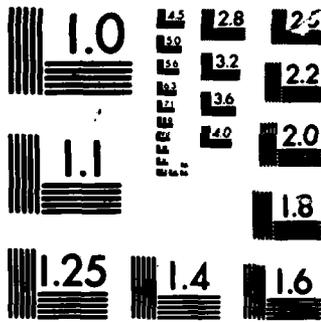


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FOREIGN TECHNOLOGY DIVISION



THE ESTABLISHMENT OF A NEW SCIENCE AND RESEARCH SYSTEM WHICH COMBINES THE
MILITARY AND CIVILIAN SECTORS

by

Xu Ji Ming



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THE ESTABLISHMENT OF A NEW SCIENCE AND RESEARCH SYSTEM
WHICH COMBINES THE MILITARY AND CIVILIAN SECTORS

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→ This Chinese document states that putting:

~~To put~~ the relationship between science and research for national defense, military production and economic development in their proper position is a critical issue which involves whether the great four-modernization plans can be realized or not. Based on Comrade Deng Xiao Ping's instructions [1], we believe the emphasis must be on the premise of guaranteeing priority military uses while following and serving the grand scheme of national economic development. *Keywords:*

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In the past, the national defense science and research and national defense industries only served the simple purpose of modernizing the national defense and preparing for war. In retrospect, this standpoint is rather incomplete. The national defense science and research and national defense industries should bear the double duty of developing national defense build-up and economy. Therefore, they must truly guarantee the thorough implementation of the "Military-Civilian Joint Forces, Peace War-Time Combined efforts, military Materiel Priority, Civilian Sponsorship of Military" guideline. We must carry out "Guarantee the Military, Transfer to Civilian". Under the premise of guaranteeing priority military uses, the emphasis is then shifted to serving the national economy and people's standard of living.

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1. Deng Xiao Ping: "To Establish a Socialism with Chinese Characteristics", 1984 Issue, Page 71.

If we look at the military domain as a system, then together with the industrial system, agricultural system, etc., they form a macro-system. Conflicts exist between military spending and industrial and agricultural investment. In order to accelerate the pace of our national economic development, the cut in military spending should be maximized.

From experience over the past thirty years since the founding of the People's Republic, our military spending exceeds that of our national economic capabilities. This is one of the reasons for the delayed development of our national economy. Exceeding our country's economic capabilities and overly pursuing military spending violate the objective principles of economics.

The military research and weapons production of the United States of America has always employed the contractual method. The Pentagon serves as a coordination center. It contracts out military research and weapons production to civilian companies, and thus obtains very good economic benefits. In order for the results of military research to be able to materialize into productivity, the United States pays much attention to the transfer of military research results to the civilian sectors. For example, the American Apollo moon landing project, which cost 30 billion \$US dollars and spanning 11 years, originally was strictly for military purposes. Substantial amounts of military research data were obtained from this project. In order to fully exploit these research data, the United States established the Military Technologies Applications Commission to be responsible for transferring these military technologies to civilian production. Once transferred to civilian uses, these military technologies were able to gain 50 billion \$US dollars in annual return. It is estimated that an additional annual return of 80 billion \$US dollars could be obtained if these military technologies were completely transferred to civilian uses. Space technologies originally developed for launching military satellites have been successfully applied in areas of communications, meteorology, air transportation, earth resources exploration, etc. Currently, it costs the United States 20 million \$US dollars to launch an earth resource satellite; however, an annual return of 1.4 billion \$US dollars can be gained. Since 1981, the United States has

continually launched space shuttles, which is a successful example of transferring military technologies to civilian uses. This could further reduce launching costs to the level of ordinary air travel and make the vast universe the fifth great ocean of mankind.

We shall build a new national defense industry and national defense technology system with Chinese characteristics. Thus, we must do away with the bondage of the old mold and absorb the good aspects of the militarily and economically developed countries of the world in order to establish a new science and research system which combines the military and civilian sectors, and such that the national defense science and research and national defense industry system can be converted from a single military type to a military and civilian combination type; from a self-imposed isolation type to an open to domestic and foreign type, thus gradually adapting to the demands of national economic development.

Our country's national defense systems possess strong scientific and technological capabilities. Tremendous effects can be achieved on our national economy once these capabilities are utilized. In recent years, our military technology enterprises and military institutes of science and research have exploited their technological superiority to obtain noticeable achievement through the transfer of military technologies to civilian uses. By estimation, several thousand military technologies have been transferred to civilian applications. Approximately several hundred thousand various contracts have been signed and social economic benefits worth tens of billions of dollars have been created.

