

Major Policies and Plans for 2010

December 22, 2009

Ministry of Education, Science and Technology

I. Vision

Promoting education, science and technology
as a building block to grow into an advanced country



**Nurturing students' creativity and
consideration for others**

- Education that builds student's sound character and releases their creativity
- Diverse types of schools that offer quality education
- Vocational and career education for each stage of life
- Access to good education with less financial burden
- Education welfare that considers the needs of every single student

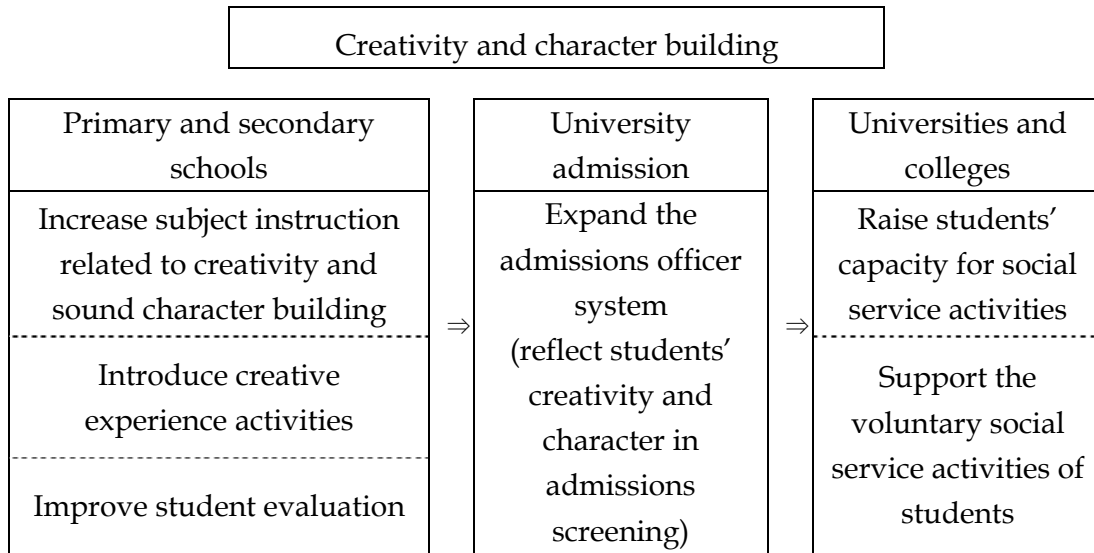
**Fostering new growth engines
for future development**

- A rich pool of highly competent human resources
- Capacity building at universities and research institutes
 - Delivering value for R&D investment
- Initiatives for green education and research
- Strength in space and nuclear technology

**Raising national prestige:
Sharing Korea's experience in education and S&T;
Expanding the Global Korea Scholarship**

II. Key Policy Tasks for 2010

1. Education that builds student's sound character and releases their creativity



Across all levels of education from primary school to university, the focus of education will be on helping students self-identify their potential and release creativity. Rather than simply delivering knowledge and information, education will essentially aim at drawing forth the vast ability that lies within each student.

For primary and secondary students, the Ministry of Education, Science and Technology will reduce the number of subject matters and instead increase contents related to character building and creativity in the core subjects of Korean language, math, social studies and science, such as communication skills, awareness of cultural diversity, problem-solving ability, and the capacity for team research.

