ASIA AND "TECHNOLOGICAL" IMPERIALISM

S. A. Pavlov

ASIA AND "TECHNOLOGICAL" IMPERIALISM

ALLIED PUBLISHERS PRIVATE LIMITED

NEW DELHI BOMBAY CALCUTTA MADRAS BANGALORE
HYDERABAD AHMEDABAD LUCKNOW

ALLIED PUBLISHERS PRIVATE LIMITED
Prarthna Flats (1st Floor), Navrangpura, Ahmedabad 380009
15 J.N. Heredia Marg, Ballard Estate, Bombay 400038
3-5-1129, Kachiguda Cross Road, Hyderabad 500027
Patiala House, 16A Ashok Nagar, Lucknow 226001
5th Main Road, Gandhinagar, Bangalore 560009
17, Chittaranjan Avenue, Calcutta 700072
13/14 Asaf Ali Road, New Delhi 110002
751, Mount Road, Madras 600002

First Published, 1986

PRINTED IN INDIA
AT ALLIED PUBLISHERS PVT. LTD., A-104, MAYAPURI, PHASE II, NEW DELHI

CONTENTS

1	INTRODUCTION
8	1. TECHNOLOGY OF EXPLOITATION
15	2. NON-COMPETITIVE "HIGH TECHNOLOGY"
18	3. JAPAN'S "TECHNOLOGICAL TIDAL WAVE"
29	4. BRITAIN'S "TECHNOLOGICAL" IMPERIALISM
35	5. BRAIN DRAIN AND TECHNOLOGY TRANSFER
37	6. ROBOTS AND ASIA
43	7. TNC'S ECOLOGICAL CRIMES IN ASIA
47	8. CHOICE FOR INDUSTRIAL ADVANCE

INTRODUCTION

In recent years the West, which in modern political language means the countries of developed capitalism including the USA, the West European states and Japan, has been more and more actively using the latest achievements in science and technology in its relations with the Asian countries that have embarked on the path of political independence. It would be no exaggeration to say that the West is mounting a new "technological" offensive in the developing countries of Asia. The Western private companies, holding the bulk of scientific and technological achievements in the capitalist world, make use of their monopoly in this field to gain an enormous profit for themselves, capitalising on the scientific, technological and industrial backwardness of the Asian developing countries.

The latter are making concerted efforts to overcome their economic backwardness inherited from colonial times. It is common knowledge that technological progress helps to speed up economic growth a great deal. However, the scientific and technological capabilities of the Asian developing countries are still rather low. They have difficulties in mobilising internal accumulations for this purpose. All that limits their possibilities of developing the industrial base by their own effort. As a result, just like the rest of the

developing countries, they are compelled to turn to external sources in search of scientific and technological innovations as well as for industrial experience.

The international transfer to technology has become particularly widespread over the last decade. "Technology" here is understood as systematised knowledge used for making products, for using a production operation or for rendering various services, as is pointed out, for instance, in the draft International Code of Conduct on the Transfer of Technology worked out by The United Nations Conference on Trade and Development (UNCTAD)

In the broader sense of the word "technology" also includes the knowledge and experience of an organisational and commercial nature.

So, technology is scientific, technical, industrial, managerial and commercial knowledge and experience.

Scientific and technological achievements are usually transferred to developing countries on *commercial terms* and it would be more correct to speak of the *sale* and not of the *transfer* of technology.

The international exchange of technological achievements on a commercial basis is by itself a logical result of the scientific and technological revolution. Research is steadily becoming more and more sophisticated and costly, and this stimulates the development of trade in the results of research, which brings mutual benefits.

It is a different matter, however, when the seller abuses his monopoly on scientific and technological achievements to turn the transfer of technology into a means of pumping enormous profit out of the buyer countries. More often than not the buyers are also compelled to accept those technological novelties which the seller wants to get rid of and not those which meet the interests of economic development of the recipient

countries. This is precisely how the Western industrialised countries are building their relations with the developing states in the matter of technology transfer.

In present-day conditions the main source of technology for the developing states in Asia are Japan, the USA and the EEC countries. For a number of reasons, the West is only willing to hand over technology to Asian countries. One of them is the high profit made by Western private corporations from the sale of technology to developing states.

Generally, the buyer countries have no means to determine the actual value of the new technology. Often, these technologies might have already become obsolete and have been ousted by more modern ones. The Western corporations usually put unjustifiably high prices on it and receive considerable sums of money from the developing states for patents, licences and technical know-how.

The Western scientific and technological monopoly in the relations with the developing countries is backed by a powerful research base. It is common knowledge that more than 90 per cent of the financial resources spent on the development of science and technology in the non-socialist world is chiefly concentrated in the private sector of the Western industrialised countries while the share of the developing countries remains very insignificant. This situation has led to a huge gap in the levels of scientific and technological development between the two groups of countries. This is also reflected in patent statistics. The developing countries accounted for just about 200,000 patents out of the total of 3.5 million valid in the early '80s. But even out of that number citizens of the developing countries and nationally-owned companies are holding not more than one-fifth of all patents issued in those countries. Eighty

per cent of patents are owned by foreign citizens and companies.

It might seem that the growing number of inventions patented in developing countries should open ample opportunities for their use in those countries' national industries. In fact, however, only one out of every twenty patents issued in developing countries finds practical application in production. The use of the foreign-owned patents is particularly low—its share never tops one or two per cent. Foreign businessmen use the bulk of those patents only to keep their competitors away from entering the market of a developing country and to ensure monopoly supply of the patented goods.

In many cases foreign companies under cover of patents export to the developing countries outdated goods which have no demand in the markets of the industrialised countries and charge higher prices on the "technological novelty".

Until recently it was only cheap consumer goods that enjoyed demand in Asian countries. Western companies had flooded their markets with such goods as chewing-gums, cigarettes, ball-point pens, shaving kits, cosmetics, plastic articles, electric lamps and dry batteries, transistor radios, bicycles, and so on. To strengthen their positions, Western businessmen also organised the manufacture of such goods in Asian countries.

As the market was saturated with consumer goods, their list expanded by including more technically sophisticated and costly items such as motorcycles, cars, tape recorders, and electronic calculators. However, the limited solvency of the population in the Asian countries puts tight restrictions on the import of such goods. In the meantime, the Western monopolies' drive for higher profit makes them search for new markets

and spheres of investment. Under these circumstances it no longer profits the West to keep the developing countries industrially backward. The West no longer objects to the Asian countries adjusting to its needs in various ways. Private capital from the West flows into such sectors of their economy as the chemical, general and electric engineering and electronic industries, transport and communications, and precision instrument-making. Production technology is becoming a popular commodity in Western trade with the Asian countries.

The Western companies transfer technology to the developing countries within the framework of the so-called collaboration aggreements, through the sale of licences, engineering and consultative services, the lease of equipment, and tenders. The leading tendency in this sphere of economic ties between the West and the developing countries is not only the expanding sale of technology but also the steady toughening of its terms. It is common knowledge, for instance, that the Western companies sell licences on the use of inventions to the developing countries on tougher conditions than to the industrialised states. As a rule, the Western partners forbid the buyers of technology in the developing countries to use scientific and technological achievements and industrial methods mastered under a licencing agreement outside the particular factory. Many agreements contain a clause banning the transfer of information on the purchased technology to third parties. In a number of cases foreign partners even reserve the right to fix the procedure of using the information by the buyer of technology at their own discretion. There have been cases when the same manufacturing methods were sold 16, 17 and even 24 times. And payment to the foreign sellers of technology have also increased as many times.

Without the knowledge of the seller the buyers are forbidden to make any alterations in the products or introduce field changes to adapt them to specific features of the local market. This is one of the widespread restrictions ususally contained in the agreement linked with the sale of technology by Western companies to developing countries. Such restrictions are introduced on the pretext of preventing the deterioration of quality. In fact, however, the idea is to enable the foreign partner to remain the constant supplier of machines and equipment and sometimes of various components (parts, units and semi-finished goods) as well as of spare parts needed by the customer. And the cost of these supplies, as a rule, considerably exceeds the price of the technology itself.

