

ON THE FURTHER DEVELOPMENT OF SCIENCE AND TECHNOLOGY

Speech Delivered to the Senior Officials of the Central Committee of the Workers' Party of Korea
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An Exhibition of the Achievements of Socialist Construction is to be held to mark the 40th anniversaries of the Liberation of the Fatherland and of the Foundation of the Party. The exhibition will show the successes that our Party and people have achieved in socialist economic construction and in developing science and technology over the past 40 years. Many successes have been registered in science and technology. The electronics industry, for example, has developed considerably. It is natural for us to be proud of and to draw confidence from the successes we have achieved.

We should be active in developing the country's science and technology onto a higher stage and not rest on our laurels.

To develop science and technology is important in the rapid expansion of the country's economy.

Great economic potential has been created in our country. The factories and enterprises our people have built with so much effort are the wealth of the country and an important asset for our further development. If effective use is made of the foundations of the economy through the improvement of science and technology, production and construction can be promoted at a higher speed and the people's life further improved.

The attainment of the 10 long-range objectives for socialist economic construction also depends on the rapid development of science and technology, the quickest way to reach this ambitious goal.

We fail to register all the success we could in socialist economic construction because science and technology are developing slowly. Scientific and technological levels in this country are so low that the modern plant we have imported from other countries is not being operated at full capacity. However modern the equipment the people have is, they cannot use it effectively if their technical levels are low.

We should rapidly boost science and technology in this country as the developing situation demands.

What is important in developing science and technology at present is that, first of all, the scientific and technological problems with regard to raw materials, fuel and energy be solved.

It is an urgent matter in the development of our economy that the problems of raw materials, fuel and energy be solved. If these problems are solved, production can be put on a steady basis in all sectors of the national economy and a rapid increase can be guaranteed in socialist economic construction.

It is important in solving the scientific and technological problems with regard to raw materials, fuel and energy that our resources be developed widely.

This country has abundant resources of raw materials, fuel and energy. If we develop and use these resources to the full we will be able to solve any economic problem. We should conduct comprehensive surveys and extensively develop and use our resources of raw materials, fuel and energy throughout the country. Modern methods of prospecting and modern equipment should be developed, techniques suited to the condition in our country applied in mining, coal-cutting and ore dressing and highly efficient mining equipment developed. Along with this any scientific and technological problems relating to the construction of hydroelectric and thermal-power stations and atomic power plants that are suited to the conditions in our country should be solved.

You should conduct scientific and technological investigation to discover substitutes for the raw materials and fuels that are not available in our country. This

country still faces many obstacles in developing its economy because some important raw materials and fuels, including coking coal and crude oil, are not available here. You must discover alternatives instead of thinking only of importing those raw materials and fuels that are not available in our country. I am sure that the problem of raw materials and fuels can be solved through further developing research work. In the metallurgical sector they are now using the coal that is abundant in our country as an alternative to coking coal in producing iron. This method should be developed further. There is a need to solve certain scientific and technological problems in order to develop an alternative fuel that can bring about the greatest possible reduction in the consumption of petrol for lorries.

In order to help industry develop while still relying on our own resources you should solve such scientific and technological problems as producing stainless steel from titanium, and aluminium from nephelite through comprehensive treatment, and using coal as a raw material in our chemical industry.

Scientific research into using raw materials, fuels and energy much more economically and rationally should be conducted. At present, our officials are interested only in the production of raw materials, fuels and energy and think little about using them economically. It is as important to economize on these resources as it is to develop them. Making economies is equivalent to increasing production. If you economize on the resources that we are producing now, this will mean an effective increase in production. In such industrial sectors as the chemical, metal and building-materials industries where the rate of consumption of energy is high, scientific and technological innovations should be made to economize on energy. Scientific and technological problems such as making use of excess heat, economizing on oil and reducing the loss of electricity in transmission should also be solved.

Another important matter in developing science and technology now is to produce modern machines and equipment.

Producing modern machines and equipment is imperative in all sectors?not just industry but also agriculture and public health. By doing so it becomes possible to increase labour productivity and product quality. The developed nations are now turning out machines and equipment that are highly accurate and fast and there is a move towards producing automatic machines and equipment. The current world trend is to make machines and equipment accurate, large-sized and high-speed and automatic. We should follow the world trend.