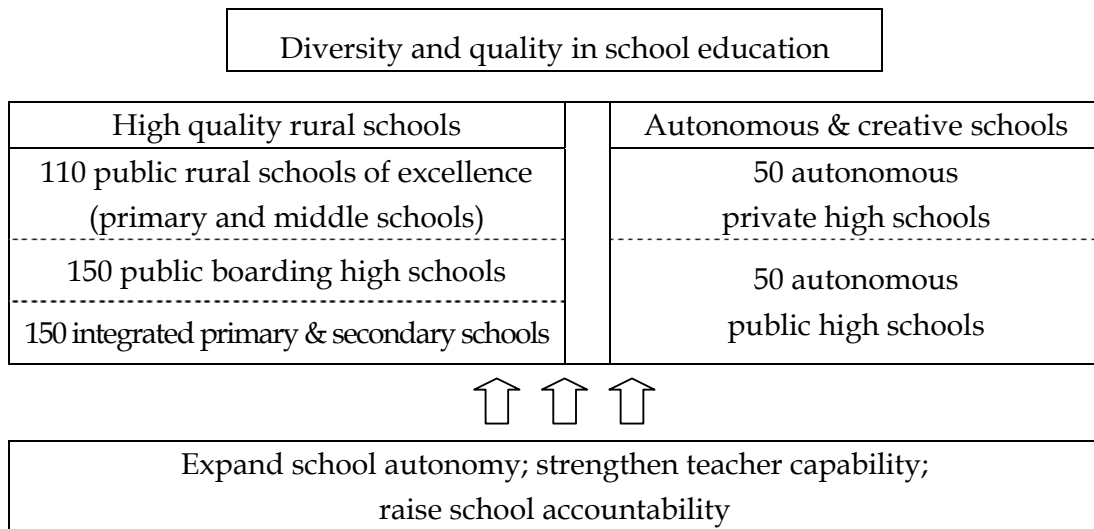
As part of the regular school curriculum, creative hands-on experience activities will be provided three hours per week for primary and middle school students and four hours per week for high school students. In linkage with local governments and regional communities, schools are to develop experience programs that relate to subject courses and are tailored to student needs, for example touring science museums and orphanages for science classes, attending opera performances and exhibitions for arts classes, and participating in mock trial practices for social studies classes.

Alongside, the student performance system will be improved so as to better assess the creativity development of students. School records will include a more detailed and accumulated account of students' various experience-based extra-curricular activities including creative writing, crafts, discussion, presentation, experiments, etc., which may later be utilized as information for university admission.

Also in design are schemes to foster a creativity-oriented school environment. In order to give more strength to fine arts and physical education, the ministry intends to construct schoolyards in 200 schools, appoint 3,860 culture & fine arts lecturers, and place 1,300 sports lecturers in schools in 2010. Students' social service activities will be promoted through a 'School Sharing Program,' and schools that demonstrate excellence in operating social service programs will be awarded. In addition, the input of incumbent teachers and the private sector will be expanded so as to develop 'future-oriented textbooks.' This includes plans to gradually increase the number of approved textbooks, and to ease requirements for authorized textbooks. The ministry will also continue its pilot program of digital textbook instruction at selected schools.

At the higher education level, the admissions officer system will be further applied at universities, with an aim to comprehensively assess the potential, aptitude, character and ability of freshman applicants. Efforts will continue to improve the university admission system, such as adjusting the number of subjects and frequency of the university entrance examination. For the English subject, the point allocation for listening tests on the entrance examination will increase from the current 34 percent to 50 percent by 2013.

2. Diverse types of schools that offer quality education



Under a core objective to expand school autonomy and offer diverse types of high quality schools, the ministry will continue to develop schools that are tailored to regional circumstances and student needs.

In agricultural and fishing villages, 57 billion Korean won will be subsidized for 110 selected 'public rural schools of excellence' in 2010, which offer e-learning

and other advanced education programs in an eco-friendly setting for primary and middle school students. For the 68 'public boarding high schools' designated in 2009, the ministry will provide funding to construct or renovate boarding facilities and recruit talented students into local education. Based on this year's operation, the number of public boarding high schools will increase to 150 in 2011. The number of 'integrated primary and secondary schools' which offer a variety of self-developed programs will also increase from 100 in 2009 to 150 by 2012.

In regional areas including Free Economic Zones and innovation cities, the ministry will encourage the establishment of 'autonomous private schools.' In areas that have poor educational environments, the ministry will designate 'autonomous public schools,' and subsidize maximum 200 million KRW for each school to upgrade their education programs. The ministry's plan for 2010 is to set up fifty private schools and designate 50 public schools.

In an on-going effort to grant schools more operational autonomy, the ministry will allow all schools to appoint principals through an open recruitment system. The teacher training and appointment system will be improved so as to enable more outside experts to acquire teacher's certificates. Discussions are also underway to introduce a school- or region-based teacher recruitment system in rural areas. On a trial basis, four local offices of education will be selected in 2010 to revise their function into expert support organizations, so as to guide school management, assist parent education and provide student counseling.