In selling technology to the developing countries the Western companies impose tight controls on the list of products put out on a licence and the volume of their manufacture. The issue of products gets special attention. In many cases such products can be sold on the market of the developing country only through the shopping network controlled by the seller of technology, for instance, through his trading firm in the particular country. The export of products from the country where the licence has been sold is restricted in the same way. Just as in the sale of products on the domestic market, export is allowed only through the services of the trading firms of the seller of technology. One of the forms of export restriction is the higher percentage of deductions paid to the foreign partner from the cost of the export products as compared with those from the sales of the same goods on the domestic market. There are also export restrictions both on the volume and the cost of the supplied products.

An analysis made by Reserve Bank of India shows to what extent export restrictions are widespread in the

sale of technology by the Western companies to the developing countries. Out of 1,285 agreements concluded by Indian partners with Western companies 956 contained restrictions on the export of the products made with the use of the purchased technology.

One can also find in such agreements departures from international practice in the settling of accounts between partners. For instance, in India's import of technology there are cases when Indian companies continue to make payments to the foreign partner even after the term of the agreement has expired. This happens because on the insistence of the Western seller of technology the agreement contains a clause whereby the Indian partner is obliged to stop production after the term of the agreement runs out. And to keep his enterprise going, the Indian partner in most cases has to continue payments.

However, nowadays the West finds it more and more difficult to keep its monopoly on scientific and technological achievements in the Asian developing countries. The newly-freed states in that region can get new machinery and advanced technology from the USSR and the other Socialist Community countries. The scientific and technological exchange between the Soviet Union and the developing countries is carried out on an equitable and mutally-beneficial basis. A specific feature of cooperation with the Soviet Union is that it is aimed at setting up enterprises in the key branches of the public sector in the developing countries because this sector is the basis of independent development.

1. TECHNOLOGY OF EXPLOITATION

William D. Carey, a spokesman for the American Association for the Advancement of Science, has told the US Senate that science and technology were a new and important weapon of American foreign policy. Carey said bluntly that science and technology had become a "hard currency" in the so-called "new US diplomacy". The use of technical innovations, he pointed out, has become a key principle of our diplomacy with regard to the developing countries. The main political aim of this diplomacy is to use science and technology to dispel the increasing hostility towards and mistrust of the USA. Well, it has been put frankly enough.

The US government pins big hopes on science and industrial technology. The National Technology Innovation Act adopted in the USA in the late '70s says that the use of industrial innovations will make it possible to reduce the US trade deficit and to stabilise the dollar. Similar objectives are pursued by the US Patent Policy Bill.

It remains to be seen to what extent the Washington administration is going to succeed in using those legislative acts to reduce the country's foreign trade deficit of about 150,000 million dollars or to solve other problems facing the American economy. One thing is clear, however: scientific and technological

achievements have become one of the main instruments of US economic expansion in various parts of the world, including Asia.

It is very profitable for the companies of the developed capitalist countries to use machines, equipment and materials not manufactured in this or other developing states as well as to apply corresponding technology because it gives them ample opportunities for increasing their investments.

It is industiral technology that is "responsible" to a considerable extent for the rapid growth of direct Western private investments in the Asian developing countries. Their economies are subjected to particularly fierce exploitation by the American transnational corporations (TNC). This is evident, among other things, from the data about the profitability of their investments in Asia. While in the industrialised capitalist countries the rate of profit from direct American private investments has been around 18 per cent in recent years, in the developing countries as a whole it was 27 per cent and in the Asian countries it climbed to nearly 50 per cent.

US loan capital is also penetrating into the developing countries under cover of assisting the transfer of technology. Technical "aid" is one of the most profitable forms of the application of capital for the USA. For instance, about 75 per cent of the US loans to the developing countries is again spent in the USA on purchasing machines, equipment and licences for the right to use various deisngs and manufacturing methods and on paying for the services of technical specialists.

Kuala Lumpur, the capital of Malaysia, has become the first bridgehead in the new technological offensive launched by the USA in Southeast Asia. It is the headquarters of the ASEAN-US Centre for Technology

Exchange. The USA intends to set up similar centres in the capitals of the other ASEAN countries too.

These centres are the branch offices of the parent organisation also called the ASEAN-US Centre for Technology Exchange formed in the USA under the auspices of the Washington administration. The Centre is made up of several leading American corporations as well as of a number of private and government organisations of the ASEAN countries.

President Reagan described the formation of that Centre as an extremely important American private initiative aimed at consolidating the US presence in Southeast Asia.

Formally, the Centre is supposed to help the technological progress of the ASEAN countries. And money is already being allocated for this purpose. For instance, Robert Driscoll, Executive Director of the Kuala Lumpur Centre, has said that its annual budget has reached one and a half million dollars.

It makes one wonder then why the USA is so "concerned" about the level of technological development of the Southeast Asian countries. To begin with, the United States wants to create conditions in that region for American companies more favourable than those in which their West European, Japanese and other competitors are operating.

The reasons for the high profitability of trade in technology should also be sought in the structural changes taking place in the industrial production of the Western developed countries. What is receding there into the background is not such "old", less profitable sectors as the textile, clothing, leather, and shoe-making industries but also those which are only recently considered quite up-to-date such as the metal, motor and a number of other industries. On the other hand, the industries whose products bring the highest profit

from market sales have come to the fore. This applies to the so-called "high-technology goods" where the spending on research and development accounts for a large part of the production costs. These goods include the products of the robot-building industry and the latest in electronic and optico-mechanical production.

However, scientific and technological progress is not limited to the appearance of more and more new goods. It is also accompanied by qualitative changes in the production cycle itself, in particular, by the division in space of its principal stages which were indivisible earlier: research and development, production and sale.

Significantly, the decisive role of production is gradually decreasing. This stage is being reduced to a series of very simple mechanical operations. This makes it possible and, what is most important, profitable for the Western corporations to move production either fully or partially to developing countries with their large resources of cheap and unskilled labour.

As for research and development and sale, these stages remain in the hands of the Western corporations. This "division of labour" enables the Western corporations to increase their profits while industrialisation of the developing countries is placed under Western control. This situation ensures the growth of profit for the Western corporations not only in present but also in the future.

Rapid industrial growth in the Southeast Asian countries is based precisely on this model. It results in what is known as "export industrialisation" perpetuating their dependence not only on Western technology but also on Western markets.

As for India, it is assigned a somewhat different role in the US schemes of "technological" expansion. India has highly skilled scientific personnel, and to use it in American interests, the US government endorsed the

setting up of what is known as "technological parks" in that country. The idea was to transfer technology from the USA to India and to get software from India.

At the talks with the Indian side on the transfer of technology the US delegation put forward a number of demands. The USA insisted that American specialists should supervise the use of technology to be transferred to India and that India should revise its patent legislation. The Americans wanted India to abrogate its law on currency control and lift other restrictions on foreign investments, including the American ones estimated at 500 million dollars.

The Indian side opposed this pressure with its own "selective" policy in the transfer of technology to meet its national interests. The use of foreign technology should speed up India's economic growth and help to solve its social and economic problems and not serve as a means of increasing the country's economic dependence on external forces.

The speed-up of scientific and technological progress is an objective factor, and it is common knowledge that under its impact the "life cycle" of goods is being reduced. Consequently, the shift of industries making new types of products to the developing countries is also speeded up. For instance, the shift of half of world production of radio sets to the Southeast Asian countries took 12 years and that of TV production 9 years. Now, some of the economists estimate that the shift of the production of pocket calculators will not take more than 7 years while that of the production of quartz watches is to be completed within 5 years.

As a result, attempts are being made to lay a theoretical basis for the neocolonialist policy of exploitation operated by Western private business with regard to the developing countries, including those in Asia. The "technological" policy of the Western

corporations aimed at making as much profit as possible is being passed off as their desire to help the developing countries in bringing nearer their "technological future".

