

Physics and the Progress of Chinese Society

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Mr. Chairman

Ladies and Gentlemen,

Friends

It is a great pleasure for me to attend the international conference "Physics and Industrial Development". On behalf of the Chinese Science and Technology Commission and the Chinese Physics Society, I would like to extend my sincere congratulations on the successful convocation of the conference. I would also like to take this opportunity to convey the cordial greetings of the Chinese people to the people of our host country, India.

The development of physics is closely related with that of science and technology, as well as that of human society. To examine the problem of development of physics in China in connection with its social progress, we must first get a prospective view of the advance of modern science and technology, and also of the future of the Chinese society.

We see that to-day's science and technology are developing at an unprecedented speed. Theoretically, the motive force for the rapid development of science and technology comes from the search of profit by the manufacturers. In a modernized production, means of production will occupy a higher and higher percentage of the production cost, so that the mean profit for a production will drop incessantly. In order to compensate the loss brought about by the reduction of mean profit, manufacturers would try to improve or innovate upon the techniques presently used so as to rake in more excess profits. Hence, since the establishment of market economic system, the development of science and technology has been constantly pushed forward by the impetus of market demands.

It has been proved historically that the development of science and technology is also influenced by the knowledge mankind has gained about nature, in other words, the development is confined within the depth of our understanding about nature and human society. So some of the leaders of the countries, communities, or governments in the world, according to their own knowledge and experience, would give all-out support to the thorough and systematic research or study on nature and society in order to deepen the understanding of them. We may say, "to-day's knowledge" is the "future applications", or "science and technology are the primary productive force", as quoted from the sayings of Deng Xiao-ping, the Chief Designer of China's modernization, and the former director of Chinese government.

How can the experience or know-how gained by us be applied in practice? Ordinarily, this is achieved through carrying out different phases of scientific research work, i.e. basic research, applied research, and development research. According to our knowledge and understanding, basic research aims to systematically increase the knowledge or improve the understanding about nature and human society, even if the knowledge and understanding may not find immediate uses in practice; while applied researches are the scientific activities for the application of some experimental or theoretical results in order to serve specific purposes. Development researches may be defined as the experimental studies for developing certain new products, designs or technologies in practical applications so as to acquire economic benefits. The difference between applied and development researches lie principally in that, the former only tests the possibility of achievement of certain potential technologies in a laboratory scale, while the latter requires, for example, a new technology should bring finite amount of economic benefit upon its establishment, in other words, it should become a commodity.

However, the applied research is an important link between technical knowledge and its practical application. For the future development of science and technology, the key problem is to study and analyse the present status and possible developing trend of the applied researches, especially those of

the technologies and their reserve which may be in great need in the market.

The principal characteristic of the development of modern economy is that as the result of its development the North and South disparity is expanding. Hence, there will be a considerable discrepancy, which may last a very long time, between the rich and the relatively poor classes. And correspondingly, their demands on consumer goods are different: (1)The relatively poor class, which is the broad masses of the people, wants a rather rapid increase in production and improvement on quality as well as on costs, of the traditional commodities, including food, clothing, shelter and transportation. But the well-to-do class would like to have things finely made in some novel style to meet its demands in material and spiritual life. The market force would be activated enormously by satisfying the former requirements, and can also be further stimulated by the latter, sometimes predominately. Therefore, science and technology has to confront two different kinds of market for different demands. (2)The highly divided state of productive force in society has become the major feature of modern economy, and the division of production organization in society has been, in fact, extending across the boundary between nations and regions. This character of productive force will show its effect on production technologies, for which much more supply of energy resources, raw materials and new processing techniques will be needed. These factors will lead to the demand of a giant distribution network for transporting materials and transmission of energy. (3)Nowadays, the impetus of moral production (e.g. new scientific theories and advanced techniques) on material production will play an increasingly important role in promoting the development of productive force. For this reason, various information enterprises (including those of developing, disseminating, recording, storing, and transmitting of useful knowledge) are getting more and more significant. Thus, organizations for scientific education, newspapers, publication, broadcasting, television, video recording and displaying, etc. are all indispensable departments for promoting modern socialized mass production. (4)Because of the increasing reactions of mankind upon the earth, the prominent worldwide

issues, such as how to eliminate the negative human influence on the earth, how to confine mankind itself to develop within necessary limits, etc., are very important problems for us to solve, since the earth is presently the sole planet man can live on. The negative influences of mankind on earth can be summarized as following six issues: namely, the pollution of environment, the ecologic damage, the abnormal climate, the energy crisis, the population explosion, and the exhaustion of resources. These difficult problems have been and still are extensively discussed by environmentalists and ecologists. (5) It is becoming more and more clear that the rapid development of productive force is usually accompanied by various social contradictions which must be handled carefully and skillfully. Therefore, it is not only necessary for mankind to be able to control nature, but also to control mankind itself. This situation is reflected in science and technology, in which social science, humanities, technologies, and natural sciences work together for solving problems.

