid*, p. 300.

2. *ibid*, p. 59, 169.

engineering and design facility of the heavy industrial complex at Ranchi, the Soviets apparently have some hope of significantly limiting India's overall technological dependence on the industrialised capitalist states in the future".<sup>1</sup>

On 19 August 1972, the then (and present) Defence Minister Mr Jagjivan Ram said, "India had been able to liberate Bangla Desh and its people partly because of the confidence that had been generated after the signing of the Indo-Soviet Treaty" (*Indian Express*, New Delhi, 20 August, 1972).

#### VII. Thirty Years After

Thirty years after there has been a change in the composition of the Government of India as a result of 1977 parliamentary general elections. The pronouncements and agreements signed by Gromyko, the Soviet leader, and the Indian Prime Minister Morarji Desai and External Affairs Minister, Atal Behari Vajpayee can leave no shadow of doubt that Indo-Soviet friendship is not because of an individual, or of a party, but it is in the vital interest of the two countries. Summing up the outcome of Gromyko's visit to India in April 1977, the *Times of India* (New Delhi) in its editorial of 28 April wrote :

"Mr Gromyko's three-days visit to New Delhi appears to have been a greater success than one had the right to expect in the circumstances. It has apparently helped not only to avoid a possible souring of relation between the two countries but also to strengthen them. If this is indeed so, both sides can legitimately be proud of the achievement..."

1. *ibid.*, p. 301.

## 2

### **Cultural Relations**

*R.S. Upadhyaya*

---

The Indo-Soviet relations officially began after a successful termination of the struggle for freedom in India in 1947. But the cultural relations between India and Russia date from very early times when most peoples in the West were wandering painted savages in the woods. Indeed the consensus of scholars reasons out the original habitat of the Indo-European peoples to have existed in Southern Russia. If that conclusion is accepted—indeed there is no serious opposition to it beyond cheap chauvinistic sentimentalism—the Indo-Russian cultural relations will have to be traced back to about the beginning of the 4th millennium before Christ, some forty centuries ago.

#### **2,000 B.C.**

Around 2,000 B.C. a sturdy people, who called themselves Aryans, branched off from their main trunk in Southern Russia and made for the East. Simultaneously, it is surmised, a branch also reached out to the West and moved along the Danube first inhabiting Anatolia, then Greece and the islands in the Aegian Sea, and again Italy and the lands lying to the north of it. The Aechean and the Dorian Greeks trounced the Cretan civilization and destroyed its output of Troy on the Asian mainland. The Hittites and the Mitannis, direct descendants of the Russian Aryan immigrants, first fought around Kurdistan and the Armenian highlands and, when coming to terms, called Vedic deities to witness their treaty. The Hittites raided south right down to Egypt and the Kassites ruled the valleys of the Euphrates and the Tigris, and the Medes descending from Georgian and Azerbaijan rocklands, swept the Semitic civilization of Chaldees. That was the last wave breaking away from the Aryans from the

coast of the Caspian Sea.

The other branch drifting from the main knot was the Iranian of which the Indo-Aryans were an offshoot. Since the people of the Aryan stock moved out in waves after waves there may have been some reaching India directly after stumbling against those kindred ones who would not permit the newcomers to make a home by earlier settlements. Some obviously moved link to link, and, on leaving Russia, first settled down in the vicinity of the Caspian which locality they named after them, *Airyān vaijo*, a term, however, indicating an expensive habitat reaching as far as the Oxus in Bactria (Farghana, Badakhshan), a spring-board from where most of the tribes conquering India sprang to the Hindu-kush ultimately emerging on the course of the Indus.

There is ample evidence to show that the route thus taken was never completely abandoned and that caravans kept operating over it during all the centuries leading to historical times. We know that Persia of the Dariuses linked southern Russia with northern India and Alexander planned his Indian expeditions from Samarkand and Bactria. The Sakas, several Slav tribes and the Cossacks (kas-sak) roamed the Russian Steppes before they entered India from the valley of the Oxus. The great Kushans, the first Turks of history, were masters both of parts of Russia and India and ruled over Central Asia and mid-India thus bringing the two ends into close contact. The Turks and Mongols crossed to India from lands now parts of the Soviets. Alberuni and Abdurrazzak Samarkandi entered India towards the close of the 1st millennium after Christ. And in course of time the line of the great Mughal rulers of India came to be founded by a fugitive from Farghana. So dear was the land of their origin to them that every prince of the line was sent out to try and conquer it.

### **Merchants and Scholars**

Astrakhan had a big colony of Indian merchants, the Sindhis, voyaging from the western coast and journeying across to the great town detouring occasionally to the land along the Volga. The merchants proved their loyalty to the land of their sojourn by contributing thirty thousand dollars to combat the invasion of Napoleon in 1812. Already a Tajik work on astrology, called, *Tajik*, had been written by Nilakantha in 1587, and a Jaipur ruler

had translated into Sanskrit, *Tajiki*, a noted Persian work on the same subject. The first 'white man' to enter India over the land, some fifty years before Vasco da Gama cast anchor at Calicut, was a Russian, Afanasi Nikitin celebrated for his record of life in Bijapur and Golkonda, called *Khozhdenle za tri moria* (a voyage through Three Seas). He stayed in India for about seven years from 1466 to 1472.

The first abiding cultural contact was effected by Gerasim Lebedev, the father of Russian Indology, who visited India for a dozen years from 1785 to 1797. He learnt Sanskrit, Tamil and Bengali. A severe master of the Muses, he adopted music and drama as the proper field for his creative talent. He considered India to be the very 'cradle of the human race'. What is important is that he was the first European who not only studied Bengali but wrote plays in that language and staged them in Calcutta with success. Exposed to the jealousy and wrath of the ruling British, his plays were suppressed.

From the middle of the nineteenth century and continuing across the current century to date, there are Russian names galore which attest to the deep interest men of that country took in Indian culture. They pass counting, but a few who distinguished themselves in the field of Indian cultural research were: Minaev, Pashimo, Petrov, Kossavich, Zhukovshy, Karamzin, Oldenburg, Stcherbatsky, and Kovaleusky. There were, besides, numerous artists who deepened the cultural contacts between India and Russia. They were Saltykov, Vereshchagin, Kazarin, Somokish and Gritsenko.

#### **Four Aspects**

There have been four phases of Indo-Russian and Indo-USSR cultural contacts. The first, mostly flourished between the 18th and 19th centuries when Sanskrit classics including the works of Kalidasa were translated into Russian and chairs for studying Sanskrit were established before the October Revolution. After the Revolution another phase, the second, struck its note. Already works of Dostoevsky and Tolstoy had been read in India through English renderings, and Tolstoy and Gandhi had corresponded on humanitarian principles, and the humane works of Tagore had been translated into Russian. After the Revolution

and before the achievement of Indian independence, Indian revolutionaries had visited Russia *via* Germany and made political contacts with Lenin, but after 1947, the year of the formation of the Indian Republic contacts through literary works were greatly increased. The works of Indian authors, outstanding among them Subrahmanya Bharati, Premchand, Yashpal, Mulkraj Anand and Krishan Chander, were translated into Russian and the life of the Indian people was brought home to the Soviet readers. The third phase was the exchange of delegations as much cultural as political. In June 1951 the poet Harindranath Chattopadhyaya, the younger brother of Mrs Sarojini Naidu, led a delegation of Indian artists. The same month saw another delegation, of Indian scientists, led by the famous surgeon of Bombay, Dr. A.V. Baliga, arrive in Moscow. They visited the places of culture and witnessed how life on the stage had progressed and prospered in the USSR, and how the common man had been brought out from the oblivion and increased to make history in the musical and dramatical arts, and how the Soviets had taken a long stride in the development and creation of new phases in artistic life. To many it was bewitching to find that the puppet-stage created by India and bequeathed to the world had taken a revolutionary role in the USSR.

### **FSU-ISCUS & Exchanges**

The Hitlerite attack on the USSR evoked the spontaneous sympathy of the Indian people, and leaders like Pandit Nehru and Smt. Sarojini Naidu formed the Friends of the Soviet Union (FSU) in 1941. The FSU promoted voluntary, educative friendship between the two peoples. Eleven years after its creative existence, it was better, after our Independence, to lay stress on cultural relations. Consequently, on March 14, 1952, an event took shape in New Delhi when Dr Baliga with the support of Dr Saifuddin Kitchlew, Major-General Sahib Singh Sokhey, Rameshwari Nehru, Aruna Asaf Ali and others, founded the celebrated Indo-Soviet Cultural Society (ISCUS). In the same month a Soviet Delegation of artists arrived in New Delhi under the leadership of A.I. Zamoshkin. An exhibition of the paintings of Soviet artists was held and Indian artists came in direct contact with the new trends



in the USSR and the former also gained a lot from contacts with their Indian counterparts.

Considerable work in the domain of popularising the Russian and Soviet life, letters and arts has been done in course of the quarter of a century following the foundation of the Indo-Soviet Cultural Society in 1952. It has today more than a thousand branches. A corresponding friendly organisation in the USSR is doing the same in that country in favour of Indian themes. Numerous feminine and youth organisations in the two countries are bringing their counterparts within the reach of each other. Months-of-Friendship treats were organized by the Indo-Soviet Cultural Society to celebrate important and historic occasions. Such a move found a ready response in the Soviet Union where the same were celebrated with equal jubilation. One such month-of-friendship occasioned the celebration of the anniversary of the Indo-Soviet Treaty of Peace, Friendship and Cooperation in 1972, which also marked that of the silver jubilee of Indian independence.

Then followed a series of such exchanges of visits of people of different pursuits and vocations. In course of 1952 and 1953 more than a dozen delegations visited the Soviet towns. Indian dancers and musicians entertained Soviet audiences with their classical performances and became exceedingly popular and were acclaimed excellent and glamorous as well as purposive in effect. Indian artists also exhibited their compositions in colour and line. The year following (1954) saw a spate of delegations passing to and fro carrying the best wishes and excellent treats to the friends on the other side. A delegation of Soviet scientists, under the leadership of academician G.F. Alexandrof, attended the Science Congress at Hyderabad where the all-India Session was held from January 2 to 7. The same delegation presented to Pandit Nehru the Russian translations of the Sanskrit epics, the Ramayana and the Mahabharat.

The most remarkable cultural event of the early months of the year 1954 was a visit to India of a great troupe of Soviet musicians and dancers comprising thirty-one delegates. The delegation was headed by the Soviet Deputy Minister for Culture, N. Besspalov. The world-famous ballerina, Maya Plisetskaya, formed one of the troupe and stole the heart of the Indian audiences. An extensive

tour was organised and the performances of the delegation were hailed everywhere with enthusiasm and unprecedented warmth.

### **Indian Films, Philosophy and Paintings**

Indian films were altogether a new experience in the Soviets. Nowhere in the world did they receive such ready response and applause as in the USSR. When Raj Kapoor's *Awara* was shown in the towns there came gatecrashing audiences to see it. Raj Kapoor became the idol of cinema-goers in the USSR. Sometimes one could hear the taxi-drivers murmuring the strains of its songs. It was screened in nineteen cities. So was Bimal Roy's *Do Bigha Zamin*, given a rousing reception. In Moscow alone more than a million citizens watched with wonder the screening of these films. Numerous Indian delegations of scientists, teachers, students, farmers and industrialists visited the USSR that year.

Dr S. Radhakrishnan's celebrated work, *Indian Philosophy*, was translated into Russian and published in 1956. In the early part of the year Moscow organized an art exhibition of paintings by Indian children. It was reciprocated by a competition of children's paintings organized by *Shankar's Weekly* in which several Soviet children participated and won eleven prizes. During the same year an Uzbek cultural delegation visited India and toured the country extensively.

Packed houses in the capital cities of India witnessed a Soviet circus in December. This had been preceded by another film festival held in Moscow of Indian films. The year also saw the visit of an Indian delegation of educationists who visited Moscow to learn and to teach. The visit following, in both the countries, was ever more glamorous than the one preceding. In 1957 the second film festival of Soviet films was held in Delhi, Calcutta and Bombay and left on the Indian mind an unforgettable appreciation. The first national conference of Orientalists, where contemporary problems of Indology were discussed among others, was held in Tashkent, in June, 1957. All-Union Conferences have now attained greater importance, since Indological research work is being conducted in many of the Republics and cities of the Soviet Union.

### **Cultural Agreements**

There has been a continuous reciprocal flow of delegations which have brought the peoples of the two countries together and

has created an unbreakable bond between them. These advantages were positively enhanced by a series of successive agreements, cultural and others, signed by the Government of India and the USSR. The first such was the Indo-Soviet Cultural Agreement signed in 1960. This was organized on an annual basis of programme-exchanges of scientists, students, writers and artists. Under this Agreement a great number of Indian scientists visited Soviet centres of higher research. Besides a large number of Indian students enrolled in the technical institutions of the USSR so that they could learn the know-how of their respective sciences and on return home could run with their technical knowledge the industries set up in their land.

The Soviet children are drawn to the Ramayana ballet as iron to magnet. This is a supreme attraction for them presented without flaw. One wonders at the excellence of the Soviet artists who have entered the very heart of the sentiments cultivated in the epic. Its first adaptation was presented by the Children's Theatre of Moscow in 1961. The adaptation had been accomplished by Natalia Guseva. Children and adults are struck by the renunciation of the throne by Rama and more by the nobility of qualities of the eternal woman Sita.