In fact, however, this policy pursued by the corporations means more fierce exploitation of the developing countries. They are being made more dependent on the markets of their highly developed partners since the products of the shifted industries can be sold on the Western markets in the main where competition is getting tougher and tougher.

As a consequence, industrialisation in the Asian countries fails to narrow the gap between their level of technological development and that of the West. On the contrary, this gap is being continuously reproduced at each stage of the perfection of industrial technology. Along this path of development the "technological future" on which so many hopes are pinned in the Asian countries comes to them only as the yesterday of the industrialised nations. And this not only reproduces and increases the technological and, consequently, economic dependence of the developing countries on the West but also aggravates the old social and economic problems and gives rise to new ones.

In the conditions of the protracted depression which engulfed the capitalist world in the mid-'80s the Western corporations scale down production at their enterprises in the developing countries in the first place thus striking extremely painful blows at the economies of the latter. For instance, the selfish policy of the Western corporations is aggravating the problem of unemployment in Southeast Asia. In Singapore alone the number of redundant workers has increased 50 per cent over the first three months of 1986. P. MacLevin, manager of a Singapore subsidiary of American Rockwell International Corp., which had announced layoffs at its enterprises, was compelled to admit in the

Straits Times in April 1986 that they had been caused by a recession in the USA.

In many developing countries of Asia growing unemployment in the cities is accompanied by the continuing mass impoverishment of peasants who are simply going broke. One of the main reasons is the selfish trade policy of the West. It has led to a fall in world market prices of many agricultural goods—the traditional export items of the region's countries. To make matters worse, the latter cannot compensate for a drop in the revenue from traditional exports by increasing the sale of modern "high-technology" industrial goods. Technological dependence on the West and the protectionist policy of the Western states doom to failure any attempts by the developing countries to move in that direction.

In these conditions the economic situation continues to worsen even in those developing countries in Asia which just a short while ago considered "Western showcases" in the region—the members of the Association of South-East Asian Nations (ASEAN). According to a report published by the Asian Development Bank in Manila in April 1986, the growth rate of the gross national product (GNP) in 1985 was in Indonesia just 2.9 per cent and in Malaysia 2.8 per cent. In Singapore, for the first time after gaining independence, the GNP in 1985 dropped 1.8 per cent while in the Philippines the drop was 3.7 per cent.

The difficulties experienced by the ASEAN countries largely stem from their growing technological dependence on the West which inevitably leads to their greater economic exploitation.

2. NON-COMPETITIVE "HIGH TECHNOLOGY"

"More than a quarter of a century ago, the Russians launched Sputnik. The powerful rocket that placed the Sputnik in Earth orbit presented a very visible challenge to America's world leadership and technological pre-eminence. We responded to that event quickly, whole-heartedly and effectively...

"Today, a similar challenge faces America... from international competitors. We have failed to respond adequately. Our ability to compete in the world market has been gradually eroding. Even our lead in high technology is slipping."

The above quotation is taken from a report prepared for President Reagan by the Commission on Industrial Competitiveness on January 25, 1985. The Commission included 30 particularly prominent figures representing the interests of the US business, government and scientific communities.

The report notes with concern that between 1965 and 1980 there has been a drop in the US share in the world export of seven groups of "science-intensive" goods out of ten particularly vital groups belonging to this category. For instance, the US share has fallen in the export of research and laboratory equipment, optical and medical instruments, electrical equipment and its

components as well as engines and turbines, medications, plastic and synthetic materials, and industrial chemical products.

The authors of the report point out that in 1984 the USA had a deficit in the trade in electronic equipment and that this deficit in the trade with Japan has surpassed the deficit in the trade in cars with the latter.

One of the main reasons for the slipping competitiveness of American industrial goods in the world market is that productivity in the USA is growing at a slower rate than in the other highly industrialised countries. Japan has outstripped the USA more than the rest of its competitors. Over the past decade the annual growth rate of labour productivity in Japan's manufacturing industry has been almost 2.3 times higher than that in the USA.

Underestimation of the role played by research and development was one of the key factors that have had a negative effect on the US competitive ability in "high" technology. For instance, in 1970-1980 the spending of the US private industrial sector on research and development was below the figure for 1967 when this indicator had reached the highest level. Besides, the tendency in the US manufacturing industry in the '70s was to reduce the share of spending on research and development aimed at creating new types of products. This indicator has fallen from 42 to 28 per cent from 1971 to 1977 alone. As a result, the US positions in foreign trade, especially in the sphere of "science-intensive" products, have been weakened. Besides, research and development in the USA was oriented to military purposes much more than in other countries, and this also contributed to the weakening of its foreign trade positions. Approximately 80 per cent of US federal spending on research and development in the private industrial sectors goes only into two

branches—the aerospace rocket and electrical engineering industries including production of the means of communications.

At present attempts are being made in the USA to recapture the lead in the field of technology and increase the competitiveness of American industry in world market. A case in point is the above-mentioned report to the US President.

So, how is the USA going to make up for the lost time? Judging by the "Star Wars" programmes announced by the US administration this will in no way affect research and development for military purposes.

In one of his statements President Reagan has said that both the Western capitalist states and the developing countries were allegedly in the same boat. That is why, it was claimed, they should work together to reach the "promised land" of economic prosperity through the storms of crises. However, the President failed to specify who was going to be the helmsman, who was to be the passenger and who was to do the rowing. But the developing countries do not have to look very far to see that the latter role is assigned to them of course.

3. JAPAN'S "TECHNOLOGICAL TIDAL WAVE"

In the early '80s Japan seized first place in competitiveness among the industrialised countries in the non-socialist world. This is evident from a study conducted by an organisation called the European Management Forum.

Japan's high competitive ability assessed by numerous criteria (284 were used all in all) shows that the Japanese have managed considerably to push back their rivals in much tougher competition. This is confirmed by changes in the geographic distribution of exports from the Organisation for Economic Cooperation and Development (OECD) countries. Between 1975 and 1982 Japan's share in the total export costs of the countries belonging to this group has increased from 12.8 to 16.1 per cent while the share of the member-countries of the European Economic Community (EEC) has fallen from 57.7 to 53.2 per cent, with the US share remaining unchanged (17.5 per cent).

Present-day Japanese expansionism is backed by that country's growing economic might. According to the estimates of Japanese economists, their country's share in the world economy is to rise to 9.9 per cent by the year 2000 from 9.3 per cent in 1980 while that of the

USA is expected to decline from 23.4 per cent to 22.6 per cent.

Japan's stronger competitive positions in the world market directly affect the interests of the developing countries.

While in the 1979/80 fiscal year the developing countries in Asia accounted for just about 16 per cent of the orders for the export of industrial plant from Japan, in 1980/81 the figure was already 27 per cent, in 1981/82 it was almost 36, and in 1982/83 approximately 50 per cent. At present developing Asia holds first place in the Japanese export of industrial plant, leaving other parts of the world far behind. This applies to the Near and Middle East and Latin America, to say nothing of Africa, as well as to such industrialised regions of the globe as Western Europe and North America.

India is also beginning to feel the full impact of Japanese export pressure. Indian-Japanese trade turnover is growing rapidly. Experts estimate it is almost treble by 1985 as compared with 1983: from 1,822 crore rupees to 5,000 crores. It might seem such a situation should be only welcomed. However, unfortunately, trade between the two countries very much resembles a one-way street. Japanese exports to India are growing at a much faster rate than the sales of Indian goods to Japan. For instance, from 1970/71 to 1982/83 the cost of Japanese exports to India has increased eleven-fold while the cost of exports from India to Japan has grown just 2.8 times.

The main "driving force" of Japanese exports to India as well as to many other countries is Japan's superiority in industrial technology. This was confirmed during the seventh session of the Indian-Japanese Business Cooperation Committee held in Tokyo in July 1984 which mapped out sectors promising for the sale

of Japanese technology to India. These are the electronic, industrial engineering, power engineering, iron and steel, and communications industries.