The above-mentioned five points are the common features or the universality of the development of modern science and technology. As for the development of China (including that in social and scientific aspects), as a developing country, it has its own distinguishing features. China is known as a big country abounding in natural wealth, but the amount of natural resources per capita is poor, as compared with the world average level. And concerning China's technical competence, it, in general, falls behind that of the advanced countries, although China does have some high-tech which are in the lead internationally. As a result, how to import, digest, absorb the useful experience or scientific achievement of other countries is the critical point for China. However, the natural conditions of China put forward a variety of problems in geograph, hydrology, climatology, forestry and vegetation, etc., which must be tackled by itself. In the development of Chinese society, the politics, economy and culture shows a variety of historical characteristics which are different from other countries, and which must be taken into consideration. That is to say, the problem of how to develop science and technology in China can only be solved in accordance with the path of

building socialism with Chinese characteristics. Therefore, when we investigate and analyse the problems of development of science and technology in China as problems in worldwide areas, we should pay attention to the distinguishing features of China. That is , China has a population which amounts to one fifth that of the world and a territory which occupies one tenth of the world continent, so that we may say the scientific and technological problems of China are actually part of the problems of the world.

In the following I'll expound one by one the important technologies that are argently needed for China's moderization. These technologies are, in fact, strongly dependent on the progress of physics.

(1) In the 20th century, one of the most important achievements in science and technology was the establishment of computerization based on the advanced technology of making semiconductor elements and devices. In turn, based on the technology of developing computers, various controllable and automatic production means have been derived. And now industry has greatly advanced and, it can be said, stepped into a new era, the so-called late stage of industrialization, i.e., a period of process automation instead of manual-controlled assembly. Take the 1.9m hot-rolling production line in Japan's Chiba iron and steel plant as an example. Due to its highly automatic and information-dependent management, the number of terminal devices for monitoring and processing is greater than that of workers, so that along the whole production line, which extends to several kilomaters, the total number of workers, including persons in three shifts, is only 80. The transportation of raw materials into the production line and the final products into the store house is completely automatically done. Even the store house is automatically manipulated, where the buyers, after having finished the conventional ordering and cashing procedure, just drive their trucks directly into the store house and the overhead travelling crane will automatically load the products required on to the truck. Workers are only needed for operating the terminal devices. A striking contrast to this is the 1.7m hot-rolling

production line in Wuhan iron and steel works in China, where for operating the machines the number of workers even reaches 2400. We can estimate that the productivity in the latter is inferior to the former by at least 30 times.

In addition to various fields of industry, computers are now widely utilized in a variety of departments such as banking, insurance, tourism and administration, etc., and have brought considerable economic benefit to these departments. As an example, in our state financial organisation at least several hundreds of billions RMB may be lost every year as the circulation capital is getting on "a journey", due to inefficiency. To register and enter the capital into account and finally send it to the Bank of China will take at least two weeks. Just based on the loss of interest from this it may amount to at least 2~3 billion RMB per year. But computerization may improve efficiency and reduce or eliminate this kind of loss.

Owing to the realization of computerized management in all fields of human society, soft-ware production has become a new branch of industry. In Japan, just in the district of Tokyo, the number of large and small companies or corporations which are engaged in the research and development of soft wares is as high as 7000; and the number of employees in these companies may be a few tens to several thousands. In Japan the total volume of business in soft ware industry now amounts to ten-thousand billions Japanese yen, about one hundred billion US dollars; the number of entire personnel working in software industry reaches approximately 1 million, and it seems to be understaffed yet. In view of the need for the industrialization in China, I think it is imperative for us to take important measures so as to catch up the advanced level of techniques in developed countries.