Producing modern machines and equipment does not mean producing something large or making highly-developed machines and equipment at one stroke. It is important in increasing the standard of the technical equipment of the national economy for you to combine everything in parallel; large and small, comprehensive and simple, high technology and low technology. The capacity of the existing machines and equipment should be increased and simple machines that can be used by housewives' work-teams turned out at the same time as making effective, modern complex machines and equipment. If you do this you will make the national economy modern to suit the country's conditions. You must introduce anything, however simple, that helps towards freeing the working people from toilsome labour and increasing labour productivity. You should pay attention to the work of remodelling small and medium-sized farm and other implements.

In order to make machinery and equipment modern, mechanical engineering should be developed. If mechanical engineering is developed it becomes possible to solve the scientific and technological problems involved in making machinery and equipment modern and to invent new machinery and equipment that suit the conditions in our country.

The development of mechanical engineering is a prerequisite for the bold promotion of the let-one-machine-tool-make-another campaign. In June this year the great leader called on the whole Party and all the people to conduct this campaign energetically. His call to start this campaign is meant not only to meet the increasing demand for machine tools but also to make various kinds of large and special machine tools which are conducive to taking the engineering industry in our country onto a higher stage.

Scientists and technicians should develop ultra-precision processing and resolve the

scientific and technical problems that arise in making various kinds of digital machine tools, hydraulic appliances and measuring gauges, in introducing stamp forging and pressing and in bringing about a revolutionary change in casting, welding and making tools.

The development of electronic and automation engineering is the main factor in the modernization of machines and equipment. The development of electronic and automation engineering is imperative if the comprehensive mechanization and automation of production, which our Party has set as the main goal in modernizing the national economy, is to be introduced.

In electronic engineering electronic materials must be developed, their purity increased and such components as integrated circuits and computers must be produced; in automation engineering automatic control theory, automated elements and equipment and automatic control systems must be developed. Various robots, too, should be developed and introduced.

Research into putting all the work of the national economy, such as production and technical processes, production methods and management activities, onto new scientific foundations should be stepped up. This is an important matter in making production scientific and allowing our modern equipment to operate at full capacity. Scientists and technicians should work according to a long-term plan to solve the scientific and technological problems that arise in putting production and technical processes, production methods and management activities onto a new, scientific basis, as required by the developing socialist economy.

The efforts to develop the natural sciences should be stepped up. The scientific and technological problems facing the different sectors of the national economy cannot be solved satisfactorily unless the natural sciences develop. It is imperative for us to develop the natural sciences today when science and technology are developing rapidly. The natural sciences such as mathematics, physics, chemistry and biology should be developed so that they contribute effectively to the further development of the country's science and technology.

Long-term work to develop new fields of science and technology should be undertaken. In order to make science and technology in this country reach the world level you should use the successes we ourselves have achieved in developing new aspects of science and technology in the national economy while introducing developed science and technology from abroad. By intensifying scientific research you should solve the scientific and technological problems involved in developing cell and genetic engineering, super-high-pressure physics and ultra-cryogenics and in developing laser and plasma technology, and atomic and solar energy so that they can be used in the national economy.

In order to develop science and technology in the country rapidly officials first have to establish a correct attitude towards science and technology.

The first thing in developing science and technology in the country is to acquire a correct attitude towards science and technology. Whether science and technology develop rapidly or not depends largely on the ideological viewpoint of officials towards them. The Party's line of developing science and technology cannot be carried out if officials have a wrong attitude towards science and technology. The main reason that science and technology in our country are developing slowly lies in the fact that the attitude of officials towards them is wrong.

Currently several instances of ignoring science and technology are occurring among officials. Alleging that there is no particular nominal capacity, some officials ask for increased production without first considering the matter properly. Their claim is unreasonable because every machine and piece of equipment has a defined rate of technical efficiency. Dictating that production should be increased without taking the nominal capacity into consideration stems from the wrong attitude of ignoring science and technology.

