People's Republic of Chine

The National S&T Development Plan for the 10th Five-year Period (2001-2005)

Development in Science and Technology

National S&T Program Trilogy in the 10th Five-year Plan Period (2001-2005):

- National High-tech R&D Program (863 Program)
- National Key Technologies R&D Program
- National Basic Research Program of China (973 Program)

Other Major Components of the National S&T Plan in the 10th Five-year Plan Period (2001-2005):

- R&D Infrastructure and Facility Development
- Environment Building for S&T Industries
- Mega-projects of Science Research for the 10th Five-year Plan

The National S&T Development Plan for the 11th Five-year Period (2006-2010)

The National S&T Development Plan for the 10th Five-year Period (2001-2005)

Development in Science and Technology

In 1900, China had no modern science and technology at all - fewer than 10 people in all of China understood calculus. Now, in the early 21st century, the gap in high-technology research and development between China and the world's advanced countries has visibly shrunk; 60 percent of technologies, including atomic energy, space, high-energy physics, biology, computer and information technology, have reached or are close to the world advanced level. On October 15, 2003, the successful launch of the "Shenzhou V" manned spacecraft made China the third country to master manned spaceflight technology. According to the Moon Probe Project started in February 2004, China will launch unmanned probes to the moon before 2010, and gather moon soil samples before 2020.

China's development of science and technology and its system of granting science and technology awards are underpinned by the basic Law on Progress of Science and Technology promulgated in July 1993. This stipulates the objectives, functions and sources of funds, and the system of rewards for science and technology development. The Law on Popularization of Science and Technology promulgated in June 2002 makes a societal goal to popularize science and technology knowledge among all citizens. Local regulations have been issued for attracting talented people, ensuring investment in science and technology, and developing high technology.

Since the 1990s, state budgets for science and technology have greatly increased. In 2004, the appropriation for science and technology reached 97.55 billion Yuan, 19.5 percent more than in 2003; the government spent 184.3 billion Yuan on scientific research and development, 19.7 percent more than in 2003, accounting for 1.35 percent of GDP, the highest in China's history.

In 2004 there were 55.75 million scientific and technological personnel in state-owned enterprises and institutions, and the number of scientific and technological personnel out of every ten thousand employees had increased from 870 in 1985 to 3,900. Over half the academicians of the Chinese Academy of Engineering are scholars who have returned during the past two decades after finishing their studies abroad.

From 2002, the national strategy for developing science and technology shifted from following on the heels of others to making independent innovations and technological strides, aiming at the international sci-tech heights.

According to a national plan, by 2005 China should be in the world's advanced ranks in certain fields, attaining or approaching the front rank in some important scientific and strategic hi-tech fields; expenditure for developing experimental and research science will increase to over 1.5 percent of GDP; by 2010 a preliminary national innovation system will be established, the building of basic science and technology conditions will be obvious, national key bases for scientific research will reach the world advanced level, China's innovation ability in key fields will soar, and expenditure for developing experimental and research science will reach two percent of GDP; by 2020, a relatively complete national innovation system will be in place, expenditure for developing experimental and research science will account for three percent of GDP, and China's competitiveness in science and technology will step up to the world's first rank.

New and High-Tech Development Zones:

China has built up thousands of new and high-tech development zones. In the 53 state-level new and high-tech development zones, a great many sci-tech research results have been put into use in production.

By 2004, there had been over 30,000 high-tech enterprises in these zones, 20 of which had annual production values over 10 billion Yuan, more than 200 over five billion Yuan, and 3,000 over 100 million Yuan. In these zones, the average growth in major economic indicators has been maintained at 60 percent per annum for 12 years running, and they have become important engines of national economic growth.

Private science and technology enterprises have also made great headway, some becoming group corporations with annual output values of anything from several hundred million up to several billion Yuan. Their high-tech products now account for over half of the domestic market for such products.

Establishing export bases for new and high-tech products in selected high-tech industrial development zones is an important part of the government's plan for developing trade through science and technology. The first designated export bases, selected because of their rapid overall

development, rich talent, excellent equipment, and rapidly growing exports of high-tech products, include the Beijing Zhongguancun Science and Technology Park and high-tech industrial development zones in Tianjin, Shanghai, Heilongjiang, Jiangsu, Anhui, Shandong, Hubei, Guangdong, Shaanxi, Dalian, Xiamen, Qingdao and Shenzhen. The Pearl River Delta, Yangtze River Delta and the Beijing-Tianjin region have the greatest concentration of such export bases; consequently export volumes of new and high-tech products from these areas account for over 80 percent of the national total.