Meanwhile the development of management computerization has promoted the realization of robot, in which the information feed back from monitors or measurements is input to certain computers that can actuate or control the action of machines or instruments. Thus there is no need of manual operation in some of the industrial productions, especially those jobs which

may be hazardous or dangerous to the workers. In these jobs robots are considered to have priority over common workers. China has a surplus of labor force, so it seems at the first glance, that the wide employment of robots will cause the increase of unemployed population. But from the experience of Japan it proves that the extensive use of computers in industrial production does not cause surplus of labor force, instead it will result in shorthand. Because, with the development of production, a great number of operators on computers as well as various auxiliary staff will be needed.

(2) Another important and great progress in science and technology in the 20th century was the discovery of atomic energy. In our planet exist not only fission energy source, such as uranium and thorium, which could be used by mankind for as long as a few and a few tens million years, but also the fusion energy source which is inexhaustible in some sense, i.e. deuterium in sea water, and the elements lithium, beryllium and boron. Even helium 3 in the moon can be utilized as an atomic energy source. If the "energy crisis" due to the exhaustion of fossil fuel, such as petroleum, coal, etc., was worried about, such a difficult situation could be radically extricated from since the occurrence of atomic energy. Currently, in the developed countries the atomic energy which is based on fission energy is gradually being taken as a dominant one in the development of energy source technology, and its fraction has reached as high as 40%, 50%, even up to 80% (for example in France) of energy sources.

Since 1980's, several major accidents have happened to fission reactors, which has resulted in being "awe-inspiring" and even occurrence of large scale anti-nuclear campaign in some regions. However, burning of coal and petroleum can lead to over-release of CO₂, producing pollution. Therefore, people, including Green Party have now re-evaluated the atomic energy source, and realized that the atomic energy is a cleaner energy source than petroleum and coal.

Although the existing atomic energy-generated electricity technology still

involves some factor which is not safe enough, the safe reactor free from technological accidents has been able to be designed. Even so, the occurrence of accidents is still not evitable at all, which is due to the fact that the reactor needs manual operation and such manipulative faults will be inevitable. The important tendency of the current development is to develop the "fool reactor" which has no need of manual operation. It is anticipated that this technical problem will be completely solved within 10~15 years. China should pay attention to such an important trend of developing the atomic energy-generated electricity technology.

In order to thoroughly solve the problem of energy source needed for the existence of mankind, the technology of controlled thermonuclear reaction must be developed. The controlled thermonuclear reaction not only offer mankind a clean and inexhaustible fusion energy source, but also is a maker of fission material. In the nature exist utilizable thorium and natural uranium, but what can be actually utilized in the natural uranium is only 0.7% uranium 235 and an extremely small amount of uranium 238. The residual uranium 238 amounts to 99% of the natural uranium that has not been utilized. In an important method of utilizing uranium 238 neutrons must be employed: namely, uranium 238 is bombarded by neutrons and converted into uranium 239. And having experienced twice decays, uranium 239 is converted into plutonium 239. In using natural thorium, neutrons can also be used, which convert thorium 232 into uranium 233. Therefore, a key factor in making full use of the fission energy is how to gain enough neutrons by a method cheap in cost. Just the controlled thermonuclear reaction can supply cheap neutrons. At present, a new approach of controlled thermonuclear reaction is the inertial confinement fusion technology, which shows increasingly bright future. It has been shown that the inertial fusion may have a greater vitality than tokamak-type magnetic confinement approach. Many famous scholars in controlled thermonuclear reaction jointly signed a Madrid Manifesto in an international conference in Spain 1987. The Manifesto said "the application of inertial confinement fusion including fission-fusion hybrid reactor, production

of specific isotopes, supply of clean electric power without environmental pollution, advanced space driver, etc., possesses inspiring prospect. And as an alternative to future fusion energy source, the inertial confinement fusion has an apparent superiority in technology and has become an inspiring and convincing means." China should also pay a close attention to this trend.

With respect to the problem of energy source, apart from the applications of various irrecoverable energy sources that have already attracted our attention, the utilization and research of recoverable energy, such as, hydroenergy, windy energy and solar energy, should be also paid attention to. A key problem in utilization of irrecoverable energy sources is energy-storage technology. This problem must be solved in order to regulate the inharmony between supply of and demand on energy source.