In 1962, July, the session of the Congress of Peace and Disarmament was held in Moscow. The present writer was one of the members of the Indian delegation. It was dubbed 'political' by the Western politicians, but a great number of writers and artists attended it and they far outnumbered the politicians. The Indian delegation included among others, scientists and writers like D.D. Kosambi, Mulkraj Anand, R.K. Karanjia, Shivdan Singh Chauhan, P.N. Saprú, Dr Tara Chand and others. I had to visit Moscow again as an Editor of the *Hindi Encyclopaedia* and met the Director and a few of the Editors of the *Great Soviet Encyclopaedia* and was told that there were two thousand editors working on the panel of that stupendous undertaking.

#### **Research Institutes and Agreements**

From 1970 onwards agreements were signed by India and the USSR almost year by year by which the two countries brought their classicism and dynamism together and launched schemes of mutual assistance in the field of education, researches, arts and letters. A great beginning in the direction had already been made in 1965 by

signing on October 17 an agreement for the establishment of an Institute of Russian Studies at the University of Delhi. Long before, a learned body called the Institute of Oriental Studies had been formed in Moscow under the auspices of the USSR Academy of Sciences whose Director happened to be now late Bobojan Gafurov, both an oriental and an orientalist. His repeated appearances in India in seminars and conferences have made his benign figure familiar to Indian scholars. Another such Oriental Institute is working at Tashkent, the capital of Uzbekistan which owns, besides an important collection of oriental manuscripts, a copy of the *Diwan* of Amir Khusro signed by the author. This Institute is headed by a woman orientalist.

The year of 1970 proved very momentous, for it saw the signing of an Indo-Soviet Cultural Agreement which set out for its programme of work for the year 1970-71 some five scores of cultural items. In the scheme of cultural and scientific exchange it was perhaps the most outstanding covenant ever signed by two countries. This was surpassed only by the great agreement signed, in the following year, which although mainly political, contained numerous items relating to the cultural and scientific sphere. It was the famous Treaty of Peace, Friendship and Cooperation of August 9, 1971 which put the mind of the Indian people at rest as regards fear of foreign aggression as it called on the parties to come to assistance of each other in the event of a military action against it. This was followed by agreements in 1972 envisaging scientific and cultural cooperation about which the Indian Minister of External Affairs remarked in April 1972 that, "they have tended to bring artists, poets, scholars as well as common people on both sides close to each other." There were three major agreements formed in that year, one on March 12, a second on May 12 and a third on October 2. The first of these detailed the incidents of scientific and cultural exchange by formulating an extensive programme of such exchanges running over years wherein institutions and learned bodies in the two countries were brought closer to each other by sending and receiving technical hands and lecturers. The educational institutions received visiting professors had their curricula recast so as to profit by such visits of men of talents. Regular exchanges were planned on a vast scale. The Agreement of May 10 put India on the map of the world by

helping her accomplish the know-how of reaching out into the outer spaces. It was the impetus given to India through this agreement that in course of time she was able to send her satellite into space. This agreement signed by M.B. Keldysh, President of the Soviet Academy of Sciences, and M.G.K. Menon, Head of the Indian Space Research Organization, was pregnant with great possibilities. It developed cooperation in 'the field of peaceful exploration of outer space.' Then on October 2 it was planned to execute a deeper understanding and cooperation in the secret scientific knowledge, the betrayal of which to a third party was imperatively forbidden. This was indeed a supreme sacrifice and an incident of bold courage on the part of the USSR unknown in the history of diplomatic relations between a great nuclear power and a developing country. This marked India out as the sixth power in the world engaged in the exploration of the outer space. Soon after a sample of moon-rock was provided by the Soviet Academy of Sciences to the Tata Institute of Fundamental Research for analysis and researches based on this capital acquisition.

### **Nehru Award**

The fourth aspect of the cultural exchanges was the holding of exhibitions, screening of films, commemorating events and personalities, striking stamps in such commemorations, celebrating occasions and instituting prize awards. We have already spoken of the film festivals held in India and the USSR which became extremely popular in the countries attracting packed-house audiences. The *Soviet Land* instituted a distinguished award in the memory of India's darling Pandit Jawaharlal Nehru, dearly loved also by the Soviet peoples, called the 'Soviet Land Nehru Awards'. This brought into the limelight and recognised with distinction publications in the field of literature and journalism relating to peace and friendship between the two countries. The patron of the scheme is the Prime Minister of India and is conducted by a body of eminent Indian and Soviet writers. The institution of the Soviet Land Nehru Award was reciprocated by India, which started in 1967 honours and awards to outstanding literary and artistic works devoted to Indo-Soviet relations.

### Celebrations

Festivals, centenaries and celebrations were held in both the countries relating to momentous events and dynamic personalities who have changed the shape of things. The celebrations of the 50th Anniversary of the Great October Revolution were held both in the USSR and India; and in Moscow was attended by the Indian Prime Minister. On the occasion of the first Kalidasa Week Celebrations at Ujjain, to which delegates came from all the world over, the news came as a n agreeable surprise that the USSR had not only celebrated the occasion a year earlier but had even struck a stamp in the honour of the great Indian celebrity. In March, 1968, the birth centenary of the great Soviet novelist Maxim Gorky, was celebrated in India with extraordinary enthusiasm by the writers of India and the Indian Government issued a stamp (on March 28) commemorating Gorky. This set the stage for a spate of such celebrations and release of commemorative stamps in both the countries.

In 1969 both India and the USSR celebrated the Ghalib Centenary. Ghalib's ancestors were Turks, hailing from Uzbekistan, and thus the great Urdu poet was a heritage for both the countries. The Indian celebrations were attended by a Soviet delegation. Next came the birth centenary of Gandhi on October 2 of the same year, which both India and the Soviets celebrated with resounding eclat. Seminars were held in both the countries in which competent scholars read papers bearing on the doctrine of Gandhi. Both India and the USSR released stamps commemorating the great humanist and the leader of men who had led mass movements incomparably superior in numbers to any led in history. The great *Soviet Encyclopaedia* in its 1971 edition, remarked in an entry, relating to him, that his philosophy was 'a socio-political and ethico-philosophical doctrine which acted as a progressive force stimulating India's freedom struggle, and, ... was a genuinely popular anti-imperialist movement.'

Celebrations relating to the birth centenary of Lenin in the USSR echoed in India, and the intellectuals commoners, politicians and toilers organized meetings and seminars to celebrate the occasion. The great leader, who had wrought a revolution in the social, political and economic outlook of the world and found and propagated the ways and means to liberate man from

the exploitation of man, got a ready response from the people in India. A National Committee was formed and the Education Minister of India presided over the grand seminar held in the Vigyan Bhavan, New Delhi, on 22 April, 1970. A symposium on Lenin was held by the Sahitya Academy, on the influence of the great revolutionary on Indian thought and literature. A number of publications were released in India which discussed the personality and ideas of Lenin. New Delhi celebrated the occasion not only through intellectual processes alone but by holding a spectacular fair in the capital for the common man. The Indian Government issued a stamp commemorating the founder of the first socialist country in the world.

### **The Impact**

The main contacts between the peoples of India and the USSR have been through the various cultural exchanges both timely and abiding. The first kind marked the various rallies of writers, scientists, artists and lawyers and doctors arranged through the exchange of delegations. The second one of the abiding character has been the exchanges of scholars through visits, loans, and appointments in the institutions. Thousands and hundreds of thousands of the students of science, technology, vocations and humanities who have found a temporary home in the Soviet institutes and universities. Teachers and visiting professors in both the countries have taught the secrets of their researches and have enjoyed the majesty of the moment, as much as the warm hospitality of the host country. Writers in batches, besides attending functions and sessions of the Progressive Writers' Association, have visited the countries and discussed together the common themes, the doping compositions, the cultural and political aggressions which they have condemned and applauded friends of humanity and peace and denounced foes of the peoples and warmongers.

Hundreds of Indian compositions and outstanding works in literature have been rendered into the Russian and millions of their printed copies have found their way to the Soviet homes. It is not a matter of mean credit that 700 works of Indian authorship have been published in 34 languages of the USSR and that Tagore's works sold in copies more than three millions and a half. Likewise Pushkin, Gogol, Turgenev, Tolstoy, Chekhov, and Gorky and Sholokhov are exceedingly popular in India. The study of the

Indian and Russian authors in the corresponding countries have brought home to the readers of the respective lands the life and letters, the arts and ideas, of the two peoples. And, to say the least they have carried with them only the noble and the humane as against the imbalance of living in some countries reflected by reliefs of women murdering women in bed on the covers and jackets of their telling publications.

There has been an endeavour by the USSR to help prepare and publish inexpensive text books for Indian students. Huge consignments of books from the USSR have gone as gifts to a number of libraries and universities of India. Besides there are loans of books arranged for the benefit of students.

A number of the USSR universities teach numerous modern languages besides the Indian classics. The Indian universities also, a fair number of them, teach Russian, and a number of men and women hold today diplomas in that language. All the students and teachers, who studied or taught in the universities of the USSR have acquired a good knowledge of the Russian.

### **Discovering the Past**

There is one particular sphere, which, although not altogether neglected, should have found greater favour both with India and the USSR. A lot of material has come to light in the excavations of historical sites of Central Asia and the areas in the North. These areas had been directly connected with India both culturally and politically. This new material should be put on record and made more popularly known in India. An English translation would make it accessible to Indian historians. The excavations carried on by Tolstaff is valuable with regard to the history of the Sakas and Kushans, the Bactrians, and the Huns, the Mongols and the Turks. The riddle of the original Aryan habitat too has to be settled and more detailed study of the *Rigveda* and more concentrated exploration of the areas in Azerbaijan, Georgia, Armenia and other regions of the USSR have to be made.

This can be better done by a joint band of Indian Soviet scholars. Once a seminar was held in New Delhi where a number of Soviet and Indian scholars discussed common interests in the history of the two countries. What is needed is the formation of a



good joint team comprising the men of spade, historians, Sanskritists, even anthropologists to work together in the USSR, on the prospective sites and in India. The result certainly will be advantageous.

The cultural exchange has shown wonderful results. More extensive and concentrated exchange, however, is needed.

## Scientific and Technological Relations\*

A. Rahman

M.A. Qureshi

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India is fortunate to have had an enlightened political leadership both before and after national independence. There was sufficient appreciation among the Indian political leaders of the revolutionary impact that science had made on the socio-economic progress and the national security in the industrialised countries. As a result of this appreciation even before the attainment of independence, programmes of socio-economic development, including scientific research, had already been laid out as a preliminary preparation of national economic plans.<sup>1</sup> After independence, the efforts of the Government 'to foster science in all its aspects' and to promote application of science may be taken as the manifestation of the desire of its leaders to come to grip with the social and economic problems.<sup>2</sup>

### I. Formative years

The national Government formed after independence had a two-fold objective : to rapidly develop the country and to establish a egalitarian society. Related with these objectives were the tasks of building of the national economy based on industry, and the raising of the standard of living of the people, together with the need to consolidate and defend political independence and sovereignty. In order to facilitate the overall objectives it developed a policy of peaceful co-existence in international relations and, while encourag-

\* The views in the article are those of the authors and not necessarily those of the institution they represent.

1. *National Planning Committee Reports 1946*. Planning Commission, New Delhi.
2. *Scientific Policy Resolution*, Government of India, 1956.

ging private sector, it also launched a policy of establishing public sector for rapid industrial development in key industries. In these efforts the major weaknesses were the scarcity of capital resources; and lack of technological skills and competence. For meeting these requirements and for reestablishing industries in the public sector, India approached the industrialised countries of the West. In doing so she discovered that the aid and the technical assistance neither were freely available nor were without strings. Further, she also visualised that pressure was being exerted on her to change the broad objectives.

## II. The Western Pattern

In the field of scientific research, when India embarked on a largescale building up of a strong infra-structure of science, the assistance in terms of equipments and experts came largely from the UN Agencies and advanced countries of Europe, and America. A survey of scientific research in India reveals that the total research assistance from all the sources during 1959-60 to 1963-64 was about 58 per cent of the total technical assistance.<sup>3</sup> Incidentally, this formed about 18 per cent of the total investment in R & D, during the same period.<sup>4</sup> The aid from the USA was mostly for research in agriculture, medicine and public health. This aid has been useful in creating research facilities and trained scientific manpower, but later on it was looked on with suspicion; and was criticized for lack of relevance to national objectives. The US technical collaboration was mostly confined to consumer goods industries. The main objective of which was to encourage industrialisation in the private sector. (This is also largely true for the aid received from other capitalist countries). Some of the collaborations in areas such as roof-tile making, sanitary-ware, porcelain crockery etc., were age-old industries and were long being manufactured by many medium and small entrepreneurs. Many of them faced disguised foreign competition on

3 A. Ahmed, K.D. Sharma and S.P. Gupta. *Foreign Aid to Scientific Research*, Survey Report No. 10, Research Survey & Planning Organisation CSIR, New Delhi, 1966.