Scientific and Technological Structure:

China's scientific research system is a cooperative one, comprising the Chinese Academy of Sciences (CAS), schools of higher learning, industrial departments, national defence departments and local scientific research institutes. The over 160 national scientific and academic organizations affiliated to the China Association for Science and Technology, as well as its branches in various large and medium-sized cities, are also important forces in scientific and technological research.

The Beijing-based CAS is China's highest academic institute and comprehensive research centre in natural sciences. Its academic divisions include mathematics and physics, chemistry, geography, biology, technological sciences, and it has more than 100 research institutes throughout China. Before 2010, the CAS plans to found some 80 national research institutes specializing in scientific and technological innovation and continuous development.

There are currently 688 CAS Academicians -- the highest life-time academic title the government grants in science and technology. The average age of the 58 elected in 2003 was 58.86, the youngest group ever, the two youngest being only 37 years old. The Chinese Academy of Engineering (CAE) is the highest honorary, consultative institute in engineering science and technology, conducting strategic studies of the state's important engineering-related issues, providing consultation for decision-making, and promoting the development of engineering science and technology. There are 663 CAE academicians, including 62 elected in 2003.

The role of the National Natural Science Foundation of China (NSFC) is to support basic research and some applied research projects using government appropriations in line with the state's guiding principles and sci-tech development policies. Over the past dozen years, the NSFC has subsidized thousands of diverse research projects and about 60,000 scientists working in basic research.

Source: China.org.cn

National S&T Program Trilogy in the 10th Five-year Plan Period (2001-2005):

National High-tech R&D Program (863 Program)

In 1986, to meet the global challenges of new technology revolution and competition, four Chinese scientists, WANG Daheng, WANG Ganchang, YANG Jiachi, and CHEN Fangyun, jointly proposed to accelerate China's high-tech development. With strategic vision and resolution, the late Chinese leader Mr. DENG Xiaoping personally approved the National High-tech R&D Program, namely the 863 Program. Implemented during three successive Five-year Plans, the program has boosted China's overall high-tech development, R&D capacity, socio-economic development, and national security. In April 2001, the Chinese State Council approved continued implementation of the program in the 10th Five-year Plan. As one of the national S&T program trilogy in the 10th Five-year Plan, 863 Program continues to play its important role.

1. Orientation and Objectives

Objectives of this program during the 10th Five-year Plan period are to boost innovation capacity in the high-tech sectors, particularly in strategic high-tech fields, in order to gain a foothold in the world arena; to strive to achieve breakthroughs in key technical fields that concern the national economic lifeline and national security; and to achieve "leap-frog" development in key high-tech fields in which China enjoys relative advantages or should take strategic positions in order to provide high-tech support to fulfil strategic objectives in the implementation of the third step of our modernization process.

During the 10th Five-year Plan period, the 863 Program will continue to aim at the forefront of world technology development, intensify innovation efforts and realize strategic transitions from pacing front-runners to focusing on "leap-frog" development. Through efforts made in the 5 years, the program will greatly enhance China's high-tech innovation capacity in selected fields and improve the international competitiveness of major industries. It will master a number of technologies with industrial potential and proprietary IPR. It will nurture a number of high-tech industrial growth sources which will optimize and upgrade China's industrial structure as a way of fostering both the individual and the overall strength of high tech industries. It will also develop innovative and enterprising talents for high-tech R&D and industrialization.

2. Major Tasks

In line with national objectives and market demands, the program addresses a number of cutting-edge high-tech issues of strategic importance and foresight during the 10th Five-year Plan period. They are:

1) Develop key technologies for the construction of China's information infrastructure.

The 863 Program will focus on developing a number of key technologies in the next five to ten years and establish systems of significant value for application. It aims to accelerate the national socio-economic development, drive industrialization through informatization, and enable China to approach or catch up with international pioneers in selected fields by the year 2005.

2) Develop key biological, agricultural and pharmaceutical technologies to improve the welfare of the Chinese people.

The 863 Program will concentrate on developing key technologies in agriculture, pharmaceuticals, and other related areas. It will enhance the overall bio-technological R&D level and capacity by a significant margin.