(3) Another important development in science and technology in the 20th century is the discovery of laser. Laser technology has been involved in the research and development of military directional weapons, laser radar, guidance system for various offensive weapons and so on. It has also extensive applications particularly in different areas of national economy such as refinement and processing of raw materials, establishment of anti-counterfeit mark, and even in the therapy of some diseases. Another application of great importance is in optical fiber communication. It is not only good in keeping secrecy but also in high information transfer capacity, low cost but better performance. Therefore, all nations around the world use or plan to use optical communication system to replace old ones which mainly employ copper wires. However, an important disadvantage of this system is the limited transmission distance, so that many optic-electronic signal converting devices and amplifiers must be added in between the terminals. Nevertheless, there have been two important developments to the fiber communication in recent years: first, optical signals can be amplified without optic-electronic conversion; second, as some scientists have pointed out, if a soliton wave is build up inside the fiber, then the optical signal can be transmitted as long as 10000

km or more without attenuation. At present the transmission distance by this method has reached 14000 km in laboratory performance. As regards to the vast territory of our country, this technology is of particular importance. Because of the rapid development of this optical technology, and because it has shown extensive applications in many fields, a new name of "photonics" has been given to it, thus a new scientific discipline is being formed that shows the same importance as electronics.

Another important progress for communication is the advent of the digital communication technology. It has the advantages of no distortion, high reliability, with high secrecy and so on. Especially it can eliminate interference from noises, this is an important breakthrough for communication technology, which can be applied extensively to the storage, transmission and display of sound, image and characters. The high definition television, to which great attention has been paid, is just a new development based on the digital technology. This technology actually not only can get high definition TV pictures, but also can have great influence upon the record and transform of sound, picture and characters, i.e. the performance in the professions of telephone, telefax, photograph and film, news and publication and so on. If one can apply it together with laser holography technology, further influence will be exerted to the performance of fine arts, music, play, film, television shows and so on.

The above-mentioned two aspects are involved in the new technology that has extensive market potential and bright future. We must pay considerable attention to and catch up with the international advanced level.

(4) The socialized mass production would demand high-speed transport of passengers and heavy-load transportation of goods to facilitate the circulation of passengers, workers and goods.

Especially the development of tourism, from which it is easy to gain profit, depends on a sound traffic system. At present, the serious inefficiency in communication and transportation in China has become the chief bottle

neck for the development of national economy. Even if the passenger transport in China had achieved a swift change and caught up to that of the developed countries, say USA, it would be impossible to eliminate the difficulty in passenger transport, as China has a population five times that of USA. Now the countries all over the world are devoting their efforts to develop not only high speed jet plane transport, but also high speed water and land vehicles. For instance, hovercraft and hydrofoil can have a speed comparable to an automobile. The development of express trains is even more fast; the speed of express trains running on the "New Main Line" railroad in Japan is now expected to be raised to 360 km/h, in France the speed is 420 km/h, and in Germany even high up to 512 km/h. In view of the vast territory and large population in our country, it is really an urgent task for us Chinese to develop the high speed water and land vehicles with the ability to carry heavy load. Undoubtedly they are novel means of traffic which can compete with aircraft.

In order to accelerate the development of national economy, we must construct goods transport systems with large load capacity at various speeds. At present, we need to manufacture freighters with a load capacity of 500,000~1,000,000 ton, trains of about 10,000 ton and heavy trucks of 50~100 ton. Of course, we must also construct highways, railroads, air and shipping lines, ports, or harbours and so on, with perfect facilities to control traffic or handle information and reports. In the past, our country was of a self-blockaded economic system, most of the communications and transportation were for the intercourse between districts within the country. But now, as a country which is undertaking reform and opening to outside, China has erected more and more close connections in economic aspects with international markets and our export volume has been increasing rapidly.

Generally speaking, China's resources are relatively insufficient, but some of them are fairly rich, such as coal. Even according to the index of coal per capita, the reserve of coal in China may be of the first rank in the world. In view of the gradual exhaustion of oil resources in this planet, coal

may become the major source of energy in the 21st century. The processing, utilizing and exporting of coal will be crucial for international energy source and thus we have to develop in China the technology for producing coal pulp to meet the requirements of pipe transportation and the combustion in a boiler, as well as of desulphurization, etc. At the same time, for the purpose of export, it is imperative for us to build special railroads and ports for loading and unloading coal and the freighters with a capacity of a million tons etc.