Japan's "technological" offensive also affects the interests of the ASEAN countries since she is their largest trading partner. Japan's share in Indonesia's foreign trade in 1984 was 47.3 per cent in export and 23.8 per cent in import. For Malaysia the figures were 22.8 and 26.0 per cent respectively, for Singapore 94 and 18.3 per cent, for Thailand 13.0 and 26.9 per cent, for the Philippines 19.4 and 13.6 per cent, and for Brunei (admitted to ASEAN in January 1984) 72.9 and 9.7 per cent. All the ASEAN countries are the suppliers of raw materials to Japan; the latter puts all sorts of restrictions on the imports of manufactured goods from them. Japan, however, exports to them industrial products and technology and renders them engineering and consultancy services. Taking advantage of its scientific and technological superiority over the ASEAN countries, Japan seeks to gain unilateral advantages from the trade with them. For instance, in 1984 Singapore and Thailand had a deficit in their trade with Japan totalling nealy 5,000 million dollars. Indonesia, Malaysia, the Philippines, and Brunei had a trade surplus because of Japan's large purchases of raw materials, chiefly oil and natural gas, from them. It would be no exaggeration to say, however, that those Japanese purchases of oil and gas were largely financed by the ASEAN countries having a deficit in their trade with Japan.

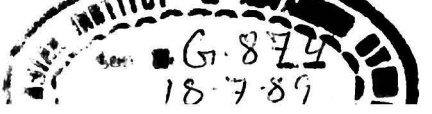
So, what does Japan's higher competitive ability mean to the developing countries in Asia? Let us analyse the facts.

To begin with, it must be pointed out that Japan has managed to push back its rivals through improving its positions in the world market in the field of "high-tech"

goods. If we assume that the share of such goods in the trade of the non-socialist world countries is equal to one, we shall find that the ratio of the share of similar goods in Japanese export to this indicator grew from 0.56 in 1963 to 1.41 in 1980. On the contrary, for the EEC countries the correlation of those indices has decreased from 1.2 to 0.88. And it has also declined for the USA: from 1.29 to 1.2

Products of the electronic industry are becoming the main strike force of Japan's foreign trade expansion. According to the estimates of the Nomura Research Institute of Technology and Economics, their output is going to increase at a faster rate than, for instance, the production of cars which have been the main item of Japanese exports to many countries in recent years. The export of video tape recorders, computers, superlarge integrated circuits, semiconductors, and other similar items is expected to grow to outstrip Japan's car export which will be pushed to second place.

While Japan's competitive ability is increasing, the US competitive positions are becoming weaker and weaker. In recent years the quality and reliability of goods made in the USA have declined to such an extent that this fact is recognised not only outside the United States but also by the Americans themselves. For instance, **U.S. News & World Report** has observed that the American companies producing steel, household electronic and sports goods as well as shoes can no longer compete with foreign producers and have to cede the US market to them. The same situation is developing in many other US commodity markets. For instance, foreign cars accounted for 26.4 per cent of the total of 10.6 million automobiles sold in the USA in 1985 while in 1965 the share of foreign car manufacturers in such sales did not exceed 6 per cent. Japan ranks first among



the Western countries in annual car output, and in 1985 it exported 2.3 million cars to the USA.

The Japanese companies have become the main rivals of the American "high technology" producers. President Reagan was compelled to acknowledge publicly that the productivity of the Japanese car-makers was double that of their American counterparts. One of Hewlett-Packard executives, Anderson, expressed the view of many Americans when he said that US leadership was also threatened in the electronic industry. It is common knowledge that the Americans are using Japanese components more and more widely in their electronic equipment in view of their higher quality. The American firms making copying machines and modern office equipment are also buying components in Japan. And there are many cases like that in other industries too.

The Japanese firms have already penetrated the US computer market, though this is not yet widely known, for the products put out in the USA with Japanese components do not bear Japanese trademarks. The US official circles linked with foreign trade regard Japanese expansion in computer production as a dangerous tendency. The Japanese firms are pushing back the local suppliers of personal computers in the American market, and this fact is causing particular concern in the USA. According to some American experts, what is now happening to personal computers is the same that has happened in the USA to the production of calculators, stereo equipment, TV sets, and video tape recorders. The Japanese firms began by supplying individual parts. Later they went over to selling components, and now they are exporting complete personal computers to the USA. Experts believe that the Japanese firms intend first to establish themselves in the American mini-computer market. In a year or two

they are expected to get a foothold in the super-mini-computer market, in five years to capture the mini-computer market, and in ten years to seize control over the multi-purpose computer market.

One of the reasons for Japan's growing competitiveness in the world market is the skills of its factory and office workers which are higher than those of its rivals. The Nikko Research Centre has conducted a poll among the leading executives of Japan's 88 industrial companies having enterprises in the USA. The survey revealed that in the opinion of 65 per cent of those polled, labour quality at American factories was either "rather low" or "very low". Only 28 per cent of those polled stated that the skills of those employed at American enterprises were comparable with Japanese standards.

The above-mentioned and many other factors indicate that Japan, having achieved a higher competitive ability first of all in the industries using the most modern technology, is pushing back its rivals primarily in the markets with high solvent demand. These are the internal markets of the Western industrialised countries where the continuously changing models of new, technically sophisticated consumer and industrial goods have a ready sale.

The inevitable consequence of Japan's "technological" expansion in the West is more fierce competition among the Western rivals in the markets of the developing countries. In these conditions the specific situation in which the Asian developing countries find themselves is that Japan is also one of the main participants in the growing competition in their markets.

However, it would be a mistake to expect the rivals to vie with each other to offer their best goods to the countries in that region together with the most favourable delivery conditions. On the contrary, there is

every reason to believe that there is nothing left for the Western companies to do but to force the developing countries to purchase those goods which do not sell in other markets filled with Japanese products.

As for Japan, its more competitive "high-tech" goods are, as has been shown, the main strike force of its economic expansion in the markets of the industrialised, and not developing, countries. The Japanese companies are using methods of competition in the markets of the former colonies. For instance, in building industrial and other turn-key projects in the developing countries they seek to expand the range of services, including into it as many as possible simple operations and the supply of unsophisticated goods (for instance, those linked with laying service lines, the construction of axuiliary premises and housing, etc.) charging high prices for all that. Methods of competition depend on the circumstances. For instance, some of the Japanese producers of electrical engineering equipment, including Toshiba Corpn., concentrate their efforts on orders for building small power stations. On the other hand, Fuji Electric Co. prefers large power projects. As often as not Japanese companies beat their rivals by pooling their efforts into consortiums as was the case with signing a contract for the supply of equipment for chemical production ordered by the Indonesian state-owned company **Pertamina** at a sum of 400 million dollars in 1983. The consortium was formed by Mitsui, Nichimen, Itochu & Co., and Toyo menka.

The Japanese companies are also widely using leasing to push their goods to the markets of the developing countries in Asia.

Long-term leasing of goods is a comparatively new type of business activity in international trade. What it means is that the customer-leaseholder who needs durable goods, most often equipment, gets it for use for

a fixed period of time and for a definite sum of money. Such operations were practised in many industrialised countries in the postwar period and gradually assumed an international nature.

The main feature of leasing operations is that the customer can use the equipment he needs without making large start-up investments which are inevitable if he buys it. In a long-term lease, payment is made in instalments not when the equipment is received as a rule but in the course of its operation out of the income derived from its use. The leasing company retains the right of ownership.

Although the total of payments for the lease of equipment is always higher than the price at which it can be bought on usual terms, customers in the developing countries do go for renting equipment because they most often do not have the money to buy it. Such operations enable the lender to considerably expand the scope and range of his operations and can have more customers since not only large companies but also medium-size and small firms with limited circulating capital can take equipment on lease.

Consequently, the specific features of leasing operations have proved to be instrumental for the suppliers of equipment from the industrialised countries in overcoming the low solvent demand in the developing world. According to the Indian newspaper the **Business Standard**, markets in the developing countries have become the saviours of the producers of investment goods in the West.