3) Master key new materials and advanced manufacturing technologies to boost industrial competitiveness.

The 863 Program attaches importance to developing nano-material and other new materials, along with related technologies for the development of aviation, the maglev train, information storage and access, in order to meet major demands of national security and economic development by utilizing China's characteristic resources, environment, and technical strength. Pursuant to advanced manufacturing technologies which cater to globalize agile manufacturing in the 21st century, the Program will develop advanced integrated manufacturing systems and common key technologies leading to the development and upgrading of China's manufacturing industry.

4) Achieve breakthroughs in key technologies for environmental protection, resources and energy development to serve the sustainable development of our society.

3. Development Priorities

In accordance with major tasks, development priorities are categorized into Priority Projects and Key Projects.

Priority Projects are guided by encouraging innovation, obtaining IPR proprietorship and addressing key technological issues. Priority Projects conduct R&D in 19 subjects which impose the most significant impact on enhancing China's overall national strengths. These subjects range over 6 high-tech priority fields in the civil sector, including IT, bio-technology and advanced agricultural technology, advanced materials technology, advanced manufacturing and automation technology, energy technology as well as resource and environment technology.

Key Projects are centred on major systems and projects and guided by pooling resource to address significant high-tech issues in line with demands of major national strategies, the market and application. These issues bear strategic significance on China's high-tech development and participation in international competition. They will facilitate the formation of new economic growth sources and industrial clusters with international competitiveness, and serve as demonstration. They are also crucial elements in enhancing the competitive edge of major industries, facilitating industrial upgrading, developing China's own features of high technologies, and realizing "leap-frog" progress in the high-tech field.

4. Organization and Management

1) Expert Responsibility System

During the 10th Five-year Plan period, the Program continues practicing an expert responsibility system to engage the full role of experts in technical decision-making and judgments of the high-tech development trend while further developing the decision-making role of the government. The system is tiered with expert committees (priorities) and expert panels (subjects). The former supervise, assess, and give advice on project implementation in relevant priority fields. The latter is responsible for technical decision-making on relevant subjects and their project process management.

2) Project Management

During the 10th Five-year Plan period, the Program adopts project management system which includes calculation of the full budget, total cost accounting, and a project leader responsibility system. To pool resource and focus on key issues, key projects are managed by the general expert panel. As for R&D budget management, priority projects will be mostly financed by the government and adopt a project budget system. Meanwhile, local governments, industries, enterprises and the whole society will be encouraged to increase input into high-tech R&D.

3) Relevant Measures

A series of measures have been adopted for the smooth implementation of the program in the 10th Five-year Plan period.

(1) Encourage innovation. In project award and evaluation, proprietary intellectual property right (IPR) acquisition is adopted as an indicator to encourage innovation.

(2) Enhance the innovation capacity of enterprises and push them to become technical innovation entities. For application-oriented research, we adopted measures in project application, assessment and evaluation.

(3) Strengthen IPR management and protection. We strengthen study and analysis of IPR before and during project implementation and clearly define the rights and interests of the State, project stakeholders, and concerned parties in the application, development, and utilization of IPR.

(4) Strengthen the integration of the Program with local high-tech development. We initiated guidance projects to guide local high-tech development and associated industries to nurture economic growth sources.

(5) Encourage international cooperation. Special funds are earmarked to facilitate the integration of the 863 Program with the "Program on Major International Cooperation Projects", and support and encourage the implementation of international cooperative projects within the framework of the 863 Program.

National Key Technologies R&D Program

The Key Technologies R&D Program is the first national S&T program in China. It aims to address major S&T issues in national economic construction and social development. Initiated in 1982 and implemented through 4 Five-year Plans, the Program has made remarkable contributions to the technical renovation and upgrading of traditional industries and the formation of new industries. It has also boosted the sustainable development of our society and enhanced the national S&T strength and innovation capacity.

1. Orientation

As one of the national S&T program trilogy in the 10th Five-year Plan, the Program maintains its goal of serving national economic construction. It is geared to major demands of economic construction and sustainable social development. It focuses on promoting technical upgrading and restructuring of industries, and tackling major technical issues concerning public welfare. It works to provide technical support to industrial restructuring, the sustainable development of society, and the enhancement of living standards by achieving breakthroughs in key technologies, introducing technical innovation, and applying high and new technologies.