4. A. Rahman et al., *Science and Technology-India ICCR*, New Delhi, 1973.

account of which the collaborations might go out of business.<sup>5</sup> Further, the period of credit terms offered for providing technical assistance is 5 years or more and the rate of interest is between 5 and 7 per cent. In some cases it is higher than 7 per cent also. Often the conditions of aid offered interfered with the policies of the Government of India. The classic example is the insistence of the USA on banning of export of monozite sand abundantly available in India, from which uranium is extracted.

The idea, which got currency only recently, that science is international and the pattern of technological development that has emerged in the Western industrialised countries is the only solution to increase the productive capabilities and wealth, motivated the receipt of such aids, which proved to be not only ephemeral but illusory. It is now realised that the developing nations must seek to work out technological choices. One which is compatible with the socio-economic factors and the cultural environment must be adopted. Technology is being used by the West as an instrument of domination, both in the economic and political sense. Whatever technology is exported to the developing countries is either obsolete or is on the verge of being replaced. In this way the Western industrialised countries maintain their monopoly over technological development. Instead of being able to reduce the 'technological gap' the developing countries have become more and more dependent on the technologically advanced countries of the West. The technologies developed there have politico-cultural content, which should not be ignored while importing them. If these technologies are imported as such, they, most of the time, adversely affect the potentials of the developing countries because of political and cultural incompatibilities. However, technical help of the advanced countries is essential in creating an industrial base in the developing countries. But the choices available to them are too limited in relation to their socio-political strategies. The economic independence of the developing countries is unthinkable without their scientific and technological liberation from imperialism. It is organically connected with the formation of a sufficiently powerful national scientific and technical potential of material and human resources.

5. Kamlesh Ray, "Foreign Collaboration", in A. Rahman and K.D. Sharma (Ed.) *Science Policy Studies*, New Delhi, 1974.

### III. The Soviet Pattern

The plunging of the Soviet Union in the area of international trade and aid has completely changed the complexion of the nature of aid. As a matter of policy objective the Soviet Union has been showing keen interest to transfer Soviet experience in using modern science and technology to the developing countries. This is to help them to organise and develop capital goods industries and create necessary infrastructure in terms of scientific and technically trained personnel. Being opposed to autarchy, the USSR is striving for international division of labour and around cooperation with countries on the following basis :

- (i) complete equality of parties concerned.
- (ii) non-interference in the internal affairs of other countries.
- (iii) respect for national sovereignty, and
- (iv) respect for national interest and mutual advantage.

Reciprocal delivery of machines and equipment, transfer of production experience and technology and various other forms of scientific and technical assistance play a growing role in this cooperation.<sup>6</sup> There are signs that the policies of various countries with regard to strings attached to aid are changing and new grounds for developmental aid are being sought after.<sup>7</sup>

India, while drawing her lessons from the First Five Year Plan, came to the conclusion that in economic planning, she should safeguard her political independence and strive for self-reliance in some key industries for which raw materials were already locally available. This could be achieved by setting up basic industries in the public sector. The Second Five-Year Plan was designed to create an industrial base in steel making and manufacturing and of heavy engineering machineries. This coincided with the aid policies of the USSR. This led to the signing of the first agreement on the Bhilai steel plant, which ushered in an era of fruitful cooperation between the two countries. The assistance rendered to India is not tied up with demands for any political or economic concessions. It is provided, as a rule, on favourable terms and contributes to the creation and consolidation of India's industrial

6. United Nations Institute of Training and Resource *UNITAR Research Report No. 15, N.Y., 1975.*

7. Lester B. Pearson, *Partners in Development : Report of the Commission on International Development*, Praeger, New York 1969.

scientific and technical potential and diversification of her economy. Since then Soviet technical collaboration with India has gone a long way in achieving self-reliance in some key industries.

Collaboration with the Soviet Union has been in two major fields. One, she is cooperating with the Indian research institutions in establishing research facilities in new disciplines of science (physical, biological and social); and undertaking joint programmes of research to mutually benefit from each other's experiences. Two, she is helping India in establishing a strong base of industrialisation in such a way that further growth of industrialisation is stimulated through indigenous efforts.

### **III. 1 Cooperation in Scientific Research**

In the area of scientific research cooperation, the Soviet Union and India have made significant strides during the last 25 years. In the field of industrial research, the Council of Scientific and Industrial Research (CSIR) till recently used to have bilateral agreements with Soviet Academy of Science. The main features of these agreements used to be:

1. exchange of experts and scientists to ensure exchange of scientific experience, conferences and meetings, delivery of lectures and assistance to organisational and scientific matters;
2. fellowships for young scientists;
3. exchange of information on scientific research, data about scientific institutions and scientists as well as information and materials of interests; and
4. cooperation among libraries, information centres and scientific institutions for exchange of books, periodicals and bibliographies.

On behalf of the Government of India, now the Department of Science & Technology has bilateral agreements of cooperation in all the fields of scientific and technical research with the State Committee of the USSR Council of Ministers for Science and Technology. The Indo-Soviet agreement has a 5-year duration. The programmes of cooperation are drawn up keeping in mind the mutual interests of India and the Soviet Union. The main emphasis has been to identify such areas of cooperation where the results of joint research would benefit the two countries. India is cooperating with the Soviet Union for research in the fields of

Magneto hydro dynamics (MHD) power generation; transfer of electric power by ultra voltage lines; alternative sources of energy; coal utilization in terms of liquid fuel from coal by hydrogenation; synthetic natural gas; formed coke for domestic industrial needs; intensification of the coal combustion process to ensure sulphur trapping and utilization of its mineral components; corrosion protection for metals; water resources management for integrated utilization of water reserve (inter and intra basin transfer of rivers), mechanised irrigation with utilization of surface and underground sources; use of prefabricated structures in the lining of irrigation system and in drainage; application of directional blasting techniques; machine tools, cutting tools and allied instruments including machines functioning in tropical conditions; control system, automated control in signalling and operational disciplines in railways transportation; building and construction technology including building materials and architectural planning; design aspects and construction techniques for large-scale industrial housing developments in diverse climatic conditions; soil and rock mechanics for foundation engineering; construction under high seismic conditions, techniques of grain storage including construction of silos grain elevator; welding technology; powder metallurgy; industrial design; rubber processing; pesticides and related ecological problems; abrasives; light industry including textiles and leather production; dyeing and finishing of man-made and natural fibres and fabrics; standardisation and metrology.

Soviet cooperation is continuing in the field of salinised and alkaline soils. New research projects for tackling problems in the area of medical science and public health have also been initiated.

The USSR is also cooperating in the setting up and development of a national scientific and technical information system. The other areas, which are relevant for national science policy, are transfer of technology, patent information and planning of science and technology.

Elaborate programmes of cooperation are worked out under each area of work. In the fields of standardisation and metrology corrosion research and building materials, working groups for scientific and technical cooperation have been set up. These Working Groups recommend the work programmes for research in

these fields. For example, the USSR and India had initiated joint studies during 1975 on tropicalisation, estimation of influence of environment testing on reliability and estimation of parameters of electro-technical and electronic details of equipment and materials failure analysis. The Working Group on Standardisation and Metrology is responsible for planning, programming and reviewing the progress of collaboration between the USSR State Committee of Standards and the Indian Standards Institution. The various sections of this working group are : Standardisation and Quality Control; Automated Information and Retrieval Systems Relating to Standardisation; Exchange of Information on Standardisation and Metrology, Standards in Metallurgy; Metrology; and Personnel Training.<sup>8</sup>

In all the areas of cooperation, relevant research agencies/institutions in both the countries have been identified and made responsible for formulating joint research programmes. Besides, the programmes recommended by the working groups, these agencies/institutions are directly communicating with each other to evolve programmes of mutual interest. For example, for the study of the problems relating to MHD power generator, Bhabha Atomic Research Centre and IVTAN (Research Institute of High Temperature Research) are jointly working from India and USSR respectively.

Indian National Academy of Science and the USSR Academy of Science have reached an agreement between them for the study of the upper mantle of the earth's crust. As a part of this agreement, National Geophysical Research Institute, Hyderabad has initiated a project on "Deep seismic sounding (DSS) studies in India". The main objective of this study is to determine the crustal structure in different regions of India, including the Indian off-shore region, with proper velocity estimates in various crustal layers and their depths upto and immediate below the Moho boundary. This may yield useful information on the regional disparities of the earth's crust and upper mantle structure. The establishment of the regular relationship between deep and shallow structure would be of immense practical value for the exploration of oil and minerals in the region of investigation. This project would help to locate deep faults and the disposition of various blocks and to

8. *ISI Bulletin*, Vol. 27-pp. 450-51,



prepare a technical map of India. The deep sounding studies in various sedimentary basins in India, both on land and off-shore regions, will help in understanding the evolution of various sedimentary basins which may contain potential oil bearing structures. This will also enable to understand how the Cambay basin is extending in the Arabian Sea off the west coast of India and throw light on the development of Bombay High structure in this region. Oil and Natural Gas Commission, Koyna Project Authority for land DSS profiles and National Institute of Oceanography for off-shore DSS profiles are collaborating with the National Geophysical Research Institute. The Ukrainian Academy of Sciences, Kiev, is partly supplying the DSS equipment.

The collaboration of the Indian and the Soviet Scientists in space research is an outstanding example of team work. The Soviet Union has supplied solar cell panels to India, which have been used in Aryabhata for converting the solar energy into electrical energy for the outer surface of the satellite. The Soviet Union has also provided rocket launching facilities at their cosmodrome in Soviet Union for launching Aryabhata into space. The Indian Space Research Organisation is planning to launch Aryabhata II in 1978. The Soviet Union is also helping India. India and the Soviet Union have also mutually agreed on satisfactory measure for the coordination of satellite systems between them for the purpose of communication.

The USSR has cooperated with India in building higher and technical educational establishments. In these efforts, the Soviet Union's technical assistance is usually connected with the creation of self-reliant industry. For example, to provide the Bhilai iron and steel plant with national personnel, the Soviet Union concluded an agreement with India in 1956 on assistance in setting up the Indian Institute of Technology in Bombay on account of the USSR contributions to the UN Development Programme Fund. The institute graduated the first group of specialists in 1962. About 2,500 students are studying there to be subsequently employed in the engineering, building materials, electrical engineering, chemical, metallurgical and other industries. The USSR and India have also reached an agreement on organising in India several other higher technical educational institutions, including four autonomous departments: aircraft designing at the Indian Institute of Technology, Bombay; automation and telemechanics at Bangalore University;

geophysics at Osman University; metallurgy at the Indian Institute of Technology, Kharagpur; as well as four special secondary technical schools; metallurgical at Bhilai, engineering at Ranchi, oil and gas industry at Baroda and electrical engineering at Har-dwar.

### III. 2 Technical Assistance

The Soviet Union's cooperation with India in its efforts for technological self-reliance by providing the much needed technical assistance has been very helpful in economic terms. Some of the advantageous terms and conditions of the Soviet technical assistance as compared to those offered in the capitalist world are summarised below :

- (i) The period of credit terms is for 10 to 12 years with an interest of 2 to 2.5 per cent.
- (ii) The investment is returned in kind or in Indian rupees. The investment is started to be paid after the completion of the project or after one or two years of its completion. Sometimes the investment is paid in the form of export to USSR of manufactured products of the technology given to India.
- (iii) The Soviet Union has never desired partnership in any project in which technical cooperation is undertaken with India.
- (iv) There has been sufficient degree of price stability in the supply of equipments during the period of delivery.
- (v) There is no curb on the export of production in which technical know-how is provided.
- (vi) In a large number of cases of the technologies imported from some of the west European countries and the USA, it was found out that the technologies were suited to specific quality of raw materials which were critical to the utilisation of the installed capacities of the plants. For increasing the level of production these quality raw materials were to be purchased at a very high price from abroad. In case of the USSR, the provision of technical assistance is not linked with the supply of raw materials from it. On the other hand, steps have been taken to adopt the technologies to suit Indian conditions.

Under the agreements on economic and technical cooperation between the USSR and the developing countries, around 90 per cent of all Soviet allocations are channelled into production section,

and of this amount, more than 75 per cent, into industry and power engineering. More than half of the money is invested in the construction of heavy industry.<sup>9</sup> The same situation, more or less, holds good for India also. In what follows is a brief description of the Soviet-technical assistance to India which will give an idea of the Soviet contribution in the establishment of the core industries.

Modern society has largely been evolved on the use of energy in industry, agriculture, transport, construction, domestic activities and national security. The availability of energy, therefore, is a necessary condition for economic development, and the level of utilisation of energy is a fairly reliable measure of economic prosperity. The Soviet Union has helped in developing energy resources such as oil and thermal power generation. The other crucial industries in which the Soviet cooperation has been received are steel, heavy machine building and heavy electrical industries.