Some officials do nothing to make old equipment modern or to renovate it by developing science and technology; instead they keep old equipment and have their labour force increased in order to increase production. They are proud of keeping outdated equipment for a long time instead of renovating it. In the transport sector it is considered to be a great thing to keep buses and cars that were turned out dozens of years ago instead of replacing them with new ones, and this is praised. This is

reprehensible. In such cases a driver certainly deserves praise for looking after his vehicle well but it is not a good thing to praise this from the economic, scientific and technical points of view. To keep old buses and trucks in work for a long time is to waste a great deal of petrol. In order to accelerate the development of science and technology, the replacement of old equipment with more efficient equipment should be done through the high rate of use of equipment to recover outlay in a short period. Foreign countries continue to make an innovation related to machines and equipment at regular five to ten-year intervals.

The neglect of science and technology by officials finds expression in that they mobilize scientists and technicians to do various jobs without first considering matters properly. Some consider them to be a surplus labour force, and take them away from their research work to do other jobs. Scientific research is creative work which requires energetic study and uninterrupted thought. Success in scientific research can be achieved not by taking things easy for a while, but only after persistent endeavours over a long period. You should never conduct such work as you would do additional work in your leisure time. If officials work with the shortsighted viewpoint of seeing only the present problems and neglecting long-term objectives, they will be unable to develop science and technology quickly. The wrong point of view towards science and technology displayed by officials means that scientists and technicians are not provided with adequate conditions for research. Some officials show little concern for ensuring that scientists and technicians can engage in scientific research without any worries. They do not provide adequate facilities for scientists and technicians to carry out scientific research work properly, nor do they supply equipment and materials for this work promptly.

This wrong attitude towards science and technology are prevalent in our society because officials ignore science and technology. At present everybody is talking about the rapid development of science and technology but there are few people who are making any serious effort to develop them. There are neither many parents who are keen to bring up their sons and daughters to be scientists or technicians nor any students who study hard from their early years with the ambition to become scientists or technicians. Several people have their sons and daughters specialize in social sciences or foreign languages rather than natural sciences when they go to higher schools and in cases where they do specialize in natural sciences, when they finish their courses, they wish their sons and daughters to work at Party institutions or state administrative bodies rather than at scientific research institutes, factories and other enterprises.

In order to correct the wrong attitude towards science and technology of officials, ideological education should be intensified. Party organizations should encourage officials to acquire the strong belief that it is impossible to develop the country's economy any further unless they develop science and technology; Party organizations should do so by arming them fully with the leader's teachings and Party policy on developing science and technology. Along with this they should launch a strong ideological campaign against any neglect of science and technology and every manner of obsolete idea, such as mysticism about technology, passivism, empiricism and departmentalism which hinder the development of science and technology.

In order to develop science and technology quickly you should introduce advanced science and technology from abroad.

The introduction of developed science and technology is an important way to develop our own science and technology to the world level in the shortest possible time. It is reasonable to introduce the science and technology developed by other countries rather than to waste time conducting research yourselves. If you conduct research into science and technology that other countries have already developed, wasting 10 to 20 years, science and technology here will lag further behind. We must reach quickly the high levels of the latest science and technology by widely applying the successes achieved by the developed nations in science and technology and developing them further.

In order to introduce advanced science and technology from abroad you should first correct your understanding of them. At present our officials hesitate to introduce

advanced science and technology because they are of the opinion that their introduction will go against the requirement of developing Juche-orientated science and technology. Some officials criticize people who accept the developed science and technology of a foreign country they have visited, alleging that they are ignoring Juche, or are sycophantic. This has forced quite a few people returning from abroad to withdraw their suggestion of importing modern plant or machines and equipment based on the latest science and technology which they have seen in the foreign country and to say that nothing special is available.

The introduction of advanced science and technology from abroad does not go against the requirement of developing the country's science and technology in a Juche-orientated manner. To establish Juche in developing the country's science and technology does not mean that advanced science and technology from abroad should be rejected. Introducing them in accordance with the interests of our revolution and the actual conditions in our country will be conducive to the establishment of Juche in science and technology.

It is also wrong to think that the introduction of advanced science and technology from abroad contradicts the principle of self-reliance. Self-reliance is the revolutionary spirit that one is responsible for carrying out one's own country's revolution, so it requires that one must solve everything by one's own efforts, making what one doesn't possess and discovering what one lacks. It is wrong to think that the introduction of advanced science and technology from abroad runs counter to the requirement of self-reliance that one should solve everything by one's own efforts

The principle of self-reliance backed by science and technology will prove mighty. Without the support of science and technology it is impossible to solve all the problems that arise in economic construction. You cannot maintain self-reliance successfully unless you develop science and technology. If we introduce advanced science and technology from abroad, we can develop science and technology in our country quickly and conduct the revolution and construction well.