2. General Objective

The major goal of the Program is to address pressing major S&T issues in national economic and social development. The program concentrates on the R&D of key and common technologies that drive technical upgrading and restructuring of industries that promote sustainable social development. The program provides advanced and applicable new technologies, materials, techniques, and equipment to industrial and agricultural production, while facilitating the application and industrialization of high-tech achievements to enhance the international competitiveness of key industries and human welfare. It also aims to cultivate an elite group involved in key technology R&D and establish a number of internationally recognized technical innovation bases.

3. Major Tasks

By organizing and supporting a number of major projects, priority projects and guidance projects, while implementing relevant measures, the Program is expected to accomplish the following six major tasks during the 10th Five-year Plan period:

1) An initial effort is to promote in-depth agro-product processing by developing a number of key technologies and products for sustainable agricultural development. By doing this, the expectation is to upgrade the technical levels in agricultural pre-production, production, and post-production, optimize the agricultural structure, improve the quality and efficiency of agricultural development, and enhance the competitiveness of agricultural products.

2) With the manufacturing industry as a gateway to new innovations, redouble efforts to develop common key technologies for basic and pillar industries. Also, speed up the application of IT and other high technologies in traditional industries. Strengthen engineering research in application technologies, develop technologies and equipment for clean energy, intelligent traffic system, and textile post-treatment, enhance added value of products, boost the technical level and domestic content of complete set of equipment.

3) With informatization process in the financial sector as a priority, accelerate the development of IT and other high technologies, along with related industrial development, to render technical support to the informatization of the national economy.

4) With environmental protection and rational utilization of resources as priorities, develop key technologies in urban environmental pollution control, push forward the rational utilization of water resources, develop and demonstrate technologies for the improvement of regional ecology and environment, intensify technical research in exploration and the development of oil and gas fields and are strategic solid mineral resources, establish technical supporting systems for the disaster prevention and mitigation, and promote sustainable social development.

5) With the modernization of traditional Chinese medicine (TCM) as a gateway to innovation, develop key technologies in the TCM industry to secure its world-leading position.

6) With promotion of the social cause as a goal, intensify research on major public welfare technologies and develop advanced and applicable technologies and products to further enhance the living standards of the Chinese people. Intensify research on technical standards and measurements to facilitate the establishment of China's technical standardization system.

4. Organization and Management

In line with the management principle of "standardization, rolling management, simplification and transparency", the operating mechanism of the Program is based on mutual-independent of decision-making, implementation and supervision.

1) Improve the rolling-mechanism and strengthen management in dynamic ways.

Projects are approved on a rolling basis with their terms generally less than three years. The Program introduced intermediary agencies as part of its management mechanism. We have strengthened dynamic supervision throughout project implementation and made necessary adjustments on contents, objectives, and budgeting in line with the State demands, market changes, and project progress.

2) Classified Management

Major Projects: The project management panel is responsible for the overall design and implementation of sub-projects.

Priority Projects: In accordance with the characteristics and needs of the projects, the Ministry of Science and Technology authorizes relevant governmental agencies in industrial sectors, local governments or project initiators to take charge of management.

Guidance Projects: Local S&T authorities will manage and supervise projects.

Each project is managed through two-levels: project level and task level.

3) Promote the partnership of industry-university-research institute while bring the principal role of enterprises into full play.

Priority is given to supporting joint efforts made by universities, research institutes and enterprises to undertake projects. A major pre-condition for project approval is that enterprises take part in technical development and industrialization. Enterprises serve as the principal entity in the implementation of projects that are highly industrialized or involve intensive engineering.

4) Encourage bidding to enhance open and transparent management.

Projects are open for public bidding and contractors are selected on the basis of openness, justice, and equality. The goal is to optimize R&D resources distribution and promote efficient utilization of the R&D budget.

5) Strengthen the IPR management and actively implement the Patent Strategy.

Project approval requires necessary analysis and assessment of IPR such as patents, while project implementation emphasizes proprietary IPR acquisition, in particular invention patents. Encourage and support findings derived from the Program to apply for patents both at home and abroad, and incorporate IPR management into the Program management process.

5. Western Development Dedicated Projects and Olympic Games Dedicated Projects

To facilitate China's Western Development Strategy and the host of the Olympic Games in 2008, the Program launches two dedicated projects.