### III. Oil

India has about one million kilometres of potentially oil-bearing sedimentary areas. In the early fifties when India wanted to develop these resources, for which she was completely dependent upon Britain and America, the former Viceroy and Governor-General of the country, Lord Mountbatten, advised the late Prime Minister, Nehru not to waste precious resources on wild goose chase and leave the job to the well-established oil companies.<sup>10</sup> India also met with opposition from multinational companies. The multinational companies already had big oil resources in the Middle East at their command and did not want to loose India as a large market to sell their oil. Even the UN agencies did their best, under the influence of foreign oil companies, to keep India away from developing oil resources on the pretext that it was a risky business and that the public scarce resources should not be squandered in such an endeavour.<sup>11</sup> However, with the help of the Soviet Union the sedimentary basins in India were examined and encouraging results were obtained on the basis of which it was estimated that there were large quantities

9. A. Kodachenko, *USSR and Developing Countries*, New Delhi, 1976.

10. A. Rahman, *Anatomy of Science*, New Delhi, 1972.

11. M. Sebastian, *Economic Aid to Indian - Analysis and Evaluation*, New Delhi, 1975.

of oil and natural gas. The first success in drilling operation was obtained in Jwalamukhi where on 8 May, 1958, gas was struck. Oil was found for the first time at Lunej on September 4, 1958 in Cambay area, and after that discoveries of more reserves of oil and gas followed. Soviet help was made available to set up the directorate of Oil & Natural Gas and the Central Laboratories at Dehradun. Hind Oil Design Institute at Dehradun was also set up with the assistance of the Soviet Union. The basic objective of this Institute has been to develop expertise for providing design needs of oil and gas production in public sector. The Research and Training Institute was established at Dehradun by the Oil & Natural Gas Commission with Soviet aid channelled through the United Nations. The Soviet Union also helped in starting a school for training Indian Oil engineers and Oil technicians. It is estimated that over 5,000 Indian geologists, physicists, drillers, mechanics, welders and electricians have been trained so far. Training facilities were also provided in the Soviet Union for Indian experts. This training had a multiplier effect in the region and generated more experts in oil technology. Those trained in India and the Soviet Union form the core of technical personnel manning India's growing oil industry. The help of Soviet Union in setting up of technical research facilities, training of Indian personnel and the effective participation of the Soviet experts have contributed significantly to the increasing self-reliance atleast in oil exploration, production and refining technologies. Following projects have been undertaken with the Soviet assistance.

Ankleshwar Oil Fields Gujarat: For the first time in the history of India's public sector, oil began to be extracted (on August 15, 1961) at the Ankleshwar Oil Fields in South Gujarat. In 1968, output from the oil fields—three million tonnes—exceeded the rated capacity. The total output of this oil field since its commissioning, has exceeded 11 million tonnes. In the beginning of 1969, the daily output from the oil fields in the public sector of India reached 9,400 tonnes of oil and 1.2 million cubic metres of natural gas.<sup>12</sup>

Lakhwa and Rudrasagar oil Fields, Assam : The oil fields have been completed.

*Offshore Drilling* : An ambitious programme of ONGC was the

12. Commerce Research Bureau, *Soviet-Aided Projects in Indo-Soviet Economic Relations—A Survey, Commerce—Economic Studies-VIII*, Bombay 1971.

Seismic Sea Survey. This was undertaken with the aid of Soviet Seismic Ship, Akademik Arkhangelsky. This offshore survey lasted from 1964 to 1966. Nearly 40,000 explosions were set off and 15,000 line kilometres of profiles were explored covering coastal areas of West Bengal, Orissa, Andhra Pradesh, Tamilnadu, Kerala, Maharashtra and Gujarat. Provisional estimates show that 1,24,000 square kilometres of shelf area are extremely promising. Of these, 50,000 square kilometres are under the sea-bed at varying depths upto 20 metres. A number of key structures have been found. Bombay High, a hundred kilometres off Bombay, and Aliabet in Cambay have proved successful. The size of total reserve has yet to be established.<sup>13</sup>

*Oil Refineries* : Oil refineries were set up at Barauni and Koyali. Both these refineries produce a wide range of products—from kerosene, petrol, jet fuel to bitumen and petroleum gas. The installed capacity of the refineries are not being fully utilised but their production is being raised steadily. Each of them is expected to produce 4 million tonnes in near future. The expansion of Koyali refinery was scheduled for completion in February 1977. From the point of view of meeting economically the growing demand for petroleum products in the north west region of the country, the need for setting up a refinery in the region was felt for quite some time in the past. Based on the detailed feasibility report for setting up 6 million tonnes per annum refinery, the Government of India decided to locate this refinery near Mathura. This refinery is expected to be on stream by May 1978. Soviet technical assistance is also being made available for setting up this refinery.

### III. 4 Power Generation

Fifteen Soviet-aided power stations, with a total generating capacity of 3.2 million kw, have either been built in India or are nearing completion. A list of the important power stations, along with the power generating capacity, is given in table ahead :

13. *Committee on Public undertakings, Indian Oil Corporation: Refineries Division 36th Report, Third Lok Sabha.*

**Table : Power Projects Built with Soviet Assistance<sup>14</sup>**

Sr. No.	Units	Capacity in megawatts
1.	Neyveli thermal power station (Madras)	600
2.	Patratu thermal power station (Bihar)	620
3.	Orba thermal power station (U.P.) 5 × 50	250
4.	Korba thermal power station (M.P.) 4 × 50	200
5.	Harduaganj thermal power station (U.P.)	100
6.	Bhakhra right bank hydro-power station (Punjab) 5 × 120	600
7.	Lower Sileru hydro-power (A.P.)	200
8.	Mettur hydro-power station (Madras) 4 × 50	200
9.	Babinda hydro-power station (Orissa)	360
10.	Hirakud hydro-power station (Orissa)	25
Total capacity		3,155

The most important of these power stations is the Neyveli Lignite thermal power station because the lignite, which is a very poor quality coal, is used as fuel.

### III. 5 Coal

Development of coal is important for the running of thermal power generation and steel plants. From 1964, Soviet aid has been received in three main coal projects, namely, Korba Coal Mining, Kathura Coal Washery (1969) and Durgapur Coal Mining Machinery. Under the Coal Development Corporation, Soviet aid has flowed for setting up Central Electrical Mechanical Workshop at Korba, which was completed in 1967, and opening of collieries at Banki and Manikpur and Surakachehar. For the

14. O.P. Mehrotra, Property through Power, *Soviet Review* April 1, 1966, p.10, *Commerce Supplement*, April 11, 1970, pp. 100-101.

development and production of coal industry it was visualised that coal mining machinery would be required. The idea was that as India has vast reserves of coal, she must be self-sufficient in the technology of coal extraction. With this objective in view, Soviet Union has helped India to manufacture coal mining and allied machinery. The delay in some of the coal projects is caused by the additional time taken in setting up the mining and allied machinery plant.

### III. 6 Steel Making

A major contribution of the Soviet Union to the development of steel making in India is the help given in building of the following two giant steel mills.

*Bhilai Steel Plant, Madhya Pradesh* ; The Bhilai Steel Plant agreement was the first Indo-Soviet agreement (February 1955) for technical and economic cooperation. Under this agreement the Soviet Union extended the technical assistance in building the plant and assumed responsibility for :

- help in collecting the necessary data on the site of the future plants;
- preparation of contract design and work drawings, specifications and schedules for the deliveries of equipment, as well as proper fulfilment of all construction work, including foundations, buildings, etc. on the site of the plant;
- deliveries of equipment, assembled sections and materials from the USSR;
- technical supervision of building, assembly and commissioning of equipment;
- training of Indian personnel in the USSR and in India.

The Soviet Union had sent to India a highly qualified specialist as the chief engineer in charge of construction, who also coordinated the entire activity of Soviet specialists on technical management and all kinds of technical assistance in India. It has sent a group of specialists for rendering technical assistance and providing technical guidance.

In accordance with the agreement these specialists carried out all functions within the competence of consulting engineers and took responsibility for their recommendations, advice, suggestions and technical supervision.

Starting with an initial production capacity of one million tonnes, the plant has now a capacity of 2.5 million tonnes per

annum. Nearly 800 Indian engineers from the plant underwent training in the Soviet Union and more than 10,000 were trained at the plant and at the Bhilai Technical Institute.

Since the beginning of operations in 1959 upto the end of 1975-76, the plant, with the capacity utilisation of about 94%, has registered cumulative production of 25 million tonnes of ingot steel and that of 20 million tonnes of saleable steel. This achievement in production is a milestone in the history of India's steel growth.

*Bokaro Steel Plant Bihar* : The Bokaro Steel Plant agreement with the USSR was signed in January 1965. The plant, with an estimated initial production capacity of 1.7 million tonnes per annum eventually rising to four million tonnes, is being built with considerable indigenous participation. Detailed designing for the plant's enlargement is made completely by India's Central Engineering Design Bureau, (CEDB) in Ranchi, in accordance with a contract design prepared by the Soviet Organisations. The Indian side undertook the deliveries of 63.5 per cent of equipment, 92.5 per cent assembled sections and 96 per cent of materials. The plant is designed to use the latest advances in metallurgy. Project designs provide for large blast furnaces with volumes of 2,000 cubic metres and steel smelting in converters using oxygen. Most of the equipment is supplied by Indian plants already completed with Soviet assistance. The first stage, with a 1.7 million tonnes steel ingot capacity was expected to be commissioned in 1971. The construction schedule was to build the first blast furnace with two coke oven batteries, by-products and sulphuric acid plant, one unit of sintering plant, auxiliary shops, power plant and laboratories. The stage was ready for operation only in 1973. The plant will manufacture steel sheets of hot and cold rolling and this should enable India to reduce substantially her imports of sheet steel, on which about Rs. 500 million is now being annually spent. The second stage, which will raise the capacity of the plant from 1.7 million tonnes to four million tonnes, costing some Rs. 350 crores, has telescoped into the first stage. The protocol signed with the USSR in February 1970 provides assistance from the utilised Soviet credits for the second stage of Bokaro.



### III. 7 Heavy Machine Building

Heavy Machine Building Plant at Ranchi, Bihar : The plant had a design annual production capacity of 80,000 tonnes of heavy machinery and 25,000 tonnes of structural fabrication, to be achieved by 1975-76. It manufactured 23,850 tonnes of heavy machinery in 1968-69 and was expected to manufacture 27,000 tonnes in 1969-70. Besides supplying all structurals and metallurgical equipments that were required for Bhilai's sixth blast furnace, the Ranchi Plant has manufactured over 19,520 tonnes of structurals and 7,056 tonnes of equipment towards its total share of 84,511 tonnes required for the Bokaro plant's first stage. Besides steel plant equipment, the Ranchi plant has been manufacturing various sophisticated mechanical and metallurgical equipments required for the oil, mining, and other industries.

### III. 8 Heavy Electricals Equipment Plant, Hardwar

The plant has come up at Ranipur near Hardwar. It is greatly contributing towards the development of power engineering in India. The plant is expected to produce steam and hydraulic turbines of 2.7 million kw capacity comprising individual units with a capacity of 100,000-200,000 kw; coupled with power generators and large DC and AC motors (upto 9,000 kw) for rolling mills. The plant was scheduled for completion in 1970. However, it has now started manufacturing electric motors with a capacity upto 1,000 kw and also steam turbines of 100,000 kw capacity each. In the near future the plant is expected to manufacture 200,000 kw steam turbines.

### III. The Other Industries

The other industries in which Soviet Cooperation has been received for organising production on large scale are: antibiotics, synthetic drugs, surgical instruments, ophthalmic-glass, precision instruments and metallurgy of aluminium. Agriculture is another sector in which the USSR has assisted India in establishing large-scale mechanised farms.

Almost all the Soviet aid has been given to establish industries and agricultural farms in the public sector, whereas this is not the case with the aid given by the capitalist countries. The example of Bokaro is before us. Initially, it was planned by India to have technical assistance from the USA. Feasibility reports were pre-

pared by engaging private companies. Indian Government wanted to establish Bokaro Steel Plant in public sector, but the USA insisted to set up this plant in the private sector to which the Indian Government did not agree. The Government approached Soviet Union for help. It readily agreed to provide technical assistance for establishing this steel mill in public sector.

#### IV. Contrast

It is interesting to know that technical assistance from capitalist countries is mostly in the private sector for the manufacture of consumer goods. The production of luxury consumer articles and their proliferation have created a demonstration effect which is creating undesirable consumer taste, and is destroying the direction of private investments. This has adversely affected the demand pattern and promoted a culture based on the consumerism of European culture. There has been even technical collaboration in garment making, ice-cream and cosmetics which are not really of any significance in the process of industrial development. One can say that such technologies have not been imposed from the exporting countries and therefore why does one blame them? But the reason is not far to seek. According to the 1956 Industrial Policy Resolution of the Government of India the basic industries like, steel, heavy machine building, coal mining, power generation, oil etc. should exclusively be produced in the public sector. The industries such as drugs, chemical etc. can be established both in the public and private sectors. The rest of the industrial activities like small scale and cottage industries have completely been left to the private sector. The capitalist countries could not show enthusiasm for basic industries, in the public sector. Whenever the Indian Government approached the capitalist countries, they generally agreed to provide technical aid in industries which were to be set up either in joint sector or private sector. Till April 1971, India had received technical aid worth about Rs. 10,500 million for basic and heavy industries spread over 65 plants. The present stage of development of the public sector industries, therefore, owes much to the Soviet cooperation and has been useful in laying strong foundation for Indian economic independence. The Soviet technical assistance thus has enabled India to become less dependent on the world capitalist market, primarily with regard to getting necessary technology, and contributes to making the

conditions on which she acquires it in the world capitalist market less handsome due to the availability of alternative sources of importing technology in the public sector.