With a clear understanding that the introduction of advanced science and technology from abroad is counter neither to the requirement of the development of Juche-orientated science and technology nor to the principle of self-reliance, all officials should work hard to introduce advanced science and technology from abroad.

You should import modern plant in order to introduce advanced science and technology from abroad quickly. It will take a long time to build a modern factory simply by studying the latest science and technology because you have to go through the stages of research and experimentation but if you import the plant it will take a short time to build a factory and you will, through running the factory, learn the latest science and technology, and this will help the rapid development of our country's science and technology. Other countries develop their science and technology by importing modern plant. One country imported an assembly plant and parts to assemble goods such as cars, TV sets, and video recorders and then began to produce the parts to assemble the goods for itself after learning the technique. If our country applies the same method and produces integrated circuits domestically by importing a modern integrated circuit plant, this will help us to develop the electronics industry quickly.

You should ask experts to make full economic calculations and a scientific and technological appraisal before taking the decision to import modern plant. Then the import of modern plant will be truly helpful for the development of the country's economy, science and technology. In the past you imported a great deal of factory equipment, but some of it was outdated. This was because you had not examined the scientific and technological problems carefully and had only partially considered such economic matters as price. We must import modern equipment for a factory in order to accelerate the development of science and technology and modernize other factories by using this factory as a model.

In order to introduce advanced science and technology you should work actively to establish scientific and technical exchange with the developed countries. Science and technology develop continuously through exchange between countries. You

must work hard to initiate scientific and technical exchange with the developed countries in order widely to introduce the latest advances made in the fields of science and technology.

You should invite able foreign scientists and technicians to give lectures and training courses to their Korean counterparts and hold a variety of foreign commodity and technical exhibitions.

If you are to introduce advanced science and technology actively you must conduct energetic scientific and technological information work. If this work goes well you will be able to develop science and technology rapidly with less expense.

You should set up a special institution to undertake scientific and technological information work, establish a well-knit working system, form a reliable body of information officials and furnish adequate working conditions for them. In addition you should set clear goals for this work and assign proper tasks, according to each goal.

In order to develop science and technology rapidly, a proper plan for developing science and technology should be drawn up and implemented without fail.

Drawing up a proper plan for scientific and technical development and implementing it thoroughly are indispensable for the continuous development of science and technology onto a higher stage in line with the intrinsic requirements of the socialist economic system. In socialist society science and technology develop in a planned way, just as the economy does. However, many officials, considering the plan for developing science and technology only as a moral obligation, draw up plans carelessly without making any detailed calculations and think that they are not responsible for the subsequent failure to carry out the plan. That is why science and technology cannot yet develop rapidly in this country.

Great efforts should be put into drawing up a proper long-term plan for developing science and technology.

You should consider the long-term development of the economy and world trends in the development of science and technology and draw up a long-term plan for the development of science and technology, having conducted an accurate analysis of the level of development of science and technology in our country and the state of the economy. The plan should accurately reflect the goal, the tasks at each stage and the ways to carry them out under the long-term plan in the fields of science and technology.

The annual plan for developing science and technology should reflect the long-term plan and must be carried out without fail. In drawing up the annual plan you should not envisage too much but give priority to solving the scientific and technological problems which are of importance in the development of the national economy.

The implementation of the plan for developing science and technology should be binding, as national economic plans are legal assignments.

In order to establish discipline for carrying out the plan to the letter the work of reviewing and supervising the implementation of the plan should be intensified. If the national economic plan is not fulfilled people are called to account, but in the case of the plan for developing science and technology, nothing is done. In future, the implementation of the plan for developing science and technology should be under constant supervision, and if the plan is not fulfilled they should be called to account.

In order to impose strict discipline in fulfilling the plan for developing science and technology, effective legal provisions and regulations related to it should be established.

In order to achieve the rapid development of science and technology in the country it is essential to improve the standard of our scientists and technicians.