Recognizing that teacher capability is the most integral factor in raising the level of satisfaction for school education, the ministry will expand the 'teacher

evaluation system' to all schools nationwide in March 2010, and offer customized training programs for teachers upon evaluation results. The teacher training programs of teacher's colleges and universities of education will be more rigorously and closely evaluated, results of which will be tied to administrative and financial compensation.

The ministry will regularly analyze results of the 'National Assessment of Students' Academic Achievement,' so as to better understand which factors impact academic ability and thus assist school efforts to raise student performance levels. For schools that show yearly improvement of academic performance, the ministry will provide financial support and grant increased principal rights to school operation. For students that lack basic academic competency as revealed in the national assessment, schools are to provide accurate diagnosis tools, level-differentiated supplementary programs and devices to measure their degree of improvement.

The 'School Information Disclosure System' will be carried out steadily, so that parents and students may fully understand the school curriculum and educational outcomes through disclosed operational data. Open lecture schedules and school evaluation results will also be included in the list of information to disclose, as a way of strengthening school accountability. Meanwhile, the evaluation system of Metropolitan City/Provincial Offices of Education will see overall revision, from input-oriented criteria to output-oriented criteria, and from post-evaluation to occasional evaluation. All evaluation results of the local education offices will also be disclosed to the public.

3. Vocational and career education for each stage of life

Vocational education over a lifetime			
			<Lifelong education>
		<Tertiary-level vocational education>	<ul style="list-style-type: none"> • Key universities for the promotion of lifelong education
<Vocational high schools>		<ul style="list-style-type: none"> • Specialized junior colleges 	<ul style="list-style-type: none"> • Professional technical skills institutes • Lifelong learning account system
<Career education at primary & middle school>	<ul style="list-style-type: none"> • Four types of vocational high schools • Employment support 	<ul style="list-style-type: none"> • Tertiary-level vocational education institutions of global competence 	
<ul style="list-style-type: none"> • Experience-based career education 	<ul style="list-style-type: none"> • Curriculum tailored to industrial needs 		<ul style="list-style-type: none"> • Specialized cyber universities

Career education will be improved for primary and secondary students, with the introduction of aptitude diagnoses for students and career education manuals for schools. Local education offices will provide students and parents with career counseling, and build cooperative networks with local governments and enterprises for better career information and training opportunities. Regional human resources such as women who have experienced career breaks will be placed at schools as career education coordinators.

At the high school level, advanced 'Meister vocational high schools' will open in March 2010, starting with 21 designated schools. These schools will develop curriculum customized to the needs of industries, provide practical foreign