One problem is worth paying attention to when conducting "Transfer to Civilian": how can one develop civilian goods using military technologies; what kind of products are to be developed? Washing machines, motorcycles, refrigerators, and color television sets are commercial goods in short supply. If the technical production processes of military enterprises are similar to those of the above goods, then military materiel production can be quickly converted to manufacturing civilian goods. Since military enterprises are well equipped and have superior technological capabilities, it is entirely

feasible to produce "nationally famous, world-renowned" model products. Just like "Jia Ling" brand motorcycles, Panda series of electronic goods, and Bat brand electric fans, they will take over the market in no time and become well-known nationally.

As to those military materiel productions that are not so close to those of the civilian production technologies, the transfer cannot be done no matter how popular the corresponding civilian goods are. The military weapons enterprises should concentrate their resources on the production of products that have urgent national demands and that can not be manufactured by ordinary civilian factories. Thus, not only the superiority in technological capabilities is utilized, but also concerns are eliminated and problems are solved for the country. For instance, Nanjing Dawn Machinery was originally going to produce commercially-scarce goods like washing machines, motor cycles, etc. They soon discovered, however, that those goods can also be produced by ordinary civilian factories, and that their own production technologies did not closely match those of the washing machines, etc. Consequently, they turned to producing large coal digging equipment that were badly needed. They were able to use the factory's advanced equipment and technology and easily manufactured hydraulic motors which local civilian enterprises could not produce for a long time. The coal digging machine became their model product for converting military products into civilian ones. Moreover, Harbin Aircraft Manufacturing Plant, for instance, fully utilized the plant's military aircraft production line to make aircraft that could be used for insect control, herbicide spraying, fertilizer spraying and seed planting in the agriculture, forestry and life stock industries, and aircraft that could be used for aerial mining, geological surveying and wild-life resource investigation in addition to tourist airplanes to provide aerial viewing of the imposing city buildings and beautiful scenery.

In transferring technologies to civilian uses the military science and research units should further apply their strong technological capabilities in figuring out ways to tackle key problems in the national economic development. For instance, the Thirty-third Institute of Ministry of Aerospace has successfully produced

oil-drilling bits, on-line angle measuring and direction-setting systems. It organized 30 engineers and solved 15 technical problems, and at last a gap in our country's oil well drilling industry had been filled. The successful production of this system can greatly reduce the investment in petroleum oil drilling and decrease encroachment of vast farm land and roads. It also made possible the highly profitable petroleum oil drilling under metropolitan areas and major buildings.

The military weapons systems' support of national economic development is also the important ingredient of establishing joint civil activities by the military and civilian sectors. Military units earned praises from local communities because of their assistance in solving technical problems for the local enterprises and turning their losses into profits. Supporting the development of national economy also brings rejuvenating energy for reform to military systems. Previously, the military weapons systems only served for the production of military materiel. They merely waited for a customer to come. When there was a lack of production duties, they would rather see a loss and request government subsidies than let their advanced equipment and technical staffs help out in local development. After the "Transfer to Civilian" guideline is implemented, some of the military weapons enterprises will be able to increase their revenues by producing civilian goods even when they temporarily run out of military production duties, and they no longer need government subsidies. This exemplifies the effects of "Using Civilian Sectors to Sponsor Military Sectors".

The "Transfer to Civilian" by the military weapons systems should also be coupled with furthering the technological level. On the one hand, we must insist, from the standpoint of the needs of national economic development, on combining well-developed technologies with good services. On the other hand, while exercising technological superiority, we must also aggressively develop new technologies and focus on a higher technological level and general social needs. In certain key areas, we must selectively arrange the development of technical items so that greater economic and social benefits can be obtained. Under the shock of current scientific and technological revolution, the national defense science and technology and national

defense production systems should explore and develop applications in such high-tech fields as information, aerospace, nuclear, and aeronautical technologies, etc. for the national economy in order to provide new contributions to economic restoration.

In the past, we unilaterally emphasized the secrecy of military science and research and military production. The military weapons systems were made into a closed system not open to either domestic or foreign entities. This, in fact, also restricted the healthy growth of the military weapons systems. The development of today's military technology is extremely fast. Secrecy is only of relative significance. If the civilian technological level is raised, then should war break out the entire national economy can be converted into a war-time state immediately so that the civilian industries can also serve in the production of military materiel. Thus, our country's military power will be greatly increased.

(Editor in Charge, You Si Yi)

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