Western Development Project:

A number of priority projects have been arranged and coordinated for the protection and improvement of the regional ecology and environment, exploitation of resources with comparative advantages and development of industries with local features, and the promotion of regional informatization. The Project is expected to enhance S&T innovation capacity in the western region, accelerate industrial restructuring and upgrading, facilitate the fast development of industries with local features and high-tech industries, and achieve coordinated development between regional ecology, environment and economic construction.

Priority tasks for the Project includes: optimize, restructure, and establish a number of S&T innovation bases, including R&D centers, project demonstration, and incubators; develop, integrate and demonstrate key technologies that serve the ecological and environment construction, and conversion and value addition of local featured resources; create new patterns for high-tech industrial development in selected areas of the western region; conduct S&T training covering different levels and involving extensive domains in order to build up a high calibre S&T contingent; preliminary establish a sound mechanism for east-west cooperation based on the supplementing and joint development of mutual strengths.

Olympic Games Project:

The Project addresses a number of hot issues and bottleneck problems needing to be solved for the successful holding of the 2008 Olympic Games, namely technical issues and technical demonstrations concerning the environment, traffic, digital Olympics, scientific research on sports, and S&T popularization. It will provide substantial S&T support to the creation of a clean, beautiful, safe, and convenient environment for the successful holding of Olympics with high quality.

During the 10th Five-year Plan period, the Project will work on major Olympics-related issues, such as sandstorm prevention and control, weather monitoring, sewage treatment, intelligent traffic

control, digital news and information systems, an intelligent games management system, scientific training, sports facilities, and analeptic testing.

National Basic Research Program of China (973 Program)

Basic research is a driving force for the progress of human civilization, a source and backbone of S&T and economic development, a precursor of inventions and new technology, and a cradle of S&T talents. Continuous fast socio-economic growth imposes increasingly higher demands on basic research while many scientific issues press for solutions derived from in-depth basic research. Significant breakthroughs from basic research often trigger remarkable changes in economic and social sectors. On June 4, 1997, the State Science and Education Steering Group decided to formulate "The National Plan on Key Basic Research and Development" and organize the implementation of the "National Program on Key Basic Research Project (973 Program)". The purpose of these two initiatives was to strengthen basic research in line with national strategic targets.

1. Orientation

Based on the existing basic research programs conducted by the National Natural Science Foundation and early-stage basic research key projects, the 973 Program organize and implement key projects to meet the national strategic needs. The strategic objective of the Program is to mobilize China's scientific talents in conducting innovative research on major scientific issues in agriculture, energy, information, resources and environment, population and health, materials, and related areas. This is in accordance with the objectives and tasks of China's economic, social, and S&T development goals leading up to 2010 and the mid 21st century. The Program will build up a solid S&T foundation for the sustainable socio-economic development of our nation. Through the implementation of the Program, a contingent of scientific talents will be trained and a number of high-level national research bases will be established to upgrade the primary innovative capacity of the nation.

2. Major Tasks

During the 10th Five-year Plan period, the 973 Program adopts a people-oriented approach to perform the basic task of enhancing innovation capacity.

1) Strengthen and support research on a number of major scientific issues concerning national socio-economic development.

In line with national strategic demands, the Program continues to strengthen major basic researches in agriculture, energy, information, resources and environment, population and health, materials, and other areas. It promotes research and innovation in order to seek breakthroughs in major frontier fields of far-reaching and strategic importance, such a life science, nano-technology, information technology, earth sciences, etc. It also reinforces comprehensive cross-disciplinary research and innovative integration to develop new ideas, concepts, inventions, and theories so as to lay a solid foundation for the "leap-frog" advancement of social productivity.

2) Consolidate a highly qualified contingent for basic research and cultivate a number of personnel with innovative capabilities.

Establish and adhere to the strategic principle - "people-oriented" to vigorously practice a talent strategy. Play the full in stabilizing key personnel while nurturing reserve forces by providing more support to research communities led by young and middle-aged scientists. Adopt effective measures to create a people-oriented environment that will cultivate generations of talents by using the project as the cord, the base as the backbone and human resources as the core. Introduce high calibre personnel from overseas, promote international exchanges and cooperation, encourage and support

a number of established scientists with organizational skills and international influence to play a role in the global arena, thereby raising China's international S&T status.

3) Improve and perfect program management to create a sound environment for primary innovation.