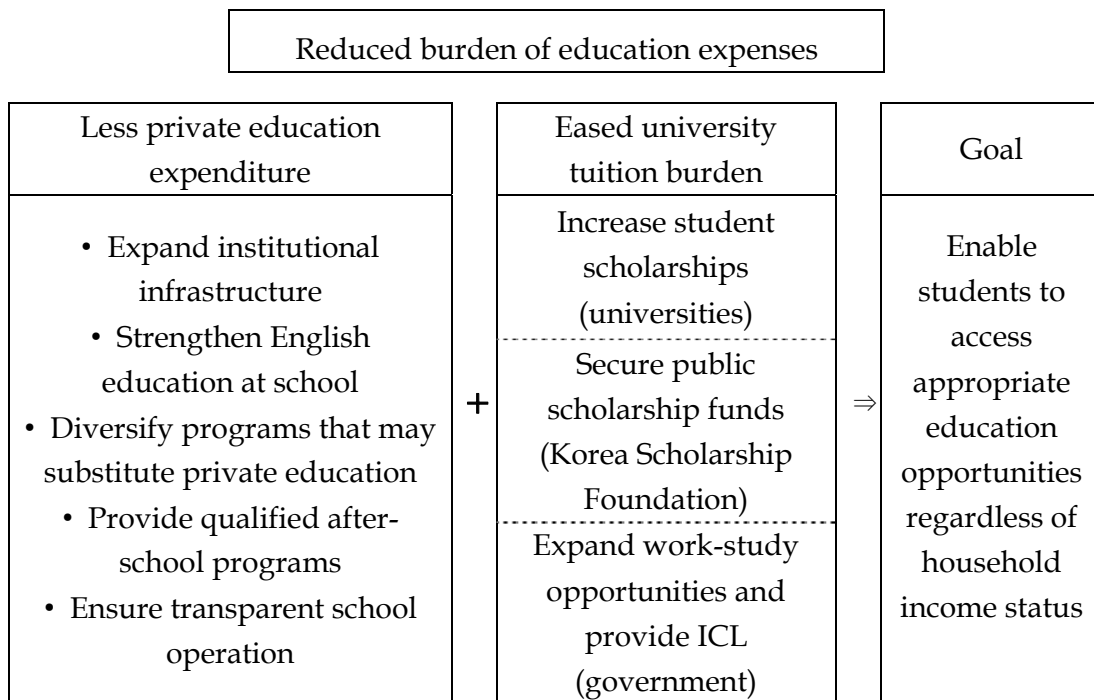
language courses, and build employment networks with major industries including those of shipbuilding and semiconductor fields. The overall vocational high school system of Korea will be classified into a more clearly distinctive and simplified division of Meister, special purpose, specialized and general vocational high schools. At all four types of vocational high schools, programs will be strengthened to assist graduate employment. With the help of the Ministry of Labor, a database of job-seeking graduates will be built and students will be provided with employment location services. Also, a larger number of national universities will adopt the special student admission system for incumbent employees who have graduated from vocational high schools.

In the higher education arena, the ministry's policy emphasis is placed on further specializing 2~3-year junior colleges and nurturing selected junior colleges into global quality standards. A subsidy of 255 KRW has been set aside for the 'Junior College Capacity Building Project' in 2010, 70 percent of which will be provided in block grants to 80 junior colleges excelling in pre-determined formula indices. As a new policy this year, the remaining 30 percent of grants will be given to junior colleges that advance in specialization. 'Global Hub Colleges' will be nurtured to offer internationally competent vocational education and recruit foreign students, and provide leading Korean technical manpower for overseas Korean industries.

As for adults, universities will be encouraged to develop an adult-friendly lifelong education curriculum and methodology. At university-affiliated lifelong education centers, specialized vocational education programs will be developed and operated in linkage with local e-learning support centers. The 'Lifelong Learning Account System' will be officially launched in 2010, as a

program to keep accumulated record of individual adult learning outcomes and link them to the acquisition of academic/skills qualification. In addition, priority support will be given to cyber universities and their special graduate schools that cultivate specialized adult vocational education curriculum, in the fields of career development and internationalization in particular.

4. Access to good education with less financial burden



One of the key issues for the ministry in 2010 is to reduce spending on private education. For this, the ministry will work to bring more quality into school education by diversifying school types and granting expanded autonomy. The current status of students' private education expenditure will be surveyed by grade and subject, as a basis for policy planning to curb private costs. And the total amount of private education expenses along with increase/decrease rates will be considered when evaluating local offices of education. The ministry is

also taking steps to establish a self-monitoring policy planning system that will pre-check whether a new education policy plan involves any elements that are likely to cause students' private spending.

To help curtail costs for private English education, the ministry will increase the number of English class hours at school from the current one hour per week for primary third and fourth graders to two hours. It will also have middle and high schools set aside at least one hour per week for English conversation classes. In a bid to raise the quality of English class instruction, the 'Teaching English in English' authorization system will be spread nationwide starting March 2010, and more English subject teachers will be provided with intensive training programs. Approximately 7,000 separate teachers will be placed in 2010 to exclusively instruct English conversational skills at school. Assistant native English teachers are also mandated to complete a certain period of training. The 'Teach and Learn in Korea(TaLK)' program will invite 600 instructors from abroad to teach English in Korean rural schools, and 650 schools will introduce virtual English lectures provided by native teachers.