However, this does not completely exclude the possibility of mutually advantageous cooperation of Soviet Union with Indian private capital. A case in point is the establishment of tractor factory at Loni (U.P.) in the private sector. It has the capacity to manufacture 10,000 (14 to 20 hp) tractors per year.

The Indo-Soviet collaborations have generally been through inter-governmental agreements. There are several reasons for the Soviet Union as a donor to prefer bilateral assistance.

- (i) The Soviet Union wants to help the Third World in becoming economically independent and thus help the growth of non-capitalist democratic economic sector in the world economy to ensure world peace and a new order, which will also help the Soviet Union to develop peacefully.
- (ii) Quick implementation in setting up plants etc., by retaining certain degree of operational control over aid.
- (iii) There is a direct contact with the recipient of aid and whatever is done on that accord would boost the national image of the donor country; and
- (iv) Bilateral aid can be arranged more speedily and at less administrative cost than multilateral aid.

All the above mentioned points are quite valid in the case of technical assistance to India.

The technical assistance received by India, more or less exclusively earmarked for setting up specific plants and organisations. In the project-aid, disbursement of funds is related to the importation of specific items used in the project. The advantage with this form of aid is that projects can be carefully prepared and planned. The recipient countries may also choose priority projects which have impact value. From the donor's point of view, project-aid is preferable because the political impact of project-aid is greater as against aid which supports the general balance of payment.

The Soviet Union, by providing much needed technical know-how in the form of project-aid, has helped India in planning the technological development. With respect to specific technologies which are interdependent, an integrated approach has been followed. For example, for establishing steel making mills, heavy machine

building plant was set up for the manufacture of certain equipments so as to indigenise to some extent, the construction of the steel plant. Since coal is an essential commodity required in the steel-making, Soviet technical assistance was received for developing coal industry, mining and allied machinery and new coal mines were opened. Financial and technical help has been provided for setting up Mining and Allied Machinery Corporation. This plant, when it achieves its rated capacity, will become a base for completely mechanising the Indian coal industry. The plant's manufacturing capacity of 45,000 tonnes of coal mining machinery and equipment will make it possible to mechanise mining of about eight million tonnes of coal a year. While the USSR supplied special equipment and machines, indigenous capacity was also utilised to the maximum. Central Electrical and Mechanical Workshop at Korba was commissioned in October 1967, to meet the demand of major repairs and spare parts manufacturing facilities required for the operation of both open-cast and underground mining machinery and equipment in and around Madhya Pradesh. The workshop consists of a large number of sections such as tool shop, main machine shop, autocar shop and shops for heat treatment, forging, steel fabrications, machinery repair, foundry pattern and wood working and electrical repair. Apart from catering to the requirements of the National Coal Development Corporation, the workshop has also been able to serve other sister industries in the Madhya Pradesh region and public enterprises like Bharat Aluminium Ltd., State Electricity Board, etc.

Similarly, in case of thermal power generating plant, India has been assisted to establish Heavy Electrical Plant at Hardwar to manufacture steam turbines and turbo-alternators of units sizes 110 megawatts to 200 megawatts and also medium and large size A.C. and D.C. electric motors. These examples explain the inter-related nature of the projects installed for adoption of technologies and creating indigenous capabilities. In this way the Soviet Union has contributed significantly to India's efforts towards self-reliance.

The Soviet Union has been very helpful in successfully transferring the technologies given to India as technical aid. A good number of Russian experts were involved in the implementation of the projects as experts. The Indians were involved from the very beginning in setting up the plants upto the production stage. They

were also given in-plant training in the USSR to finally handle the plant installed in India. For the purpose of operating the laboratory equipment given to India the USSR sent textbooks and visual aids as well as teachers and instructors. Soviet organisations, on agreement with the Indian side, have translated into English Soviet scientific and technical literature delivered to India for raising the qualifications of specialists. These trained Indian specialists are now able to effectively use the equipment and technology received. In the course of construction and preparation for the commissioning of various projects about 40,000 skilled workers, technicians, foremen and team leaders have been trained. More than 2,000 Indian specialists have been trained at Soviet enterprises; and 2,300 engineers have already been trained at the higher educational establishments set up in India with Soviet aid.

There is no hierarchical relationship between the Soviet experts and their Indian counterparts. The Soviet experts and technicians have been friendly to Indians and shown their eagerness to train them in all the intricacies of the plants and seemed to have found no difficulty in daily social contacts with Indians.<sup>15</sup> These contacts have contributed significantly to the creation of a conducive environment required for the transfer of know-how.

#### **V. Recipient to Donor**

It is interesting to note that most of the technologies transferred from the USSR have completely been adopted. India is now in a position to export the same technologies to friendly countries. The USSR has already expressed her desire to purchase from India the same technological know-how which has been adapted here with her cooperation. These technologies would be transferred to some of the socialist and underdeveloped countries by the Indian experts on behalf of the USSR.

With a view to adapting the technologies to the local conditions in-plant R & D and designing facilities have been established in some organisations such as Antibiotics Plant, Oil and Natural Gas Commission, Hindustan Steel etc. It may be mentioned, as an example, that technical assistance to Central Engineering Design Bureau and Hindustan Steel Ltd. has been provided to facilitate

15. *Op. cit.*, 12.

the transfer of know-how in the field of metallurgy on whose basis an institute for designing metallurgical enterprises has been created. Soviet assistance included, first and foremost, the delivery of complete sets of the principal materials necessary for designing non-ferrous metallurgical enterprises and steel mills for preparing work drawings as well as the main standardised materials. The Central Engineering Design Bureau has received from Soviet organisations the entire technological experience of design work. Soviet experts, jointly with Indian specialists, have evolved a scheme of organising the Bureau and its sections. Indian specialists hired to the Bureau mainly from the state metallurgical enterprises, have been sent to Soviet design organisations for training, to take part, among other things, in working out documents ordered by the Indian side for iron-and-steel enterprises. The Central Engineering Design Bureau with the participation of Soviet experts is working on technical documents for the second section of the Bokaro plant (with a capacity of upto 4 million tons), a contract design for expanding the Bhilai plant (upto 4.2 million tons), and technical and economic substantiation of the construction of a metallurgical plant in Vijayanagar with a capacity of 2 million tons, to be increased upto 4 million tons. In conjunction with Soviet design organisations the Bureau is beginning to evolve technical documentation and implement technical supervision of the construction of an aluminium plant in Korba. The Bureau does work for other metallurgical enterprises in India. The CEDB has become a leading centre of designing iron-and-steel plants. This made it possible for India independently to design and build metallurgical plants during the Fourth Five-Year Plan. To train national personnel in metallurgy and other related branches, a metallurgical department was opened at the Indian Institute of Technology, Kharagpur and a metallurgical institute in Bhilai during the Fourth Plan.

## V. CONCLUSION

The experience of the transfer of technology from the Soviet Union, which is a socialist state, to India shows that it has the decisive advantage over the market economies, where the major levers of technical progress are in the hands of the multinationals, which control the State power, and use transfer of technology as a means to maximise profit.

The programmes of scientific and technical collaboration of

the USSR with other countries form an important integrated component of the overall Soviet planning efforts on the one hand, and national planning efforts of the recipient countries on the other for the proper scheduling of the programmes. Socialist planning thus, creates requisites and possibilities for a rational and purposeful use of the recipient countries' economic, scientific and technical potentials in order to strengthen economic and political independence. This also facilitates a well planned transfer of the advanced technology to developing countries on mutually advantageous terms. All of these, among other things, are being achieved through long-term inter-governmental agreements and commissions on economic, science and technology have been increasing steadily. In fact, science and technology have been instrumental in bringing both the countries further closer to each other. It is hoped, therefore, that these cooperative efforts will continue and would be an example for other nations to follow.

## Economic Cooperation \*

V.B. Singh

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Ideas have wings. They travel faster than light. Socialism was an idea until 1917. The Soviet Revolution converted it into a reality.

### I. Soviet Impact on India

Until 1917 the Industrial revolution had matured in selected capitalist countries of the West and Japan. The October revolution released socio-technological forces that completed the Industrial revolution in the shortest period of time under socialism. In the interwar period the October revolution and the great Depression changed the quality of thinking on social and economic problems. A decade after the revolution, on his return from a short visit of the USSR, Jawaharlal Nehru wrote<sup>1</sup> :

“Russia thus interests us because it may help us to find some solutions for the great problems which face the world today. It interests us specially because conditions there have not been, and are not even now, very much dissimilar to conditions in India. Both are vast agricultural countries with only the beginnings of industrialisation; and both have to face poverty and illiteracy. If Russia finds a satisfactory solution for these, our work in India is made easier.”

The success of the First Five-Year Plan (1928-1932) had further convinced the Indian national movement that India's future lay in a planned economy. Talking to Mende, Nehru, recalled<sup>2</sup> some

\* This essay is based on the author's earlier writing published in different works.

1. Nehru, Jawaharlal, *Soviet Russia*, Bombay, 1929, p. 3.
2. Mende, T., *Conversations with Nehru*, Bombay, 1958, p. 16.



thirty years later, "The thing that impressed us most was this idea of planning; and more especially, the stories we heard of the tremendous changes in the Central Asian parts which were very very backward". The Soviet example of eliminating poverty, squalor and disease in the shortest period of time influenced the passage of the Karachi resolution<sup>3</sup> of the Indian National Congress (1931) which declared that "political freedom should include economic freedom for the starving millions". How to do it? The reply<sup>4</sup> of the Karachi resolution is that the State "shall own, or control, key industries and services, mineral resources, railways, waterways, shipping and other means of public transport". On the academic scene the Soviet impact is clearly demonstrated in Visvesvaraya's *Planned Economy for India* (1936).

It was in his presidential address to the Haripura session of the Indian National Congress (February 1938), that Subhas Chandra Bose<sup>5</sup> called upon the Congress to consider *a national plan* of reconstruction. "Though it may be somewhat premature", he said "to give a detailed plan of reconstruction, we might as well consider some of the principles according to which our social reconstruction should take place. I have no doubt in my mind that our chief national problems relating to the eradication of poverty, illiteracy and disease, and to scientific production and distribution, can be effectively tackled only along socialist lines". In the following year the Congress set up the National Planning Committee (NPC), with Jawaharlal Nehru as Chairman and Professor K.T. Shah as Secretary for the purpose of drawing up a plan of reconstruction for free India. The NPC enunciated the basic principles of the national plan. The main objects of this plan<sup>6</sup> were: (a) the attainment of national self-sufficiency; and (b) the doubling of per capita income within a decade. In order to realise these objectives,

3. All India Congress Committee (AICC), *Resolutions on Economic Policy and Programme 1924-54*, New Delhi, 1954, p. 4.
4. *ibid.*, p. 8.
5. Government of India, *Selected Speeches of Subhas Chandra Bose*, New Delhi, 1962, p. 80.
6. Shah, K.T., *National Planning; Principles and Administration*, Bombay, 1948, pp. 13-14.

the NPC envisaged radical structural changes in the economy.

In the realm of agricultural transformation it pleaded for common cultivation according to a plan for each unit.<sup>7</sup> Accordingly, it envisaged the nationalisation of all forms of national wealth, e.g. land, mines, forests, etc.<sup>8</sup> This would pave the way for "some form of compulsory cooperative association in each unit, federally interlinked."<sup>9</sup> Naturally in this prescription there was more emotion than reasoning. The authors of this plan had failed to draw correct lessons from the experience of Soviet collectivisation, which had demonstrated that outright nationalisation of land and use of compulsion were sure means for inviting peasants' hostility.

In the realm of industrial transformation the NPC envisaged the creation of a public sector and overall State control of production and distribution. In this framework the NPC proposed the nationalisation of all public utilities, which included production and distribution of electricity, gas and other forms of energy, transport and communications, water supply and sanitation manufacture and distribution of medicines and drugs, medical instruments and apparatus, etc.<sup>10</sup> Further, the NPC advocated strict State control over such industries as were in the private sector but were of national importance on the criteria of scale of production and employment, etc.<sup>11</sup> Lastly, the NPC preached progressive acquisition by the State of all key industries by paying compensation.<sup>12</sup> "Comprehensive and effective planning on a national and egalitarian basis will only prove successful if these industries are owned and managed by some public agency on behalf of and for the benefit of community collectively."

These programmes of agricultural and industrial transformation implied that on the foundations of cooperative farming and public sector the realisation of the doubling of per capita income, within a decade, was possible. From the financial side it was visualised to invest Rs.10,000 crores (in 1938-1939 prices) over a decade.

7. *ibid.*, p. 29.

8. *ibid.*, p. 34.

9. *ibid.*, p. 52.

10. *ibid.*, p. 51.

11. *ibid.*, p. 51.

12. *ibid.*, p. 55.