Establish and improve a scientific assessment and management system to serve innovation, overcome the folly of pursuing short-term and quick results. Encourage scientists to courageously explore new research fields and guide them in conducting innovative researches in line with national demands and the scientific frontiers.

3. Organization and Management

1) Project Management

Projects under the Program adopt a system in which chief scientist and team leader take responsibilities. The budget management consists of total amount sub-contracts budgeting, process control and total cost accounting. The combination realizes an organic combination of the management system and the budget pattern for the creation of a sound and innovation-friendly environment.

2) Management Mechanism Combining Government Decisions and Expert Consultation

Set up a high-level advisory group of senior experts in charge of consultancy, assessment, and supervision of the Program to ensure its scientific, democratic, and fair implementation.

3) Strengthen Process Management and Establish Supervision Mechanisms for Project Operation.

Practice the "2+3" management pattern. After two years of operation, a project receives a mid-term evaluation to determine its development plan for the following three years. Advisory groups of specific fields are put in place to follow and manage the project advancement while providing advice and suggestion to the Ministry of Science and Technology. This will facilitate the smooth realization of prescribed goals.

Other Major Components of the National S&T Plan in the 10th Five-year Plan Period (2001-2005):

R&D Infrastructure and Facility Development

In the 10th Five-year Plan period, the "R&D Infrastructure and Facility Development Program" constitutes a major component of the national S&T planning system. The endeavour aims to adjust, enrich, and strengthen the S&T capacity of national S&T research bases of different kinds. It will also rationalize the distribution of and efforts to build up S&T capacity. It will conduct basic S&T activities involving basic data and national standards, resource specimens, etc. The program will provide shared resources and conditions for scientific research and technical development, and give powerful support to national S&T development.

Program contents include: State Key Laboratories Development Program, National Key Science Projects Program, National Engineering Technology Research Centers Development Program, R&D Infrastructure and Facility Development Program, S&T Basic Work Program, Program on Research for Public Good, and Program on Key International S&T Cooperative Projects.

Major tasks for this Program in the 10th Five-year Plan period are to strengthen activities involving basic S&T and public interests and to promote international S&T cooperation along with national S&T bases construction.

Environment Building for S&T Industries

Environment Building for S&T Industries is a major component of the national S&T plan in the 10th Five-year Plan period. It aims to strengthen policy for environment construction, promote regional economic development, enhance technical services and exchanges, stimulate development of small and medium-sized S&T enterprises (S&T SMEs), vigorously develop S&T intermediaries, and create a sound environment for the commercialization of S&T findings and the their industrialization.

A number of S&T programs, such as the **Spark Program**, **Torch Program**, and **National Science and Technology Achievements Outreach Program**, have shifted their orientation from project implementation to environment construction and development of S&T SMEs. Meanwhile, efforts are also being made to stimulate the development of national key new products, promote trade through S&T, provide innovation fund for small technology-based firms, fund for application of agricultural S&T finding, and productivity promotion centers, university S&T parks, and agricultural S&T parks.

During the 10th Five-year Plan period, the major tasks of Environment Building for S&T Industries are: strengthen demonstration of S&T industrialization, establishment of S&T intermediary agencies and environment construction for industrialization.

Mega-projects of Science Research for the 10th Five-Year Plan

To meet new challenges and demands after China's WTO accession, and cater to domestic strategic economic restructuring, the Ministry of Science and Technology, with the approval of the 10th session of the State Science and Education Steering Group, has decided to organize and implement 12 mega-projects of science research based on the 863 Program and the National Key Technologies R&D Program. Through the implementation of dedicated projects, the Ministry hopes to take favourable positions in the science frontier in the 21st century and achieve significant technical breakthroughs, leading to industrialization in major fields related to national socio-economic development, all within 3 to 5 years.

Implementation Guidelines for the 12 Mega-projects are:

Goal: Develop new products and nurture new industries, and realize leapfrog progress through project implementation while emphasizing on innovative breakthroughs and the principle of "leaving something undone to focus on others".

Mechanism: Introduce and explore new mechanisms; vigorously promote the implementation of three major strategies, namely Human Resource Strategy, Patent Strategy and Standards Strategy which form new breakthrough points for mechanism and system innovations; gather talented people and research teams through project implementation.

Organization: Pool strengths from different sectors and vigorously promote collaboration among central government agencies and between central and local authorities in order to mobilize all concerned parties and establish a joint promotion mechanism.