Now, our country is in a period of transforming from a state "founded on agriculture" to a state "founded on industry". Large quantities of township and village enterprises have been set up, and have become a mainstay of our national economy. Adapting to this situation, a group of new cities, big or small, are rising in our country. The needs of traffic among small towns are even more urgent. As the inevitable character of dense population in the future cities, we think, to solve the problem of urban traffic, it will be the most effective way to develop subway or the transport system connecting subway with the ground light railway track. And many countries have verified the experience. The construction cost of subway in our country is very expensive. For example, the cost of 1 km of subway has reached 2.2 hundred of millions RMB in Beijing. Therefore we must devote great efforts to developing technology of building subway, so as to reduce the cost. In order to completely solve the problem of urban traffic, we need to develop giant buses, trolley buses, and folding portable bicycles which can be taken on to a bus, so as to solve the problem of short-distance traffic.

(5) In view of the character that our country has a large population and relatively less resources per capita, we have to choose a different way from the developed countries for the combined utilization of resources in order to develop our economy, that is, we have to set up a national economy which is low resources consumption and economized one. Take water and land resources as an example, these resources in China only make up,

respectively, $1/4$ and $1/3$ that per capita of the world. And such resources are not importable. Along with the improvement of rural economic life, there will be a big increase in water consumption. It is imperative to expand the supply of tap water for improving the peasants' life. And we have to enhance the consciousness of saving on water in the whole country. We must set up an economized system centering on saving on water and rational use of land including multi-crop planting, "3-dimensional" multi-layer farming, advanced irrigation technology and scientific fertilization, so as to save on water, land and energy, and set up a "thrift" type farming of low consumption and high effect.

In our country, an industrial production system centering in economizing on raw materials and energy has yet to be set up. We must practise comprehensive exploitation and utilization of resources, so that they can be repeatedly utilized. For example, when we burn coal to produce heat, we also need to find a way for utilizing the residual or gangues and coal gas. We must advocate the repeated utilization or circulation of industrial water, and make use of waste material so as to convert waste into useful material. We must pay attention to saving on energy, the reclamation of energy, and the full use of reclaimed energy. On city construction, we must pay attention to rational layout, so that man-power, materials, and transportation can be brought into fully play. Especially on buildings, in the past, we didn't think highly of saving on energy. But regulation of temperature in houses during summer and winter time by conditioners will be an important aspect of energy consumption in the future. We must pay sufficient attention to it as early as possible.

On living consumption, we advocate to be industrious and thrift in managing a household and in building our country as well. We advocate a living standard that is adapted to one's income and the present status of our economy, and oppose the "super" consumption. In recent years, some undesired custom in entertainment and enjoyment appears in our country, the extravagance is intolerable. As the common saying, "Food is No. 1

need” . We agree to the development of the food industry with Chinese characteristics. Chinese cuisine is one of the best in the world. But there are still some unrational and unscientific elements with it. So, the establishment of a new-type, cheap, and fine food industry is really a major matter in the national economic life in China. Now, Chinese restaurants can be found all over the world. The cuisine culture should be considered as one of China's major contributions to the world civilization. A pressing business for us is to industrialize and reform the traditional procedures of Chinese cooking and then liberate the vast number of women who are still bound in household.

(6) It's imperative that we should solve a series of scientific and technical problems in environment of Chinese people can only be protected by the Chinese themselves and never by foreigners. The existing question is that the environmental protection should implement the policy of putting prevention first, similar to our sanitation and public health work, and should never be dealt with after going wrong. At present, the problem of discharging “three wastes” , namely, the problem of disposing exhausted gases, effluents and sewage, is very serious. In our country, to solve these problems, there are not only questions in laws and regulations, but also questions in science and technology. On environmental protection, now our laws and regulations are imperfect and they also haven't been carried out strictly. Especially the deployment of scientific activities and funds for scientific research in these aspects are seriously insufficient. But the question is even more serious that the environmental consciousness is deficient for persons in leading department and basic organisation. The idea of “tackling after pollution” exists everywhere. And thus it's nothing but “just let it polluted, never tackling” . For the purpose of maintaining their superprofit, now some developed countries transfer their industries which create environmental pollution to the developing countries one after another . While importing advanced technology from other countries or running joint ventures, the developing countries must heighten their vigilance. For the sake of benefit to our descendents, we shouldn't leave the root of

trouble to them.

On environmental protection, we should not only control the man-made pollution actively, but also improve the living environment in our country. Afforestation is very necessary for expanding our living space. We must develop the technology for planting, protecting and utilizing forest, etc.