Indicating the order of priorities, the NPC noted that, "Planning in India...is synonymous with the development of large-scale, modern mechanised industry."<sup>13</sup> In this industrialisation priority was to be given to the 'mother-industry'—metal, fuel, power, engineering, heavy chemicals, etc.<sup>14</sup> At the same time the NPC was aware that consumer goods industries could not be ignored.<sup>15</sup> The NPC rightly emphasized the simultaneous development of agriculture and industry.<sup>16</sup> For, "the essence of a comprehensive plan is an integrated correlated, simultaneous development in all departments of life; and its reaction upon the collective as well as individual life of the people."<sup>17</sup> The financial resources for such a plan were to be raised through taxation, mopping up of savings, and the profits of the nationalised enterprises. Thus the investment was to be neither limited by the available savings, nor was consumption to be restricted.

The intellectual climate created for the development of the idea and programmes of planning not only influenced the democratic movement in the country but also stimulated various exercises in Indian planning. It is against this background that the Bombay Plan<sup>18</sup> (sponsored by a team of industrialists led by J.R.D Tata and G.D. Birla), the People's Plan, (by M.N. Roy) and the Gandhian Plan (by S.N. Agarwal) were formulated and propagated. The emphasis of all these plans was on rapid economic growth and structural changes in the economy, but in details, they naturally differed. It was the Indian Federation of Labour that had sponsored the People's Plan, which was supposed to be the blueprint for socialist India of M.N. Roy's conception. It emphasized that planning and capitalism could not go together. In support of this assertion, attention was invited to the contrasting situations (then obtaining) in Nazi Germany and Soviet Russia. The plan empha-

13. *ibid.*, p. 46.

14. *ibid.*, p. 47.

15. *ibid.*, p. 47.

16. *ibid.*, p. 39-40.

17. *ibid.*, p. 98.

18. Reproduced in Harris, S.E.. *Economic Planning : The Plans of Fourteen Countries with Analysis of the Plans*, Calcutta, 1951.

sized<sup>19</sup> that the “Soviet planning, which was based on the socialisation of the means of production, and which restored production to its original purpose of satisfying human needs from that of making profit, led to an improvement in the standard of living of the Russian people to an extent as would have been unthinkable within the framework of the capitalist economy”. Therefore, it concluded that one of the fundamental objects of Indian planning was “to change the capitalist character of Indian economy into an economy in which the basic means of production are socially owned and in which production is carried on mainly to satisfy the material and cultural needs of the people.”<sup>20</sup>

Consequently, the People’s Plan advocated abolition of landlordism without compensation; and nationalisation of the land on which peasant proprietorship, with full and perpetual tenancy rights to the tiller<sup>21</sup> was to be created. However, the plan pointed out that the ultimate solution was collectivisation; because “the success of this plan for increasing the productivity of agriculture can be materially assisted through the promotion of collectivisation of agriculture in the place of the present cultivation of tiny, uneconomic holdings. The individualistic small-scale cultivation of today cannot provide a sound basis for the development of industries in the country.”<sup>22</sup> The plan warns: “The process of collectivisation should be voluntary and the peasant should be helped and encouraged to participate in it as a result of his own knowledge and appreciation of the benefits of such participation.”<sup>23</sup> In the transition from peasant proprietorship to collectivisation the following stages were visualised: (i) collective farms should be organised on virgin lands; (ii) State farms were to be set up in order to demonstrate the benefits of large-scale farming; and (iii) collectivisation was to be extended to all peasant holdings.

In the industrial sector, there was to be a strong public sector. This consisted of opening new units of production; and strict control of banking and other financial institutions as well as key

19. Roy, M.N., *People’s Plan*, Delhi, 1944, pp. 1-2.

20. *ibid.*, p. 3.

21. *ibid.*, p. 30.

22. *ibid.*, p. 20.

23. *ibid.*, p. 20.

industries in the private sector.<sup>24</sup> Production, price and profits were to be controlled. The maximum profit to be earned was to be 3 per cent. But no plan of nationalisation was visualised. In its theoretical approach the plan emphasised the primacy of demand, at the cost of the simultaneity of supply and demand in a planned economy. The plan had also failed to see the urgency of telescoping the growth of agriculture and industry. Because of the Second World War the thinking on planning suffered a great setback in India.

## II. Indian Mixed Economy

The dawn of independence gave India the opportunity to reconstruct her socio-economic structure with a view to maximising the cultural and material welfare of the people. Free India inherited a depleted semi-feudal economy shattered by war, the Bengal famine and partition. At this juncture of Indian economic history a major orientation in the sphere of policy-making was the formulation of the Industrial Policy Resolution of Parliament on 6 April, 1948. The resolution reiterated Parliament's faith in planning and expressed the desire of the Government to "establish a National Planning Commission to formulate programmes of development and to secure their execution." But as far as the immediate programme was concerned, it favoured, what has been called a mixed economy. This policy has come to stay and has been subjected to fundamentally conflicting interpretations. Therefore, a restatement of the concept (mixed economy) in the Indian context is in order.

Mixed economy<sup>25</sup> is to be understood in historical as well as analytical contexts. Since each system of production is born out of the previous system, there is a transitory phase during which features of the old and the new systems are simultaneously found. This mixed system in the context of transition from capitalism to

24. *ibid.*, p. 24.

25. See Baykov, A., *The Development of the Soviet Economic System*, Cambridge, 1947, pp. 47-77; Dobb, M., *Soviet Economic Development Since 1917* London, 1948, pp. 125-148; Roy, M.N., *The Russian Revolution*, Calcutta, 1949, pp. 27-38; Deutscher, I., *The Prophet Unarmed*, London, 1959, pp. 37-46; Spencer, D.L., *Indian Mixed Enterprise and Western Business: Experiments in Controlled Change for Growth and Profit*, The Hague, specially pp. 208-209; and Singh, V.B., *Indian Economy Yesterday and Today*, New Delhi, 1964, pp. 3-4, 63-67, 83-86, and, Appendices A, B and C.

socialism has come to be known as 'mixed economy'. It may be traced back to the Soviet New Economic Policy (NEP). The Russian revolution was followed by civil war, under which agriculture the main source of supplying surplus for industrialisation was adversely affected. Therefore, it became necessary to grant concessions to private trade, primarily in agricultural commodities, to mop up the agricultural surplus as well as supply food and raw materials to the urban population and industries.

Thus, the NEP came to acquire certain specific features : (i) it was a compromise between the State and private economy in a period of transition; and lifted restrictions on private trade. The private traders came to be called 'Nepmen' and their services were commissioned by State enterprises. The trading sector consisted of three sub-sectors—regulated private, cooperative and State. Later, stress was laid on the checking of private trade and closing of 'scissors'. (ii) In the short period, the NEP aimed at developing the economy with the help of private enterprise, incentives to farmers and traders, and revitalisation of agriculture. But NEP was not merely a temporary expedient; its ultimate objective was to provide the setting for transition to socialism. (iii) In spite of the NEP, the 'commanding heights' in various sectors of the economy remained in the public sectors. There was a coexistence of public and private sectors. The former occupied a dominant position in finance, largescale industry, transport and foreign trade; while the latter acquired a new status in agriculture, small industries and home trade. (iv) In this mixed economy, direct participation of the State in the strategic points of the private economy was ensured; and the public sector had a dominant place in the national economy so as to initiate control and regulate investment and production in both the sectors of the economy.

The Government of India, through the Industrial Policy Resolution of 1948, reiterated its policy of planned economic development, which was visualised in the work of the National Planning Committee, but because of the exigencies of the situation, it accepted a policy of mixed economy, wherein the role of the State was essentially of an auxiliary nature; although the State's inherent right to acquire property, regulate and control private enterprise was not in the least impaired. The enterprises were classified under public and private, in which the latter occupied

the 'commanding heights'. Thus the Indian mixed economy was a reversal of the Soviet mixed economy.

The essential features of the system of Indian mixed economy came to be safeguarded in the Indian Constitution which came into force on 26 January 1950. Here certain socio-economic aspects of our Constitution are noteworthy :

(i) The Preamble to the Constitution embodies the resolve of the people of India to secure to all citizens : justice, social, economic and political; liberty of thought expression, belief, faith and worship; equality of status and opportunity; and to promote among all of them fraternity, assuring the dignity of the individual and the unity of the nation. In 1976, the Parliament added Socialism, Secularism and Democracy to the Preamble.

(ii) The Constitution has guaranteed certain fundamental economic rights, some of the important ones being : (a) There shall be equality of opportunity for all citizens in matters relating to employment or appointment to any office under the State (Article 16); (b) All citizens have the right to acquire, hold and dispose of property and to practise any profession or to carry on any occupation, trade or business (Article 19); (c) The State has, however, the right to acquire private property for public purposes provided compensation is paid under law (Article 31); (d) Traffic in human beings, begar and other similar forms of enforced labour are prohibited (Article 23); (e) No child below the age of fourteen years shall be employed to work in any factory or mine or engaged in any other hazardous employment (Article 24).

(iii) Then there are the Directive Principles of State Policy which provided the framework for the socio-economic development of the country. The Fundamental Rights are enforceable by law, they are mandatory; but the Directive Principles of State Policy are only recommendatory. They are nevertheless fundamental in the governance of the country and it shall be the duty of the State to apply these principles in making laws (Article 37). Some of these important provisions are : (1) The State shall strive to promote the welfare of the people by securing and protecting as effectively as it may a social order in which justice—social, economic and political, shall conform to all the institutions of national life (Article 38); (2) The State shall, in particular, direct its policy towards ensuring—(a) that the citizens, men and women equally, have the

right to an adequate means of livelihood, (b) that the ownership and control of the material resources of the community are so distributed as best to subserve the common good, (c) that the operation of the economic system does not result in the concentration of wealth and means of production to the common detriment, (d) that there is equal pay for equal work for both men and women; (e) that the health and strength of workers, men and women, and the tender age of children are not abused and that citizens are not forced by economic necessity to enter avocations unsuited to their age or strength; (f) that childhood and youth are protected against exploitation and against moral and material abandonment (Article 30); (3) The State shall take steps to organise village panchayats as units of self-government (Article 40); The State shall, within the limits of its economic capacity and development, make effective provision for securing the right to work, to education and to public assistance in cases of unemployment, old age, sickness and disablement, and in other cases of undeserved want (Article 41); (5) The State shall make provision for securing just and humane conditions of work and for maternity relief (Article 42); (6) The State shall endeavour to secure to all workers work, a living wage, conditions of work ensuring a decent standard of life and full enjoyment of leisure and social and cultural opportunities and, in particular, the State shall endeavour to promote cottage industries on an individual or cooperative basis in rural areas (Article 43); (7) The State shall endeavour to provide within a period of ten years from the commencement of this Constitution, free and compulsory education for all children until they complete the age of fourteen years (Article 45); (8) It shall be the duty of the State to raise the level of nutrition and the standard of living and to improve public health (Article 47); (9) The State shall endeavour to organise agriculture and animal husbandry on modern and scientific lines (Article 48).

Accordingly, the Industrial Policy Resolution of April 1956 stated :

The adoption of the socialist pattern of society as a national objective as well as the need for planned and rapid development require that all industries of basic and strategic importance, or in the nature of public utility services, should be in the public sector. Other industries which are essential and require invest-



ment on a scale which only the state, in present circumstances, could provide, have also to be in the public sector. The state has, therefore, to assume direct responsibility for the future development of industries over a wider area.

And the Second Five-Year Plan of India categorically stated :

In a growing economy which gets increasingly diversified there is scope for both the public and the private sectors to expand simultaneously, but it is inevitable, if development is to proceed at the pace envisaged and to contribute effectively to the attainment of the larger social ends in view, that the public sector must grow not only absolutely but also relatively to the private sector.

This relationship of the public and private sectors is a part of the theoretical strategy of socialist development, which in the long run eliminates the role of the private sector; although in the transitory period it provides all desirable facilities to the private sector provided that it functions according to the directives of the planning authorities. Viewed in this context, the decisive step in ensuring the success of Indian planning lies in a conscious effort to enforce land reforms (abolition of intermediaries, conferment of fixity of tenure on the tillers of the soil, redistribution of land, and cooperativisation). To ensure increased agricultural surplus, State trading in foodgrains is an inevitable step. The expansion of the public sector (State and cooperative enterprises), both absolutely and relatively, is a device to compensate for weak entrepreneurship and its likely domination by foreign monopolies as, well as to increase the magnitude of investible funds (via the profit of public enterprises).

### III. Class correlations

Soviet planning has demonstrated that not only the economic but the social parameters are also important for the success of planned economic development. In fact, sometimes, the non-economic factors assume a more important role in making or marring a plan. Therefore, the identification of the warranted class correlations in the Indian context is in order. In its theoretical framework Indian planning seeks the alliance of the peasantry (along with rural poor), working and middle classes, traders, manufacturers and the democratic intelligentsia in the formulation and implementation of the plans at various levels. The operational

dynamism can be provided by the parties devoted to planning if they forge a planning front, to implement planned economic development and fight all these economic, social and political forces that are opposed to it, openly or tacitly. In the external spheres, the acceptance of the policy of coexistence provides the necessary condition for getting aid from both the economic systems (centrally planned and market economies) and maintaining international peace—a necessary condition for economic development. In the internal sphere on the issue of planned economic development, in spite of a general agreement, there is dissension.