The first leasing companies appeared in Japan in the early '60s. Originally, they conducted their operations in the domestic market only. It was only in 1970 that Japan Leasing Corp., made the first large overseas deal on leasing Japanese passenger plane to Indonesian Airlines.

In 1978 the Japanese government adopted a programme of financing the purchase of industrial plant in the USA and Western Europe by Japanese companies for its long-term leasing in the Asian developing countries. This form of financing known as *Samurai lease* enabled the Japanese leasing companies to pull off large-scale deals on the long-term leasing of American passenger planes to Singapore and Thailand Airlines.

In December 1980 the Japanese leasing companies received a fresh stimulus for expanding their overseas operations as a result of the changes made in the currency control laws. Under those changes the Japanese companies can use yen loans to finance overseas leasing operations envisaging the purchase of equipment in other countries. This method of financing was called *Shogun lease.*

The leasing operations of Japan which are on the increase in the developing countries of Asia have the nature of a well-organised offensive, with Japan skilfully using both the material base of its Western rivals and their experience in the field.

At present the total of the Japanese companies' overseas leasing deals tops 4,000 million dollars a year. There are more than 150 firms in Japan specialising in this type of activity. They form what is known as the Japan Leasing Association. In the late '70s and the early '80s subsidiaries of the Japanese leasing firms were set up in a number of Asian developing countries as well as in the People's Republic of China and in several Latin American countries. However, Southeast Asia continues to be the main area where Japanese firms are expanding their leasing operations.

The countries in that region attract Japan not only because of their geographic proximity but also by their financial possibilities and the relatively low level of

development of their productive forces. The latter factor enables the Japanese firms to carry out leasing operations with equipment that are not enjoying high demand in the markets of other countries.

Originally, the range of goods given on long-term lease by Japanese firms in the Southeast Asian countries was not very wide. Besides passenger planes, these often included office, medical and trading equipment, cars, and communications facilities.

At present, however, the range of leased goods has become much wider, in particular, through the inclusion of "science-intensive" products. The Japanese today lease out robots, computers with periphery equipment, data processing systems, power equipment, drilling platforms, big and small aircraft, helicopters, ocean liners, etc.

The terms of leasing agreements concluded with developing countries enable foreign leasing companies to charge high rent because as a rule the lessee has no data which would enable him to determine to what extent the terms offered by the lender are justified. This is particularly true in the cases of leasing industrial equipment the lessee has never dealt with before.

Leasing is extremely profitable for the lenders—that is why Japan is now mounting an offensive in this field on the developing countries in Southeast Asia.

Japan is not limiting itself to the use of its scientific and technological superiority to expand the export of goods and services to the Asian countries. It is also seeking to place under its control the development of their scientific and industrial potentials seeing it as a guarantee of future success in the competition with its rivals. There are many facts to confirm this. For instance, in March 1983 Japan gave a subsidy of 520 million yen (2.1 million dollars) to the Philippines for building a technical training centre. A conference was

held in Tokyo in December the same year attended by representatives from Japan and the ASEAN countries to discuss the policy of the participating countries in the field of scientific and technological progress and prospects for cooperation in it between Japan and the ASEAN members.

In April 1986 Japan's Ministry of International Trade and Industry announced a series of new measures in this respect. One of them provides for setting up a centre for the transfer of industrial technology to the ASEAN countries and opening more vacancies in Japan for the training and probation work of engineering and technical personnel from the Southeast Asian countries.

The centre for the transfer of industrial technology will have a capital of 20,000 million yen. It is expected that half of the money will come from private Japanese companies, including those operating in the "science-intensive" industries. The rest will be supplied from Japan's national budget. The centre is also to send Japanese specialists to the ASEAN countries to help them master the transferred technology.

Japan's technological offensive on the Asian countries is mounting as a tidal wave.

4. BRITAIN'S "TECHNOLOGICAL" IMPERIALISM

Britain's colonial conquests not only brought her wealth but also speeded up her industrial development: nearly all of the famous inventions that caused the "industrial revolution" were made after the battle of Plassey (1757).[1]

By 1870 Britain had become the most industrialised country in the world. She accounted for half of the world output of coal, over half of the world production of pig iron and about 40 per cent of steel. Nearly half of all cotton fabrics were made at British textile mills. Last but not least, Britain aecounted for more than one-third of the world manufactured goods.

However, Britain began to lose her positions of the world's first industrial power already in the 1890s. The alarming newspaper headlines and book titles cried out about it. Take, for instance, such works as *Made in Germany* by Williams (1896) and McKenzie's *American Invaders* (1901).

Britain's old fame as the "workshop of the world" was irrevocably receding into the past. Perhaps most aptly it was described by Rudyard Kipling in 1897: "Lo, all our pomp of yesterday is gone with Nineveh and Tyre."[2]

1. The British consider the battle of Plassey as the beginning of their conquest of India.
2. Nineveh was the capital of the ancient Assyrian Kingdom, Tyre was the centre of Phoenician culture.

In the 20th century the specific feature of Britain's position was that right till the end of World War II her colonial domains had been much larger than those of other imperialist powers. That proved to be her Achilles' heel. Since Britain was heavily dependent on her colonies economically, she became particularly sensitive to the global changes in the postwar decades. Her economic positions have been weakening almost continuously since the early '50s and she lagged behind her rivals both in the rate of growth of the gross national product (GNP) and in industrial output. Orientation to the former colonies with which Britain retained traditional economic ties failed to stimulate cooperation with other Western industrialised countries. This situation slowed down the development of progressive, science-intensive industries and made it difficult to create the best possible conditions for putting into practice the achievements of the scientific and technological revolution in industrial production. The spending on research and development determining the rate of scientific and technological progress grew in Britain more slowly than in most other Western countries, the only exception being military research and development. The share of the latter in the total spending on research and development in Britain in the postwar period was higher than in the FRG, France, Italy, and Japan as well as the share of the entire military expenditure in the country's GNP.

It signified that the degree to which scientific and technical personnel as well as skilled workers were diverted from productive purposes was also particularly high in Britain.

As a result, the general level of using the latest scientific and technological achievements in British industry proved lower than in other industrialised countries. Accordingly, Britain's possibilities of using

the scientific and technological monopoly in the competition for the markets of the developing countries were also limited.

So, in the developing countries which were British colonies not so long ago Britain's industrial technology was an object of commercial deals most often not because it was highly competitive for its technical and economical parameters but due to other factors ensuring its penetration into the market of the given country. One such factor was the British patent legislation.

Britain was the first country to introduce patents and privileges to protect the rights of invention: it was done in 1623 (in the USA in 1787, in France in 1791 and in other countries even later).

In colonial times the legal protection of the ownership of technical innovations introduced in the parent countries was extended to the colonies to protect the private property interests of citizens of those countries. The British colonies had a system of confirming patents received in Britain, the French colonies had a legal system adopted in France, etc.

After the former colonies had gained independence they usually retained the patent laws of colonial times since the priority consideration was given to many other, more urgent problems. India, for instance, retained the Patents and Designs Act adopted in 1911 till 1970. The same was true of the Patents and Designs Rules of 1933. Those laws just like other regulations which were in force in India before 1970, were based on the provisions of the British patent system.

The patent legislation of her colonies enabled Britain to impose a monoploy in those countries on technical innovations introduced in the parent country many years ago which have actually lost much of their novelty. That was made possible by the fact that an invention

known in the parent country for a long time, that is, having no "world novelty", could be patented in the colonies. If the invention was a "novelty" to the given country it was enough for getting a patent on it.

This arrangement remained in force after the declaration of independence too if the country retained the old patent law. It was only the new patent legislation adopted by many former British colonies, which have become sovereign states, that enabled them to protect their national interests in this field.