Reinforcing after-school programs is another scheme geared at reducing private education spending. While diversifying regular after-school programs, the ministry will support schools to operate a 'Daylong Care Program' for underprivileged primary students and children of working parents after school hours. Local human resources will also be mobilized for after-school education and care. About 4,800 parent coordinators and 2,880 maternal mentors will be placed at schools in 2010. Also, after-school vouchers will be provided to 390,000 needy students in 2010, accounting for 140 billion KRW and marking an increase of 40,000 beneficiaries compared to 2009.

The ministry plans to increase the number of designated 'schools whose students are free from private education needs' from 457 in 2009 to 1,000 by 2012. These schools receive financial aid from the government to secure the best teachers, develop tailor-made curriculum, operate level-differentiated courses and provide top-quality after-school programs, thus resolving any student demand for private education.

Online courses on the Education Broadcasting System(EBS) will see a sharp rise of quality, especially courses that help students prepare for the university entrance exam. This will involve star lecturers, excellent incumbent teachers and high quality textbooks. Meanwhile, the 'Cyber Home Learning System' will adopt newly developed course contents and a learning management system. Internet Protocol TV services will be launched in 2010 starting with primary schools in agricultural and fishing villages, which will provide regular curriculum instruction and after-school programs on a high definition screen in large volumes.

For higher education students, a three-winged effort to reduce tuition burdens will be carried out. Universities and colleges will be encouraged to increase their own student scholarship programs and to provide 30 percent of all scholarships to students from low-income families. The Korea Scholarship Foundation will revise laws to collect public and private funds and donations, and increase its scope of scholarship provision. The government will introduce a new 'income contingent loan' program in the first half of 2010, which allows students to take loans from the government and defer payments until they get employed and begin earning money. Basic livelihood recipients and students

from households in the lowest to the seventh income decile are eligible to apply for the loan, which will cover total annual tuition fees plus two million Korean won in living expenses per year. Interest rates will be decided every year, in consideration of fund interest rates. Students are required to pay back interests and principal in installments after their annual earning reaches a certain level. In addition, the government will closely monitor the academic administration of universities and colleges, so as to ensure that tuition rates are set at reasonable levels.

5. Education welfare that considers the needs of every single student

Education welfare for all			
Pre-school youths	Students with disability	Less-privileged students	Students in crisis situations
<ul style="list-style-type: none"> • Increase access to early education • Develop high-quality curriculum • Enhance teacher capability • Expand parent's right to school choice 	<ul style="list-style-type: none"> • Expand compulsory education • Strengthen vocational education 	<ul style="list-style-type: none"> • Assist multicultural families • Support North Korean defector's children • Financially aid low-income families 	<ul style="list-style-type: none"> • Enlarge the WEE project • Provide alternative education programs

For young children, the ministry will expand free pre-primary education for low-income families and increase the construction of low-cost kindergartens affiliated to primary schools. Various arts and creativity-building programs will be developed for the kindergarten curriculum, and working parents will be able

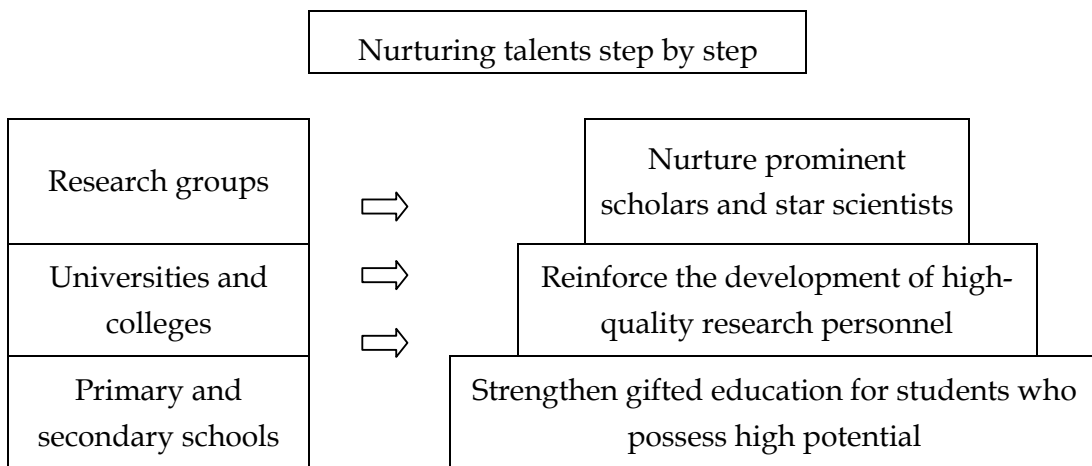
to find more opportunity to register their children in daylong kindergarten programs. By launching the teacher evaluation system and introducing an evaluation/open recruitment system for public kindergarten headmasters, the ministry also seeks to secure pre-primary teachers of higher standards.