The concept and content of planning is a heritage of the Indian national movement.<sup>26</sup> The programme of industrialisation, modernisation and economic development, contained in the five-year plans, are approved by the Parliament. Members of Parliament derive their inspiration from their party programmes and policies which are placed before the people through election manifestoes. An analysis of the elections manifestoes reveals that the parties of the left and left to the centre have emphasized nationalisation of key and wage goods industries, reduction of economic inequalities, moratorium on foreign debts, improvement in the working-conditions of workers, employees, teachers, landless labourers, marginal farmers etc., effective ceiling on incomes and urban property, land redistribution, cancellation of debts of small peasants and agricultural workers, minimum wages for agricultural workers, abolition of land revenue and introduction of progressive agricultural income tax, and cooperative farming and extension of State trading. All these programmes emanate from the Indian national movement and five-year Plans.

#### IV. Distinguishing features

The Indo-Soviet economic relations, as is being now universally recognised, stand on a special footing. Some of these are outlined below :

1. The Soviet economic and technical aid is directed towards the construction of the means of production. This is the only way of building and consolidating economic independence.

26. Singh, V.B. *op cit.*, see also Chandra, B., *The Rise and Growth of Economic Nationalism in India*, New Delhi, 1966.

2. The Soviet Union has agreed to accept payments in rupees. This saves us from foreign exchange difficulties and has created a new pattern of deals, which is having a repercussion on our deals with non-socialist countries.

3. The Soviet Union agrees to negotiate long-term bulk purchases. Such deals boost up domestic production and have a stabilising influence on the prices.

4. Invariably the Soviet technical aid has a provision under which our personnel are being trained. The 100 per cent training of the personnel leads to the development of indigenous talent.

5. The Soviet economic and technical aid helps the rapid growth of the public sector in the underdeveloped countries where the public sector is an instrument of rapid rate of growth, fostering democratic principles of economic growth, building and consolidation of economic independence free from the evil influence of indigenous and foreign monopolies.

6. While helping the State sector to grow the Soviet Union is not oblivious of the role played by the private sector in mixed economies like ours. Therefore, it has started negotiating techno-economic deals with the private sector as well.

7. With a view to demonstrating the effectiveness of large scale farming the Soviet Union also helps the underdeveloped countries in organising large-scale State farms like the Suratgarh farm.

8. There are joint projects in the techno-industrial and scientific complex to accelerate the development of what has been said in 1 above.

9. Gradually the Research and Development components of the economic deals are increasing. This implies that the Soviet aided projects are having an inbuilt mechanism to grow and develop in a competitive world.

10. All the above-mentioned factors help India to enhance her bargaining capacity with the capitalist countries. The successful entry of the Soviet Union in the international economic field functions as a multiplier of international economic aid; each unit of Soviet techno-economic aid brings additional units from the advanced capitalist countries. Thus, the Indo-Soviet economic relations strengthen the forces of peace, *detente* and coexistence.

11. While fostering technical and economic cooperation with India, the Soviet Union has been conscious of the fact that we are forced to divert a part of our scarce resources to defence. The

tendency for this unproductive expenditure to ascend has been curbed after the Indo-Soviet Friendship Treaty of 1971.

12. Recently, the Indo-Soviet relations have also entered the field of space science and consequently India has been in a position to launch her first satellite Aryabhata. The protocol for a second launching has already been signed.

One can see that the Indo-Soviet economic relations are all pervading, and that too without any interference in our domestic affairs. Sudhir Ghosh in his *Gandhi's Emmissary: A Non-Conformist's Inside Story of India's Past 20 Years* (Houghton Mifflin Company, Boston, 1967) writes : "...we discovered that our American friends had their own special notions about the training of steel engineers. In each steel centre where the Indian trainees were sent they made elaborate arrangements for the young Indians to attend special courses of lectures in the local universities. They were asked to attend lectures on American literature, American history and American way of life and a whole lot of other things which were innocuous enough but had nothing to do with the training of steel engineers. The theory was that these young men would in due course rise to managerial positions and such men should receive a broad-based training and not merely restricted technical training inside a steel works. This was all very nice but these men had been sent abroad for training only for nine to twelve months; in that short period they had to learn as much as possible about steel making and there was hardly any time to bother about history, literature and culture. We were interested only in practical training. We had quite a debate on the wastefulness of it all. But our American friends insisted on having it their own way. The Chairman of our Board shrugged his shoulders and said : 'Let them have it their own way. You do not look a gift horse in the mouth.'

"The Communists got the kudos of being disinterested friends who were concerned only with the job of turning the young Indian engineers into steel makers. The Americans with whom we had no ideological conflict successfully created the impression that they were doing a bit of American propaganda. The training inside the steel works cost no money because the steel companies did not charge any training fee. A large amount of American money had, however, to be paid to the universities for the lectures on literature and culture" p. 286).

#### V. Some identified Projects

The international peace and detente are looked at, both by India and Soviet Union, as necessary conditions for international economic cooperation and domestic multidimensional development. This is why for more than two decades now India and the Soviet Union have been carrying on multi-purpose cooperation. The Soviet Union has helped India in building a powerful industrial base. The building of Bhilai and Bokaro steel plants, the setting up of industries in public sector for heavy electricals, heavy engineering, pharmaceuticals, and cooperation and assistance in power generation are well known. The Indo-Soviet trade, which has an ever-rising curve, has contributed a great deal in promoting India's industrial growth.

This mutually beneficial cooperation was carried a stage further at the recent, third meeting (April 1970) of the Indo-Soviet Joint Commission on Economic, Scientific and Technical Cooperation. A protocol was signed. According to the protocol India and the Soviet Union have agreed for Indian supply of machinery for Soviet aided projects in third countries, and for association in civil constructions. It has been decided to extend cooperation on compensation basis to the textile and electronic industries, exploitation of alumina and of traditional as well as new agricultural products. Soviet Union and India have agreed to study the possibility of a plant in India, based on the East Coast, which may have a capacity of about 50,000 tonnes of alumina per year.

The Soviet Union has been rendering valuable assistance for promoting large-scale agricultural production in a number of developing countries. Such an assistance can be rendered only by a country which has already built and developed the basis of its own agriculture on modern scientific lines.

The Indo-Soviet agricultural cooperation, is however, less known. It started in 1956, when Asia's largest mechanised farm was set up at Suratgarh (Rajasthan) on an area of 12 thousand hectares.<sup>27</sup> It has become a model of rational use of agricultural machinery and a national school for the operators of modern farm. It is a multi-purpose farm producing improved seeds, pedigree cattle and better stock of poultry.

Three years after the setting up of this farm, the Soviet Union

27. For details see *Indian Journal of Labour Economics*, Vol. XIV, Nos. 1-2., April-July, 1971.

made a gift of equipment worth Rs. 400,000 to the farm to set up a repair workshop. In addition, India bought some machinery for the farm from the Soviet Union for the sowing of cotton and maize seeds as well as harvesters for potatoes.

The success of the Suratgarh Farm made the Government of India appoint a Committee in 1959, under the Chairmanship of Sri K.R. Damle, the then Secretary of Agriculture, to examine the economics of large-scale farming. The Committee was impressed by the operations and economics of Suratgarh; and on its positive recommendation, in May 1964, the Government of India decided to set-up a new farm at Jetsar, near Suratgarh. The Soviet Union provided a trade credit of Rs. 2.53 million to buy agricultural machinery for this farm.

In 1966 an agreement was signed between India and the Soviet Union under which the Soviet Union gifted agricultural machinery and equipment worth Rs. 11 million to enable India to organise five more state farms of 3000-5000 hectares each. These were organised during 1967-1970 in Hissar (Haryana), and Ladhawal (Punjab) in August 1968, Raichur (Mysore) in October 1968, and Cannanor (Kerala) in 1970. The growth of state farms, the problems of their management, and the significant role they are playing in agricultural development have led to the creation of the State Farms Corporation. The Soviet Union has already finished delivery of equipments to these farms worth Rs. 18.8 million. India has also bought an additional supply of equipments for these farms worth Rs. 3.8 million.

The Soviet supply of tractors to India—as many as 35,000—when India did not have adequate tractor producing capacity, was also a vital factor in the progressive mechanisation of agriculture in this country. Now tractors of Soviet Model T-25 are manufactured in India.

Today, there are 13 State farms, under the Corporation and many of them are not only profitable units, but are already contributing in a major way to agricultural development. In 1972-73 the Corporation got substantial profits from the various farms. Suratgarh itself yielding Rs. 60 lakhs. The Corporation already provides permanent employment to over 1,000 agricultural specialists and workers, and temporary jobs to 3,000. About 20,000 additional workers, get employment on the State farms as cons-

truction and transport workers. The Corporation is planning to organise agro-industries for processing and canning, which will provide considerable boost to horticultural development.

During our Five Year Plan the State Farms Corporation is planning to organise four more State Farms where there are none as yet, e.g. in Madhya Pradesh, Gujarat, Nagaland and Bihar. Rs. 100 million is proposed to be spent on these four farms. The Corporation also plans to set up a training school at Suratgarh for drivers, mechanics and others for the State farms.

The State Farms Corporation has since its inception been a pioneer in the production of quality seeds (wheat, rice, cotton, etc.) as also of pedigree breeds (sheep, bulls, etc.) on a scientific basis. These farms also produce seedlings of many horticultural plants. Over 70 per cent of the harvests from these Farms are used for seed. By the end of our Fifth Five Year Plan, the State Farms Corporation hopes to increase seed production to 30,440 tonnes a year.

The June 1971 agreement for scientific and technical cooperation in agriculture and animal husbandry laid a solid foundation for wider cooperation in agriculture. During the visit of Brezhnev the area of cooperation in the agricultural sector had been extended, ranging from the procurement and study of Soviet Karakul sheep, research in fisheries, supply of Soviet experts for the development of sugarbeet and sunflower cultivation, afforestation in temperate regions and deserts, import of merino sheep, to subjects like weather forecasting, and the supply of fertilisers to India.

During the last 7 years the Soviet Union has supplied to India over 10 thousand of merino sheep of Stavropol and Groznenskaya breeds, which are widely used for improvement of local breeds of Indian sheep. The Soviet gift of 250 Karakul sheep has enabled the Indian Council of Agricultural Research to organise a specialised Karakul sheep farm in Bikaner (Rajasthan).

During the last 3 years the Soviet Union sent to India over one thousand samples of seeds and received from India the same number. During the same period Central Agricultural Research Library of the USSR sent over 1,700 books and periodicals on agriculture to 32 Indian libraries.

India has imported Soviet wheat, on credit, when we needed it most. It must, however, be mentioned that main Soviet strategy of aid in agriculture has been to help India to lay the foundations of large-scale multipurpose farming in the public sector.

This presents a contrast to exporting wheat (meant for animal consumption at home) to India.

#### IV Aid Through Trade

'Aid Through Trade' is a slogan of the 'fifties. The entire thrust of Soviet aid, as said above, is to boost up India's diversified domestic production; and strengthen the growth of Department I. This changing scene in production is reflected in our economic independence when seen through the direction of our exports and imports with different countries, having political systems (See Ann. II). As coloniser Britain was our traditional trade partner, our imports from Britain were about one quarter of our total imports in 1955-56, which declined to about one sixth in 1974-75. Similarly, the export declined from about 27 per cent to about 9 per cent, i.e. to one-third. This is a sure sign of the decline of British grip over India. The strongest market economy in the Second World War period was U.S.A. In 1955-56 our imports from that country were about 13.15 per cent, which increased to about 16.13 per cent in 1974-75: mainly in response to our demand for capital goods. But our export during the same period, have declined in value from about 14.11 per cent to 11.29 per cent, thanks to the devaluation—a device to get more quantum of goods and pay less.

Coming to the recovered market economies, after the Second World War, we find that the imports have been reduced from 17.46 per cent to 11.49 per cent; while the exports remain almost the same.

But what is of significance is the increasing trade with the USSR and other socialist countries. From the USSR the imports stood at 0.91 per cent which have increased to about 10 times in 1974-75, and the exports figures have increased from 0.45 per cent to about 23 times in 1974-75. Similarly, with the remaining socialist countries our imports were just 0.60 per cent in 1955-56 which have increased five times; and the exports have increased from 0.29 per cent to about 16 times.

Let us conclude this section with the following observations of the Reserve Bank of India (*Bulletin*, March 1974) that a large part of the growth in India's total trade with all countries was brought about by her trade with the East European bloc. This trade has enabled India to find a market for some of her non-traditional



items and also maintain the unit value of her exports of traditional items, by providing an assured alternate market for such goods. The tying up of trade and aid credit between India and the major partners in the East European bloc has also made the burden of repayment of such credit manageable. The continuance of such trade association helps India in getting the required credit from these countries for the several core projects in her Fifth Plan and also for the several strategic commodities like petroleum products, steel, ships, tractors, etc., which could be met from some of the East European countries, particularly from the USSR.

## Defence—A Note

*Dr. Girish Mishra*

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The Soviet Union has contributed to the defence of India's territorial integrity in four ways. First, she has provided political support to India on various issues. Secondly, in the times of foreign invasions, the USSR has supplied military hardwares. Third, she has helped India produce them with economic and technical co-operation. Fourth, the Soviet Union has helped India in building a powerful public sector comprising, among others, basic and heavy industries. Thus conditions have been created for India to build an independent economy to make her political freedom secure and enable her to defend her independence against invasions—visible and invisible.