The British system of weights and measures has played a role no less important than patent legislation. The industrial standards of the former colonies were tied up to this system, and it proved to be an enormous advantage to Britain when she had to cope with fierce competition in the markets of the developing countries. Inches, pounds and yards were very reluctant to give up their positions captured in colonial times. The British system of weights and measures was largely responsible for the fact that the developing countries linked with it continued to purchase machines and equipment in Britain often even in such cases when their technical and economic parameters were below those of the goods supplied by other countries adhering to the metric system.

Even such a tradition as lefthand traffic has helped Britain to compete with her rivals. This traffic introduced in the British colonies in earlier times requires specially adapted buses, lorries and cars. True, Britain's rivals quickly adjusted their trade to that specific feature of the market in a number of developing countries offering for sale motor vehicles specially made for export there.

The only thing they could not compete with Britain in was the sale to those countries of old, second-hand vehicles since most of her rivals use righthand traffic.

Old double-deck buses in the streets of Calcutta and obsolete lorries in the tin mines and timber-yards of Malaysia are far from being the results of Britain's charity—they are part of her exports to the Commonwealth countries.

So, over the postwar decades Britain has been actively using the specific features of her economic ties with the former colonies and this has helped her, in a way, to make up for her scientific and technological lag from the rivals in a number of spheres of industrial production. It was attained by selling the achievements of "yesterday" in machinery and industrial technology to the developing countries.

Of course, Britain has been using the same methods as her rivals in taking advantage of her monopoly on the results of scientific and technological progress in the economic relations with the developing countries. There are first of all the tough terms of agreement, that is, the so-called "restrictive business practice" in the transfer of technology justly regarded by the developing countries as "technological" imperialism.

However, times are changing. More and more developing countries, members of the Commonwealth are going over to national patent legislation. Britain herself, turning away from her Commonwealth partners in 1978 introduced radical changes into her patent legislation for the first time in 125 years to meet the requirements of the EEC integrated patent system.

The British system of weights and measures has also outlived its usefulness. More and more countries are switching over to the metric system.

But the methods of "tying up" the former colonies to the former colonial power did work after all. This is evident, for instance, from the profitability of direct British private investments in the Commonwealth developing countries. And it is British "technological"

imperialism that is largely "responsible" for the growth of such investments.

According to official figures, the direct private investments of the British companies (except for the oil concerns) in the Commonwealth countries in 1970-1972 amounted to 48 million pounds annually yielding profit of 155 million pounds; the figures for the 1973-1974 period were 127 million and 277 million pounds respectively.

The total of the annual growth of the British direct private investments (without the oil companies) in all the developing countries, has gone up from 97 million pounds in the early '70s to 843 million pounds in the early '80s. Annual profit on invested capital made up 232 million and 1,097 million pounds respectively.

Consequently, every year the British companies make profit in the developing countries several times exceeding their investments.

At the 38th Session of the UN General Assembly the Indian Prime Minister Mrs. Indira Gandhi who was Chairperson of the Non-Aligned Movement at the time, strongly denounced the use by the West of its scientific and technological superiority as an instrument of neocolonialism. As Mrs. Gandhi put it, vast knowledge and enormous technological advantages concentrated in the hands of a minority may lead to a new type of oppression and barbarity embodied in technological superiority if it is monopolised by the powers that be and used in their interests. That is why, Mrs. Gandhi pointed out, we demand a new world economic order.

5. BRAIN DRAIN AND TECHNOLOGY TRANSFER

As was shown earlier, the transfer of US technology to the developing countries is one of the ways of increasing the profit of the American corporations. But it would be wrong to think that scientific and technological knowledge goes only one way—from the USA to the developing countries. In fact it is a two-way street, and a feature of this traffic is that the USA is the gainer in either way.

An American newspaper, the **Newsday**, observed on this score in December 1985 that the brain drain from the developing countries to the USA was assuming unprecedented proportions. Between 1974 and 1979 alone the United States has imported nearly 200,000 high-class specialists from them.

Such a policy, the **Newsday** points out, ensures huge profit for the American corporations as well as scientific, financial and other advantages to the USA while inflicting enormous damage on the developing countries, their economies, science and culture. Every year the USA saves at least 1,000 million dollars on training its own specialists by attracting the necessary personnel from abroad.

Professor Kelly M. West of the University of Oklahoma estimates that it would take setting up another 12 medical colleges to train the number of

doctors who come to the USA from other countries every year.

And Asia holds a leading place in the sad statistics of the emigration of skilled personnel from the developing countries to the USA.

The negative effect of the brain drain consists first of all in the fact that its large scope slows down the economic progress of the developing countries while boosting that of the industrialised countries. So, the brain drain widens even more the scientific and technological gap between the imperialist powers and the former colonies.

At various forums held under the UN auspices the developing countries point out that the brain drain is incompatible with the principles of international cooperation. As for the USA and its closest allies, their tactics is to prevent the developing countries from taking part in international economic relations as full-fledged partners. Among other things, this point was stressed by the Indian representative Brajesh C. Mishra in his speech to the 11th Special Session of the UN General Assembly on economic matters in New York in September 1980. The session discussed the International Development Strategy for the 1980s. The Indian representative said that the West had a vested interest in preserving its positions and privileges and not in carrying out changes in the sphere of economic relations. This assessment was backed by the Socialist Community countries. The latter strictly abide by the principles of equality and mutual benefit in their economic relations with developing states, including the sphere of the scientific and technological exchange.

6. ROBOTS AND ASIA

The use of robots in industrial production is one of the latest mainfestations of technological progress in the industrialised countries. The scale of this use is increasing rapidly, covering not only particularly sophisticated "science-intensive" spheres of production but also the long-established traditional industries.

The application of robots makes it necessary to switch over to completely new manufacturing methods and to change the structure of employment. Robotisation makes both unskilled and low-skilled workers redundant. The industrial enterprises manufacturing or using robots need only highly skilled specialists.

Robotisation causes no special problems in the countries with a planned economy free from unemployment and having ample opportunities for upgrading the skills of their workers.

In the West, however, it is quite different. For instance, estimates show that from 50,000 to 100,000 robots are going to function in US industry by the year 1990. It means that in the second half of this decade between 100,000 and 200,000 jobs will be closed for unskilled and low-skilled, although the use of such a number of robots will require the opening of 32,000 to 64,000 jobs for highly skilled specialists. For the USA where the number of jobless has been fluctuating from

8.5 to 12 million since the early 1980s it will mean only the aggravation of such an acute social and economic problem as unemployment. These quantitative and qualitative changes in the structure of employment taking place in the course of robotisation are only its initial direct consequences. Since the main goal of introducing robots into industry is to boost productivity, the further growth of output will no longer be accompanied by an increase in the number of jobs as was the case before. Consequently, robotisation will not only leave hundreds of thousands of workers now employed in industry without jobs but will also become an obstacle to getting work for most of the people of the new generations.

Employment problems resulting from the industrial use of robots also arise before the U.S. and its allies—the industrialised Western Europe and Japan. For instance, in the EEC countries the number of people without work has approached 13 million by the end of 1985. In Japan the number of unemployed was not above 600,000 in the early 1970s before robots were used on a mass scale. Automation has led to skyrocketing unemployment. According to official figures, there are now more than 1.6 million people out of work in Japan. However, economists maintain that their real number is twice as high.

The use of robots, new manufacturing methods and higher productivity ensure rapid growth in the rate of scientific and technological progress for the industrialised countries. Its main stimulants in industry are micro-electronic instruments, new materials with a variety of properties and the use of the achievements of biology in the sphere of material production. The industrialised countries possessing most of the scientific and technological achievements come out the winners in competition in such markets. As for the developing

countries, they are simply left out of the game because their scientific, technological and industrial potentials are too weak.

"Science-intensive" goods are now holding a leading place in the world market. For instance, in the early '80s they topped 20 per cent in the total cost of industrial exports from the OECD countries.

Under these circumstances most of the manufactured goods from the developing states are becoming more and more non-competitive in the markets of the Western industrialised countries. The protectionist policy of the latter also impedes the flow of goods from the developing states to the West.