For students with disability, compulsory education will be extended to all students from age five to high school years. Special classes for disabled students within special and general schools will increase to 800, and ten designated vocational schools will provide disabled students with integrated vocational and technical education. North Korean defector's children will be aided with one-to-one mentoring/counseling services, supplementary subject teaching for lagging areas, and career development programs, as well as more opportunity to enroll in alternative schools. For this, the ministry has revised the Regulation on the Establishment and Operation of Alternative Schools in October 2009, pursuant to which it will open alternative schools that confer diplomas in March 2010, and take steps to establish public alternative schools in March 2012. In order to better support children of multicultural backgrounds, the number of mentors will increase to 3,000 in 2010. The number of teacher's colleges and universities of education that open 'multiculturalism courses' will also grow to 20 in 2010, double the number of 2009.

For children of low-income families, 438.8 billion KRW has been set aside to in subsidy to aid education expenses. Meal fees will be provided to 770,000 students, accounting for 96 percent of all needy students. An emergency school fee support system will also be established to ensure that students do not discontinue school enrollment due to financial difficulties. In addition, one hundred priority areas that require education welfare support will be designated in 2010, at which 538 schools will benefit from concentrated government aid.

For drop-out students and other students in need of professional guidance, the ministry will expand the 'We Education Emotion(WEE) Program' to 2,530 WEE classes(making friends), 130 WEE centers(student life support) and six WEE schools(long-term consigned education). For the estimated 3,300 students that are situated in crisis situations such as victims of family violence and unmarried mothers, 'Wee Homes' will be operated for guidance and protection. The ministry will also conduct a quarterly survey on the rate, causes and post-school lives of school dropouts, as data to consult when formulating support policies.

6. A rich pool of highly competent human resources



Gifted education will be expanded for primary and secondary students of outstanding ability, to cover two percent of all enrolled students by 2012. Improvements are also planned for the selection of gifted students, from test-based selection to the observance and recommendation of teachers. The number of gifted education schools will increase from two in 2009(Seoul, Busan) to three in 2010(Gyeonggi Province).

Education for gifted students will also be strengthened at general high schools, with focus on the subjects of English and mathematics. New programs such as grade differentiation-free instruction and credit hour courses will be introduced for these subjects. Alongside, a 'High School College' will be established for top students in English, math and science. The 'University-level Program' will also be extended for excellent students to take advanced university courses during vacation and have them approved as regular academic credits afterwards upon university entrance.

Special purpose high schools will improve their student admission system so that more opportunity may be provided to students who possess aptitude and ability, rather than those who gain good admission exam scores. Starting 2011, science high schools will select all students through an admissions officer system, based on assessment of science ability and creativity. The schools will be supported to conclude MOUs with nearby universities so as to enable top students to take advanced university courses and participate in undergraduate-level research. Foreign language high schools and international high schools will also adopt the admissions officer system, and increase their admission quota allotment for underprivileged students to ten percent by 2011 and 20 percent by 2013.