In this note, we propose to discuss the second and the third issues as the rest two have been discussed in the earlier chapters.

Soviet assistance to increase India's defence preparedness directly dates back to 1955 when the Soviet Union gifted two II-14 transport aeroplanes to the Indian air force. Again in 1960 when India asked for more of such planes, the Soviet Union complied with the request by readily giving 24 transport planes.

Till 1965 India was solely dependent on Western countries in general and the USA and Britain in particular for the supply of her military wares. This was the legacy of India's colonial past during which it was not allowed to develop defence industries, so that she could remain dependent on the West.

It was during the 1965 war that India faced a grave situation. The USA imposed an embargo on the supply of arms to India and Pakistan. In fact it was an embargo only on India's purchases of arms in the USA because Pakistan, being a member of a military block, had ample stock of arms and could replenish the stock by getting the US supply through third countries.

Not only this, the foreign oil companies, operating in India, refused to refine extra crude bought on the Government account presumably on orders from their headquarters.

In 1962 when China attacked India, it was difficult to get supply of arms from the USA. It was officially revealed that during 1962-1965 India got arms supplies worth Rs. 40 crores which was "only five per cent of the Indian defence of any year, and was perhaps equivalent to the foreign exchange expenditure incurred by India in any one year prior to 1965."<sup>1</sup>

Moreover, there was reluctance on the part of the USA and other Western countries to fulfil India's demands for sophisticated arms. "For instance, in 1959 when tensions began to grow along the Sino-Indian border, India approached the United States for C-130 transport planes and helicopters to carry men and materials in high altitude areas for the construction of roads near the Tibetan frontier. But America refused to respond."<sup>2</sup>

However, the USA had supplied, and is supplying, to Pakistan arms of whatever types it asks for. Pakistan has received bombers, star fighters, sabre jets, big transport planes, training and reconnaissance aircraft, Sherman, Chaffe and Patton tanks besides other weapons and materials. According to a report appearing in *Hindustan Times* (21 January 1971), Chester Bowles, a former US Ambassador to India, testified before a congressional body that from the outset the Pakistan government had made it clear that it had no quarrel either with the USSR or China and privately admitted that its military build-up was, in fact, directed against India. He further added: "We supplied to Pakistan tanks, motorised artillery and the like wares suitable for use only on a relatively flat terrain, in other words, on the plains of North India."

India in the beginning did not look to the Soviet Union for the supply of military materials because it did not have any precise information about their effectiveness in the Indian situation. In the second place, there was a language barrier also. Since the Indian officers, army technicians and scientists lacked a knowledge of Russian, there was a difficulty of training them in handling the materials and equipment.

1. *Indo-Soviet Cooperation* (an ISCUS publication), New Delhi-7.
2. *Mehta, Vinod, Soviet Union and India's Industrialisation*, New Delhi, 1975, pp. 67-68.

However, these difficulties were overcome and India requested the Soviet Union for the supply of military hardware and it got 24 IJ-14 transport planes in 1960, 10 Mi-4 helicopters and 8 AN-12 heavy transport planes in 1961, and 16 Mi-4 helicopters and 8 AN-12 transport planes in 1962.

When India's requirements of supersonic aircraft were not fulfilled by the Western countries, it turned to the Soviet Union which not only gave MIG-21 supersonic fighter-inceptor aircraft on rupee-payment but offered necessary facilities for their production in India. In 1962, an agreement to this effect was signed between the two countries. It may be noted in this connection that then the USA put pressures on India to back out of the agreement. India retorted to the Americans by saying that it was "our freedom to buy anywhere we like and what we like". It added that no independent country would agree to the proposition that India's purchase of aircraft or anything could be vetoed by another country.<sup>1</sup>

When in 1964 India wanted to buy F-104 star-fighters from the USA, it did not get them because the USA thought that it would anger Pakistan. The USA tried to pressurise India to allow it to build military bases. As recent as 1976, Y.B. Chauhan said that the USA wanted "client states" but "our size, our potential strength, our traditions and heritage do not allow us to become a client state."<sup>2</sup>

Being disappointed in the USA, India turned towards the Soviet Union for its requirements which responded without any hesitation. A new agreement was concluded between the two countries, under which India got 4 squadrons of MIG-21, helicopters, light tanks, missiles and other weapons and equipment. The payment for them was to be made in the Indian currency over a period of 10 years. The credit facilities were given at the interest rate of only 2 per cent per annum.

Again in 1964-65 when India failed to get submarines from the Western countries, the Soviet Union offered four submarines to India.

Since 1964 India's dependence on the USA and other countries

1. *ibid.*, p. 69.

2. *Economic Times*, 17 June 1976.

for the supply of military hardwares has declined. This has also weakened their capacity to pressurise and blackmail India. The Soviet Union has helped India become self-reliant in this matter. It has assisted India in establishing the factories for manufacturing MIG-21 supersonic jet fighters, radar equipment and missiles. India has also set up factories with Soviet cooperation to produce air-to-air missiles. Indian technicians have improved upon the model of MIG received from the Soviet Union.

The Soviet Union has continued the supply of arms demanded by India. The supply has included MIG-21, UTI trainers and SU-7B fighter bombers, K-13 Atoll air-to-air missiles, SA-2 surface-to-air missiles and SS-N-2 "styz" surface-to-surface missile, PT-26 amphibious tank and T-54 and T-55 main battle tanks, OT-64 armoured personnel carriers, besides landing craft, patrol boats, frigates, submarines and motor torpedo boats.

A few things need to be underlined here. First, the terms on which the Soviet Union has been supplying military hardwares to India are very easy. The payments have to be made in Indian currency and over a long period of time. Besides, "these Soviet supplies cost less in comparison with American and Western arms. For instance, the II-38 maritime reconnaissance plane which India has decided to buy from the Soviet Union costs Rs 6 crores as compared to the British Nimrod which costs around Rs 10 crores. II-38 can remain airborne for 18-hours at a stretch and is equipped with the latest radar and sonar gadgets useful in anti-submarine and maritime reconnaissance duty."<sup>1</sup>

Second, the Soviet Union has not imposed any limitation on the use of military wares or other supplies coming from it or produced in India with its help nor has it ever insisted that India refrain from buying military hardwares from other sources.

Last, so far as the quality of the Soviet arms and military supplies is concerned, it was tested in the 1965 and 1971 wars and it has been established beyond all doubts that they are superior to those from the USA, Britain and France. MIGs have proved to be qualitatively far ahead of the US F-104s and the French Mirage.

1. Mehta, Vinod, *op. cit.*, p. 71,

## **Treaty of Peace, Friendship and Cooperation**

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DESIROUS of expanding and consolidating the existing relations of sincere friendship between them,

BELIEVING that the further development of friendship and co-operation meets the basic national interests of both the states as well as the interests of lasting peace in Asia and the world,

DETERMINED to promote the consolidation of universal peace and security and to make steadfast efforts for the relaxation of international tensions and the final elimination of the remnants of colonialism,

UPHOLDING their firm faith in the principles of peaceful co-existence and co-operation between states with different political and social systems,

CONVINCED that in the world today international problems can only be solved by co-operation and not by conflict,

REAFFIRMING their determination to abide by the purposes and principles of the United Nations Charter,

The Republic of India on the one side, and the Union of Soviet Socialist Republics on the other side,

HAVE decided to conclude the present Treaty, for which purpose the following Plenipotentiaries have been appointed :

On behalf of the Republic of India :

Sardar Swaran Singh,

Minister of External Affairs

On behalf of the Union of Soviet Socialist Republics :

A.A. Gromyko,

Minister of Foreign Affairs

Who, having each presented their Credentials, which are found to be in proper form and due order,

Have agreed as follows :

### **Article I**

The High Contracting Parties solemnly declare that enduring

peace and friendship shall prevail between the two countries and their peoples. Each Party shall respect the independence, sovereignty and territorial integrity of the other Party and refrain from interfering in the other's internal affairs. The High Contracting Parties shall continue to develop and consolidate the relations of sincere friendship, good neighbourliness and comprehensive cooperation existing between them on the basis of the aforesaid principles as well as those of equality and mutual benefit.

### **Article II**

Guided by the desire to contribute in every possible way to ensure enduring peace and security of their people, the High Contracting parties declare their determination to continue their efforts to preserve and to strengthen peace in Asia and throughout the world, to halt the arms race and to achieve general and complete disarmament, including both nuclear and conventional, under effective international control.

### **Article III**

Guided by their loyalty to the lofty ideal of equality of all peoples and nations, irrespective of race or creed, the High Contracting Parties condemn colonialism and racialism in all forms and manifestations, and reaffirm their determination to strive for their final and complete elimination.

The High Contracting Parties shall co-operate with other states to achieve these aims and to support the just aspirations of the peoples in their struggle against colonialism and racial domination.

### **Article IV**

The Republic of India respects the peace-loving policy of the Union of Soviet Socialist Republics aimed at strengthening friendship and cooperation with all nations.

The Union of Soviet Socialist Republics respects India's policy of non-alignment and reaffirms that this policy constitutes an important factor in the maintenance of universal peace and international security and in the lessening of tensions in the world.

### **Article V**

Deeply interested in ensuring universal peace and security, attaching great importance to their mutual cooperation in the international field for achieving those aims, the High Contracting Parties will maintain regular contacts with each other on major

international problems affecting the interests of both the states by means of meetings and exchanges of views between their leading statesmen, visits by official delegations and special envoys of the two governments, and through diplomatic channels.

#### **Article VI**

Attaching great importance to economic, scientific and technological cooperation between them, the High Contracting Parties will continue to consolidate and expand mutually advantageous and comprehensive cooperation in these fields as well as expand trade, transport and communication between them on the basis of the principles of equality, mutual benefit and most-favoured-nation treatment, subject to the existing agreements and the special arrangements with contiguous countries as specified in the Indo-Soviet Trade Agreement of December 26, 1970.

#### **Article VII**

The High Contracting Parties shall promote further development of ties and contacts between them in the fields of science, art, literature, education, public health, press, radio, cinema, tourism and sports.

#### **Article VIII**

In accordance with the traditional friendship established between the two countries, each of the High Contracting Parties solemnly declares that it shall not enter into or participate in any military alliance directed against the other Party.

Each High Contracting Party undertakes to abstain from any aggression against the other Party and to prevent the use of its territory for the commission of any act which might inflict military damage on the other High Contracting Party.

#### **Article IX**

Each High Contracting Party undertakes to abstain from providing any assistance to any third party that engages in armed conflict with the other Party. In the event of either Party being subjected to an attack or a threat thereof, the High Contracting Parties shall immediately enter into mutual consultations in order to remove such threat and to take appropriate effective measures to ensure peace and the security of their countries.

#### **Article X**

Each High Contracting Party solemnly declares that it shall



not enter into any obligation, secret or public with one or more states, which is incompatible with this Treaty. Each High Contracting Party further declares that no obligation exists, nor shall any obligation be entered into, between itself and any other state or states, which might cause military damage to the other Party.

#### **Article XI**

This Treaty is concluded for the duration of twenty years and will be automatically extended for each successive period of five years unless either High Contracting Party declares its desire to terminate it by giving notice to the other High Contracting Party twelve months prior to the expiration of the Treaty. The Treaty will be subject to ratification and will come into force on the date of the exchange of Instruments of Ratification which will take place in Moscow within one month of the signing of this Treaty.

#### **Article XII**

Any difference of interpretation of any Article or Articles of this Treaty which may arise between the High Contracting Parties will be settled bilaterally by peaceful means in a spirit of mutual respect and understanding.

The said Plenipotentiaries have signed the present Treaty in Hindi, Russian and English, all texts being equally authentic, and have affixed thereto their seals.

Done in New Delhi on the ninth day of August in the year one thousand nine hundred and seventy-one.

**TRIES : 1955-56 to 1974-1975.***( In lakhs of Rs )*

E X P O R T S			
1964-65a	1971-72c	1974-75f	GROWTH
16624.28 (20.49)	16808.14 (10.48)	30700.00 (9.22)	-1/3rd
14535.76 (17.91)	26278.93 (16.39)	37579.00 (11.29)	-5/6th
6007.99 (7.40)	18170.63 (11.33)	29525.00 (8.87)	+2.0 times
37168.03 (45.81)	61257.70 (38.21)	97804.00 (29.38)	-0.6 times
803.53 (0.99)	2403.04 (1.50)	1534.00** (0.46)	-1/3rd
1187.30 (1.46)	2412.59 (1.50)	8474.00 (2.54)	+2.0 times
997.01 (1.23)	2414.86 (1.51)	5214.00 (1.57)	+1.8 times
212.70	1471.44	2301.00**	-1/4th

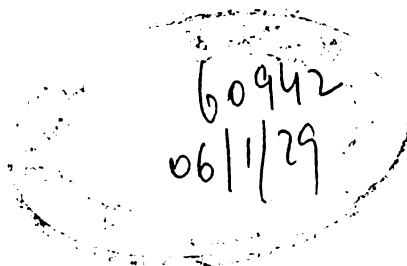
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