The wave of protectionism the epicentre of which is the USA and the EEC countries has already engulfed more than one-fifth of world trade turnover. The quarterly Finance and Development of the International Bank for Reconstruction and Development (IBRD) has pointed out that protectionism has a particularly adverse effect on international trade in engineering goods. The annual growth rate of their world export making up 11 per cent in 1963-1973 has declined to 5 per cent in the second half of the '70s and continues to decline.

Western protectionist measures cover not only a considerable part of engineering goods but also products turned out by other industries in the developing countries. For instance, a short while ago the US administration decided to cut down the import of textiles. According to the French newspaper Le Monde, this protectionist measure drew a sharp reaction of protest from the developing countries. Le Monde points out that the decision made in Washington was first and foremost a blow to the economies of Pakistan, Indonesia, India and Turkey as well as South Korea, Hong Kong and Taiwan.

While restricting imports from the developing countries the West is seeking to boost its exports to these countries. In this drive the Western companies are laying emphasis on the sale of technology. This results in the skyrocketing spending of the developing countries on the purchase of foreign technology. For instance, India's payments under the licencing agreements have increased six-fold over the past four years to total 350 million dollars. The spending on such purposes of other Asian countries, including Thailand and the Philippines, have also considerably increased.

Meanwhile, the Western companies are making more and more money from the sale of technology. From 1980 to 1984 the revenue from such sales of the US companies has increased from 6,976 million dollars to 8,128 million dollars and that of the Japanese companies has gone up from 351 million dollars to 687 million dollars.

It is common knowledge that, as has been mentioned above, the Western companies are widely using the so-called "restrictive business practices" in selling industrial technology to the developing countries. All sorts of restrictive conditions are imposed on the buyer. They concern products with the use of the purchased technology, the sales on the domestic market, exports, etc. Such practices boosting the profit of the Western sellers, for instance, for the repeated sale of the same technology to the same country are discriminatory and have adverse consequences for the economies of the developing countries, slowing down the spread of technical innovations and reducing their effectiveness.

Robotisation of industrial production poses new problems to the developing countries in buying foreign technology. Manufacturing methods envisaging the use of robots are even less labour intensive than the ones hitherto purchased by the developing countries. But

while enterprises in their public sector can choose guidelines for the development of their production base on their own in keeping with the economic policy of the state aimed at creating more jobs, the object of private enterprises, especially, subsidiaries of foreign companies, is to make as much profit as possible. And it is from this point of view that they decide on the import of new manufacturing methods with the use of robots.

Robots are a great temptation for the employers. Even today when robotisation is only beginning, operations carried out by robots costs less than those done by workers. Besides, those mechanical "mercenaries" never complain, call a strike or demand higher wages. One of the bosses of General Motors told Walter Reuther, leader of the United Auto Workers (UAW), that robots did not need union cards to which Reuther replied that they did not buy cars either.

Indeed, under private enterprises robotisation is a double-edged problem. While boosting productivity it makes sales more difficult to say nothing of aggravating social and economic problems.

Robots also pose new problems for the industrialisation of the developing countries. Their cheap labour is becoming unnecessary to the employers from the developed countries because in the future robots are going to be cheaper than the cheapest of labour.

Robotisation is a complex problem and the forecasts here are contradictory. However, what is clear is that robots constitute a fundamentally new type of machinery and its wide use in production would be tantamount to a technological revolution. The developing countries in Asia will not escape meeting robots either. Southeast Asia is already becoming one of the main markets for the sale of Japanese industrial robots.

Japanese firms have also been actively expanding the sales of robots to other Asian countries, of late.

Young people in the developing countries of Asia are going to feel the full impact of robotisation. As a matter of fact, they are already beginning to feel it: the number of unemployed youth is growing with every passing year.

7. TNC'S ECOLOGICAL CRIMES IN ASIA

The Japanese newspaper **Tokyo Shimbun** has once expressed the view that both the Bhopal disaster and the huge explosion of a liquid gas storage tank in Mexico were the results of the policy pursued by the Western industrialised countries towards the developing states. This is the problem of the "exported" pollution of the latter with dangerous technologies and plants.

That the Japanese newspaper was only correct has been confirmed not only by the examples it gives but also by other countless tragic accidents caused by the criminal neglect of basic safety rules, which as is now admitted in the West has become a hallmark of the activities of the transnational corporations in the developing countries.

It is the people living in the developing countries of Asia that have particular cause for concern The point is that as a result of the operations of the TNCs Asia may become the most ecologically polluted region of the world by the year 2000. That, among other things, was the conclusion reached by the UN experts who have prepared a report predicting the development of the world economy up to the end of this century. The report points out that if environmental pollution accompanying industrial development continues at the current rate by the year 2000 the Asian countries will be faced with an

ecological catastrophe. By that time the annual discharge of harmful waste material in the developed countries of Asia is going to increase more than five-fold while air pollution is expected to treble and water pollution to increase nearly ten-fold.

The primary reason for this rapid growth of pollution in Asia is that in recent years the moving of "ecologically dirty" industries from the West to the developing countries of Asia has assumed the proportions of an avalanche. It has happened because the Western countries where environmental pollution has taken on a dangerous scale have introduced tough limits on harmful industrial waste over the past decade. The governments began to use economic and administrative sanctions against industrial enterprises in keeping with the principle "the polluter pays".

The TNCs were unwilling to spend on installing and operating purification systems or pay big fines for violating ecological laws. As a result, they rushed to the developing countries. And Asia proved one of the most attractive regions to them from the point of view of making the maximum profit and placing labour-and power-intensive and ecologically dangerous industries.

There are many facts to show that the number of such industrial enterprises in the Asian developing countries is rapidly increasing. For instance, there were 84 petrochemical plants in those countries in 1976 putting out about 340 million tons of products a year. Their share in the industry's world production was not more than 11 per cent. At present the number of such plants there exceeds 100, their total annual output has increased to 475 million tons, and their share in world production topped 13 per cent.

A number of TNCs, including Shell, Exxon, Texas Eastern, Mobil, and Celanese are about to complete the construction of several large petrochemical complexes

in the Near and Middle East countries. According to the spokesmen of those companies, the products of the complexes will be sufficiently competitive because of the low cost of production based on cheap hydorcarbon raw materials.

In the meantime, in recent years one could observe the scaling down of the production capacities in the petrochemical industry in the Western countries. For instance, in Western Europe a considerable part of the equipment for the production of petrochemicals was decommissioned in the early '80s. The capacities of the enterprises for the production of ethylene were reduced by approximately 20 per cent, of low-density polyethylene by 17 per cent and polyvinylchloride by 12 per cent. In the opinion of experts of British Petroleum Chemicals, the capacities of the petrochemical enterprises in Western Europe will be further scaled down in the next few years.

The petrochemical industry in Japan is also being re-organised. In the first half of the '80s the capacities of the Japanese enterprises for the production of ethylene were reduced by 36 per cent and of large-tonnage polymers by 24 per cent. Private companies are now forbidden to commission new capacities for the production of petrochemicals in that country. However, the number of Japanese chemical enterprises in the developing countries of Asia is increasing rapidly—those countries account for nearly 30 per cent of all Japanese overseas private investments.

Chemical enterprises involving foreign capital are being set up in Indonesia, Malaysia, Thailand, Singapore, Bangladesh, India, and Pakistan.

The "flight" of chemical plants from the Western industrialised states to the devloping countries of Asia upsets the ecological balance in the region. There are more and more alarming reports stressing that

environmental pollution in South and Southeast Asia threatens historical sites, monuments of ancient art, and nature itself. But first and foremost the steadily increasing pollution by harmful substances means a threat to man's environment in that densely populated part of the globe.

8. CHOICE FOR INDUSTRIAL ADVANCE

Industrialisation of the developing countries is the key to overcoming economic backwardness inherited by them from colonial times.

Assessing the results of industrial growth in the developing countries of Asia over the past two or three decades, one cannot but admit that their industrialisation, which has got under way, has failed to lead their economies to prosperity and independence.