We should also pay attention to the improvement of global environment, which attracts increasingly great attention all over the world. If we don't care of the problems, such as acid rain, ozonosphere, management of radioactive waste and plant diseases and insect pests. etc., we will be certainly confronted with difficulties in developing international cooperations.

(7) The speedy development of our national economy depends on improving the national quality, including intelligence and physical strength. Thus, we must pay great attention to the development of the national education, in which we have achieved a historical success since the founding of New China. First of all, the rate of illiteracy has reduced from 80% in the Old China to 25%, further reduced to 16% in the last ten years. One of the reasons why we have achieved success in practising the policy of reform and opening is that we have already got a large number of "cheap and fine" surplus labour power. By taking account of the fact that there is a large population, but a less developed education in China, we have to adopt a very important measure to popularize audio-visual education programme, namely, to make fully use of TV and broadcasting to train masses of the necessary and qualified technical workers, technicians and administrators. Now China's TV undertakings are rapidly developing. The rate of popularity and coverage has been fairly high. It's a very important and honourable work to contribute our part to the technology and science that may bring benefit to the national audio-visual education programme.

For the sake of enhancing national quality, another important problem is how to keep the people's health. Since the establishment of new China, one of the major achievements of the socialist construction is that the average

life expectancy rises from 35 to 70 years. This fact is a reflection of the rising of the people's living level, and of the great achievement of our sanitary field as well. China is a developing country, according to the statistics by World Bank, GNP per capita of China is 300~400 US dollars, which is low income for a worker. However, the average life expectancy in China has reached the level of medium-developed countries (where the GNP per capita is 2000~3000 US dollars). It's really a historical achievement. But in our country there are still many poor areas in rural or border regions and frequently disease attacking areas where the sanitary conditions remain to be improved. In the vast countryside service water and electricity have not yet been popularized enough. In order to prevent our masses of people, first of all the children, from suffering from disease or to cure them, we need the effective help of science and technology. China is going to be a country with an aged population, so the problem of health services are getting more and more serious in such a country. In order to cure those serious and frequent-occurring diseases, we need to have a large quantity of scientific research capability to develop new medicines and improve traditional Chinese medicine, import, utilize, research and manufacture various medical appliances. That is a promising undertaking.

(8) The development of science and technology in China must combine with the construction of socialism with Chinese characteristics. In the turning of 19~20th centuries mankind achieved two significant developments: The first was the unprecedented great achievements in natural sciences; the second was the establishment of social science which has demonstrated its tremendous power in practice, namely, the establishment of Marxism. In the past, workers in these two fields, the natural science and Marxism, were isolated from each other. However, owing to the victory of Marxism in China, natural science and social science have got necessary and sufficient conditions for working in coordination. In fact, the solution of many problems that the social science come across always depend on the advances of natural science. For instance,

in 19th century both Marx and Engels paid close attention to how to eliminate the three major differences, namely, the differences between town and country, industry and agriculture, mental and manual labour. Thanks to the development of science and technology and the appearance of modern communication and information propagation, there remains no principal difficulty on eliminating the differences between town and country, industry and agriculture. In addition, the complete solution of women's problems not only depends on the progress of social economic system, but more on the development of natural science. As for Chinese women's problem, in the past, women workers were engaged in spinning and weaving, or making shoes and socks at home. Now, owing to the appearance of textile industry, this kind of work has been entirely replaced by working in a factory. If we can set up an enormous food industry which is able to provide a convenient system for maternal and child care, then more women can be expected to attend to many social activities soon. On the other hand, the development of natural science can also cause a series of new social problems. For instance, in Japan the great development of semiconductor industry once brought about the trade "Electron girl", a special social problem in the field of labour protection. With the development of nuclear weapon, the problems about nuclear disarmament, complete prohibition and thorough destruction of nuclear weapon have been evoked. Thus, in the 21th century, the cooperation between social and natural sciences will be one of the major trends of the development of current science and technology. China will certainly support the research for promoting this kind of cooperation.

The above discussion is concerned with those major problems in science and technology which our country is facing in developing our national economy. And the solution of most of these problems will be related to the development of physics. Some of the problems themselves are just the problems in physics, and other problems will be expected to be solved by physical method or according to certain theory in physics. This time we come to India to take

part in the symposium on "Physics and Development", we hope learn from all our colleagues, and exchange experiences with them.

May the symposium succeed completely!

Thank you.