Whether science and technology develop rapidly or not depends largely on how the scientists and technicians who have responsibility for it improve their standards. It is a pressing matter for them to improve their standards further today when science and technology are developing rapidly.

In order to improve their standards the revolutionary habit of studying should be established among them and studying made their daily routine. They must study hard, always with a book in their hands. They should acquire a good knowledge of their specialist field by learning hard and learn foreign languages well so that they

can read foreign books on science and technology. In order to intensify the study of foreign languages among them it would be a good idea to encourage them to translate foreign technical books or to attend foreign language training courses.

In order to study properly they should have adequate study conditions. Technical and other reference books should be supplied promptly and full conditions for them to study at the Grand People's Study House should be available.

It is a good way to increase their standards if you organize on a wide scale scientific lectures and public meetings about science and technology and step up scientific and technological information work. You must ensure that regular public scientific and technological meetings dealing with problems relating to raising their levels are held at institutions and enterprises in the fields of science and technology. At the same time, any scientific and technological successes achieved in the various fields of the national economy should also be disseminated promptly through active scientific and technological information work. Scientific and technological information material should be made available not only for officials in scientific research bodies but also for technical experts at production sites by enlarging the number of copies of information material and improving its distribution.

You should organize the work properly to broaden the outlook of scientists and technicians. If they lock themselves in their research rooms they cannot acquaint themselves with the actual situation and will not keep up with developments.

You have to provide them with the opportunity to visit major factories and enterprises in this country or send them abroad as members of inspection parties or visiting groups to see factories and enterprises equipped with the latest developments in science and technology. You should send them to other countries to take part in scientific and technical meetings, scientific discussions, scientific and technical exhibitions and international fairs where they will learn about the world trends in the development of science and technology. It would be advisable to appoint a few scientists and technicians as members of delegations visiting foreign countries.

They should also be sent abroad to study and practise. If you send promising people they will learn a great deal of advanced science and technology.

You must take measures to re-educate them. Unless the scientists and technicians who graduated from university a long time ago are re-educated they will be unable to keep up with developments. They should be told about the successes gained in the fields of modern science and technology, such as in the electronic and automation engineering; various ways and methods of re-educating them should be applied systematically.

The assessment of grades, the awarding of academic degrees and titles and the granting of patents for scientists and technicians should be conducted properly. In the future you should avoid the wrong practice of granting grades and academic degrees and titles to them in view of their length of service and reward those who are deserving in recognition of some distinguished service in their work in science and technology and of their ability.

Scientists and technicians should be provided with everything they need for their work and life.

However high their ideological consciousness and scientific and technical levels are they cannot achieve success in their scientific research work unless their research conditions are improved. You must build rooms for scientists and technicians to conduct research and experiments and supply them with the modern testing equipment and materials they need in their research work. A powerful production centre to produce testing equipment and experimental apparatus should be established and the raw and other materials it needs supplied to it in sufficient quantities. That which is not available in our country should be imported.

Pilot plants should be built quickly. Only by doing this is it possible to solve smoothly the scientific and technical problems involved in introducing the successes achieved in research into production. If a problem arises in building pilot plants in the future the sector concerned should draw up a plan and build them as soon as possible.

State investment in scientific research should be increased. Without investment no one can achieve success. You should abandon the tendency to neglect investment in

scientific research, which displays a short-sighted attitude, and increase investment in scientific research in conformity with the Party's demand to develop the country's science and technology rapidly.

Close attention should be paid to the well-being of scientists and technicians. You must provide housing for them and guarantee conditions for them to lead a comfortable and pleasant life.

You should conduct the work well of placing them at the fore in society and treating them preferentially. They should be given recognition when they have made valuable inventions or have solved some knotty problems relating to science and technology. Nothing should be spared in recognizing those scientists and technicians who make a significant contribution to the development of science, technology and the economy in the country.

Various titles of honour and orders should be awarded to them according to their merits and they should be placed at the fore in society. Those who finish the study of valuable scientific and technical problems or make new inventions should be made widely known through the newspapers, broadcasts and periodicals; literary and artistic works depicting scientists and technicians should be created.