Of course, the political liberation of the former colonies and semi-colonies has destroyed the colonial system in Asia. A process of social and economic reforms set in, which brought many changes to the countries in that part of the world. Yet their economic development ran into considerable difficulties. Industrial growth still fails to exert a sufficiently effective influence on the modernisation of the other sectors of the economy in the Asian developing countries, first of all, on agriculture. The problems of creating more jobs and eliminating mass poverty remain acute. In those of them which have opened their doors wide to foreign capital the growth of industrial output is not subordinated to the needs of their economic development. It is dictated by the interests of the transnational corporations. In the countries dominated by foreign capital industrial development is

chiefly aimed at building such enterprises and sectors which become part of the process of production in the Western industrialised countries.

Exploitation of the developing countries in Asia by foreign capital is intensified through various programmes of economic "aid" launched by the West. The total outflow of money from the developing countries to the Western industrialised states in the shape of profit from investments and the payback of external government debts is increasing much faster than the flow of financial resources in the opposite direction. This is not only far from helping the developing countries of Asia to achieve economic independence. It also leads to their increasing exploitation by the transnational corporations. As a result, the developing countries of Asia fail to achieve the main objective of their industrialisation—the building of their own independent economic complexes with a modern technological level and capable of carrying out enlarged production on the domestic basis through the use of national income.

This situation has developed as a result of the deliberate policy pursued by the West. As was pointed out in the Political Report of the CPSU Central Committee to the 27the Party Congress, "by political manoeuvring, blandishments and blackmail, military threats and intimidation, and all too often by direct interference in the internal affairs of the newly-freed countries, capitalism has in many ways managed to sustain the earlier relationships of economic dependence." On this basis the West has managed to set up and streamline a refined system of neocolonialist exploitation in which "technological" imperialism plays a role of no small importance. The West is using the industrial development of the newly-freed countries as a new form of their exploitation—in the production, scientific, technical and technological spheres.

In general terms, the technological dependence of the young states in Asia means that the West controls their changeover from the extensive to intensive methods of economic mangement thus hoping to preserve the subordinate position of these states in the future too.

The discriminatory nature of the transfer of technology to the developing countries by the West and as often as not their technological blockade and inequality in the sphere of international scientific and technological ties contravene the UN principles. Such actions are in fact part of the West's overall policy of undermining equitable and mutually-beneficial economic cooperation and of using international economic ties to bring pressure to bear on sovereign states and to interfere in their internal affairs. This policy slows down the social and economic development of the newly-freed countries and further increases their exploitation by the transnational corporations and banks.

"Technological" imperialism just as the discriminatory measures in trade, the unilateral refusal to abide by the concluded economic treaties and other similar actions on the part of the West create a climate of tension and mistrust in international economic relations. They disorganise the world economy and trade, undermine their legal foundations, and hamper the efforts to establish a new international economic order on a just and democratic basis.

In this connection the problem of creating the necessary conditions for ensuring international economic security is becoming more urgent than ever before.

The very idea of international economic security as part of world security as a whole first of all implies renunciation of the use or threat of force, protecting the

legitimate rights and interests of states and creating reliable guarantees to rule out their violation.

The economic security of states is directly connected with ensuring peace, ending the arms race on earth and preventing it in outer space, a radical improvement in the world situation as a whole and a return to the policy of detente. International economic security creates conditions for unimpeded access to world scientific and technological achievements for the developing countries. However the striving of such countries in Asia for equality in economic relations among states, including the sphere of science and technology, runs into opposition from the Western powers which prefer to maintain the status quo in their relationships with the developing world.

As a result, it is hard to hope in the near future for a change in the unequal economic, scientific and technological relations between the Asian developing countries and the Western states.

In these conditions expanding mutually-beneficial technological cooperation with the socialist countries assumes particular importance for the developing states. The relations between them are being shaped out on the principles of equality, non-interference in each other's internal affairs, mutual interest and benefit. These principles are enshrined in a number of inter-state treaties and agreements between the two groups of countries.

Characterising the relations between them in the sphere of machinery and production technology, we should point to such a trait as stability stemming from the planned nature of the economies of the socialist countries.

The enterprises and projects which have been or are being built with assistance from the Socialist Community countries constitute an important factor in

enabling the developing states to become self-sufficient and economically independent. The primary reason is that all such enterprises and projects become the property of the young states and that profits from them are not exported.

Technological assistance from the Socialist Community countries to the developing states is aimed at building projects which the latter need first and foremost. This is also a matter of considerable importance. Out of 3,500 industrial and other projects built with assistance from the socialist countries, members of the Council for Mutual Economic Assistance (CMEA) and put into service by early 1983 there are about 1,700 power plants, more than 900 facilities for the consumer goods and food industries, about 400 agricultural projects, about 700 public health centres, and other facilities.

Assistance from the socialist states in building enterprises and other projects in the developing countries is not limited to construction, assembly, start-up and adjustment work as well as the transfer of technology. Before the start of construction experts from the CMEA member-countries help their customers from the developing states to choose the production parameters of the future projects and determine their economic efficiency as well as their optimal location.

Cooperation continues even when the construction is over. Specialists from the socialist countries help to train local personnel, organise production and solve many other problems. The purchase of licences in the socialist countries for the latest scientific and technological achievements can also play a major role in making the young developing states independent in this field. Experience in carrying out licencing agreements points to a number of advantages enjoyed by those

developing countries which purchase technology from the CMEA member-states. For instance, the socialist states never include discriminatory reservations into such agreements which lower the economic effect from the use of the purchased technology. The socialist states turning over technology to developing countries take into account concrete social and economic conditions in the latter and seek to help them in solving both economic (the attainment of self-sufficiency, the development of the scientific and technological base, etc.) and social problems (creating more jobs, upgrading the skills of local personnel, etc.). The terms of the licencing agreements between socialist countries and the buyers of technology in the developing states are of no less importance. As often as not they envisage that payments for the technology transferred by the CMEA countries can be effected by marketable products made in the developing partner countries with the use of that technology.

The Comprehensive Programme for Scientific and Technological Progress of CMEA member-countries up to the year 2000 opens fresh opportunities for cooperation between the socialist and developing countries in the international exchange of technology. The Programme was signed in Moscow in December 1985. Its implementation will give a powerful impetus to further expanding scientific and technological ties between the CMEA member-countries and the developing states.

Economic and technological cooperation between the developing and socialist countries is a weighty factor in the struggle for destroying the system of neocolonialist exploitation, for stamping out "technological" imperialism. The advancement of this cooperation opens real opportunities to the developing

countries of Asia for strengthening their positions in the international division of labour and for establishing a just international order in the sphere of science and technology.

WORLD & YOU series

- **PEACE & SECURITY FOR ASIA**
  by George Kim
  Asia—fragile home of mankind, we must preserve it together.

- **U.S. STATE TERRORISM (A Collection)**
  Terrorism as state policy is dangerous. It must be exposed.

- **INDIAN OCEAN & ASIAN SECURITY**
  by Yevgeni Rumyantsev
  Indian ocean as a zone of peace can ensure security of Asia.

- **COLOURED GHETTOES OF BRITAIN**
  by Edgar Cheporov
  Asians and blacks are victims of worsening racial relations in Britain.

- **ASIA AND THE "STAR WARS" PLANS**
  by Gleb Ivashentsev
  Star Wars pose a direct threat to Asia-Pacific region.

- **FOR HELSINKI SPIRIT IN ASIA**
  by Lev Bausin
  An Helsinki type Asian meet means peace and cooperation

- **"LOCAL CONFLICTS" IN THE MAKING**
  by Gennady Kadymov
  "Local conflicts" can escalate into global war.

- **DEBT BURDEN OF DEVELOPING COUNTRIES**
  by Lev Klochkovsky
  A new economic order is the need of the times.

- **ASIA: ECONOMICS, POLITICS, SECURITY**
  by Vladimir Godyna
  Imperialism aims at super-profits and geo-political domination in Asia