Implementation: Integrate government guidance with market-driven, promote innovation and input patterns with industries as the principal entities, and realize the integration of industry-university-research institute.

Management: Practice classified management, establish a project responsibility system and strive to realize reform targets.

During the 10th Five-year Plan period, the 12 mega-projects will be granted a total investment of approximately RMB 20 billion (USD 2.4 billion). Basic principles for the approval of major projects are as follows:

1) The State provides priority support to promote projects concerning S&T issues that have strategic impacts on national construction and development.

2) The project provides technical support to address major issues that urge early solutions in national economic and social development.

3) The project promotes construction of an S&T innovation-based platform and helps build up national competitiveness.

4) The project strives for technical breakthroughs and leapfrog development while promoting the formation of new industries.

Implementation of the 12 mega-projects serves as a banner to demonstrate that S&T services national socio-economic development and leapfrog development. It constitutes another remarkable approach of S&T undertakings in the new era. It is an important step towards addressing issues raised from China's WTO accession and the three major strategies on human resources, patents, and technical standards. It also represents significant reform and innovation in S&T planning and management. By adopting the mode of major dedicated S&T projects, it proves to be an effective way to address major issues in socio-economic development by pooling resources, redoubling efforts, and gathering strength from various stakeholders. This will introduce more breakthroughs in a shorter period of time. It is a feasible approach to embody major national strategic objectives, fully mobilize different sectors, and serve both S&T innovation and industrialization.

Source: Ministry of Science and Technology of the People's Republic of Chinehttp://www.most.gov.cn/eng/index.htm (01 May, 2008)

The National S&T Development Plan for the 11th Five-year Period (2006-2010)

Not long ago, the Chinese Ministry of Science and Technology and the State Development and Reform Commission jointly published China's national S&T development plan for the 11th Five-year period (2006-2010). The Plan, designed to implement the National Outline for Medium and Long Term S&T Development Planning (2006-2020) (hereinafter referred to as the Planning Outline), will work on the following missions and tasks.

Surrounding the general goals defined by the Planning Outline for S&T development in the future 15 years, efforts will be made to raise the proprietary innovation capacity in the following five areas in next five years:

1) Strengthening key technology innovations in the areas of energy, resources, and environment, and enhancing the capability of addressing bottleneck restrictions, in line with major national economic needs;

2) Strengthening the technical innovation part of industry, with focus on acquiring proprietary intellectual property, and noticeably enhancing the core competitiveness of major sectors, including agriculture, industry, and service industry;

3) Strengthening technology integrations, and enhancing S&T service for public good sectors, including population, health, public security, urbanization, and urban development;

4) Responding to the new needs of defence modernization and to non-traditional security concerns, and enhancing S&T support for national security; and

5) Making deployments in the visionary areas of basic research and cutting-edge technology, and enhancing the capacity building of sustained S&T innovations.

During the 11th Five-year plan period, step will be taken to establish a national innovation system, agreeable with the socialist market economy and the natural rhythm of S&T development, in an attempt to create a rational S&T development pattern, and strive for major breakthroughs and leaping development in the selected priority areas. The endeavour will raise China's R&D expenditure to 2% as a proportion of GDP, allowing China to become an S&T power with strong proprietary innovation capacity, and laying a foundation for making China part of innovation economies in the world.

The Plan also puts forwards eight tasks for implementing the Planning Outline, including

1) Pooling up forces to implement major special projects defined by the Planning Outline, with focus on strategic objectives;

2) Strengthening efforts to address urgent concerns in the fields of energy, resources, environment, agriculture, information, and health;

3) Grasping future development opportunities, and making deployments in the visionary areas of cutting-edge technology and basic research;

4) Enhancing sharing mechanism, and establishing platforms for sharing S&T infrastructure facilities and conditions;

5) Implementing the strategy of high calibre personnel, and strengthening the capacity building of S&T workforce;

6) Creating an environment agreeable with popular science activities and innovative cultures;

7) Making industry a major player, and advancing the construction of a national innovation system of Chinese characteristics;

8) Strengthening S&T innovation, and safeguarding defence security.

Source:

CHINA SCIENCE AND TECHNOLOGY NEWSLETTER
the Ministry of Science and Technology People's Republic of China

N0.456; 10th November, 2006