The work of giving material recognition to the scientists and technicians who are successful in their scientific and technological studies should be done properly. In socialist society, which is transitional, a proper combination of political and moral incentives and material ones should be applied in the scientific and technological sector, just as in production. In order to encourage people to work more actively in scientific and technological research those who register scientific and technological successes which benefit the community greatly should be given material recognition. In the science and technology that are directly related to production, assessment depends on how the results of research prove effective in production. In the long run, science and technology contribute to production and the value of a technological invention is seen in production. Therefore, the appraisal of science and technology should be based on their effectiveness in production.

Party guidance to scientific and technological work should be stepped up. The work of developing science and technology, like everything else, cannot be successful without correct Party guidance.

It is a matter of prime importance in giving Party guidance to establish a reliable body of scientists and technicians.

Whether or not science and technology develop rapidly depends largely on both the quality of the scientists and technicians and their preparedness. The Party has taken every opportunity to say that priority should be given to forming a reliable body of able scientists and technicians. But the task has not yet been carried out satisfactorily. It is a common practice to appoint university graduates to sectors not related to their major field of study or to transfer illegally scientists and technicians working at research institutes to other fields. As long as you continue to establish a body of scientists and technicians haphazardly it will be impossible to develop the country's science and technology rapidly.

The ranks of experts engaged at scientific research institutes should be made up of able people, kept in their posts for a long time and graduates specializing in the relevant fields, and doctors and associate doctors in their twenties and thirties should be appointed there continuously. By conducting a comprehensive investigation into the appointment of technicians and experts. Party organizations should appoint those who are working in other fields to sectors related to their major fields of study.

What is important in giving Party guidance to the work of science and technology is to encourage scientists and technicians to fulfil their responsibilities and roles.

In order to encourage them to discharge their responsibilities and roles education work should be stepped up among them. Without this work it is impossible both to increase their Party spirit and to encourage their sacrificing spirit to serve the working class and people and their patriotism. Party organizations should intensify loyalty and class education, as well as socialist patriotic education, among scientists and technicians so that they carry out their research assignments with credit, displaying to a high degree revolutionary and Party spirit, working-class spirit and allegiance to the people.

For scientists and technicians to perform their responsibilities and roles, Party organizations should help them actively in their scientific research work. In conquering the fortress of science people must overcome repeated failures without hesitation by displaying a strong will to fight to the end without vacillation in any hardship. Therefore, if success is to be achieved, it is important to help them well in their research work.

Party organizations should be bold in trusting them and assigning research tasks to them and should help them. In the case of occasional failures it is not right to accuse them; it is right to encourage them to display confidence and boldness by showing a readiness to share responsibility with them. Party organizations must solve promptly any problems that scientists and technicians have and give a fair appraisal to the people who have problematic socio-political records and family backgrounds when they make an invention and are successful in their research work. When visiting the Ragwon Machine Complex last year we inquired about the making of an oxygen plant and told them to admit any distinguished technicians who had worked in making the plant to the Party and honour them with state decorations, irrespective of their family backgrounds. I was told that this encouraged them to work well. It is the invariable line of our Party to appraise people with their current ideological state as the key factor. When people make a significant contribution to the development of the country

Party organizations must appraise them impartially whether their family backgrounds are complex or simple, as long as they have sound ideas and

in order for them to carry through their responsibilities and roles to the end they should encourage them to initiate creative cooperation with the producer masses. Active and creative cooperation between them encourages splendid ideas and initiatives and courageous actions which contribute to the uninterrupted development of science and technology and to the introduction of scientific inventions and technological innovations in production.

Party organizations must see to it that scientists and technicians do not lock themselves in their offices but go frequently to production sites combining their difficult scientific and technological problems in production and introduce their valuable technical innovations in production in a short time and support and develop their innovations so important in giving Party guidance to scientific and technological work. What is also important is to control and supervise this work properly so that it is carried out according to Party organizations should encourage scientists and technicians to understand Party lines and policies fully so that they develop science and technology

Along with that and to carry out to the letter the demands of Party policy, Party organizations should regularly ask about their scientific research work in solving any problems as quickly as possible so as to take the responsibility - encourage them to carry out their research work without abandoning it halfway. Party organizations should make the guidance of scientific and technological work finished, personal subjectivity and Party committee work and reject arbitrariness in dealing with the problems raised.

The Party has decided to raise the level of science and technology in the country in the shortest possible time. Bearing the Party's intention in mind you should make strenuous efforts to take them to a higher level.

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