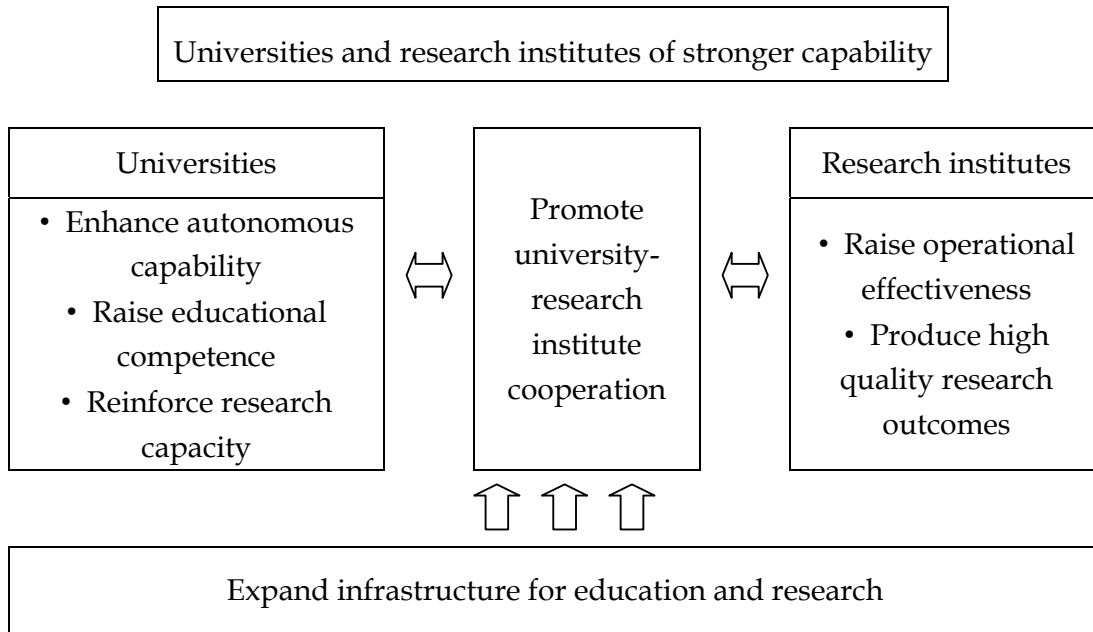
For university students of high potential, the ministry will enlarge the 'Undergraduate Research Program' from 100 research projects in 2009 to 150 in 2010, providing chance for students of science and engineering to self-develop research topics. The 'National Junior Project' will provide special research

subsidy for minimum three years for Master's and Doctoral researchers in the basic sciences, with 400~600 million KRW per grantee for 20 researchers starting 2010. The ministry is also devising a new 'Doctors of Global Competence(tentative name)' project to nurture the capability of university professors, leading researchers of high-tech companies and cutting-edge venture researchers, which involves research-based education programs, graduate fellowships and comprehensive financial support.

Under a long-term vision to promote the fields of humanities and social sciences, the ministry will provide subsidy for university lectures in less-popular academic fields(two billion KRW for 71 lectures in 2010), and for the translation of classic Korean literature(250 million KRW for one university in 2010). The selection of key overseas institutions for Korean studies will continue, with concentrated subsidy provided for selected universities. As a new initiative, the 'Korean Studies Lab' project will be launched in 2010 with a budget of 1.5 billion KRW, to set an integrated model of Korean studies education, research and distribution.

For research institutes, new support measures are in place to help humanities scholars and scientists who have reaped good achievements in previous research activities to further build on their research capability and grow into top-notch researchers of global competence. In original and influential areas of research, the ministry will provide concentrated subsidy for a small number of selected researchers and nurture them into global star scientists. The subsidy will from 4.5 billion KRW(3+3 years) for three star scientists in 2009 to 11 billion KRW(5+5 years) for 7~10 star scientists in 2010.

7. Capacity building at universities and research institutes



In a major effort to empower universities with the capability for self-improvement, the ministry will push forth with its plan to corporatize national universities. As a start, the ministry intends to corporatize Seoul National University by March 2011. Local national universities are to form a consortium of institutions within near distance, and switch into a single incorporated university after a 3~5-year preparation period.

As a way of assuring the quality of private universities, the ministry will set up a three-phase restructuring system to reform mismanaged institutions on an autonomous and occasional basis. In the first phase, a survey was conducted on the management status of private universities between May and November 2009, upon which the Ministry has identified and ordered the operational improvement of mismanaged universities. In the second phase, the ministry is

inducing the autonomous restructuring of mismanaged universities in the formats of consolidation and M&A, etc., through management consulting. In the third phase, the ministry will impose administrative and financial measures to discipline universities that fail to show proper improvement, such as reducing the student quota, disallowing freshman admissions or closing down the school.

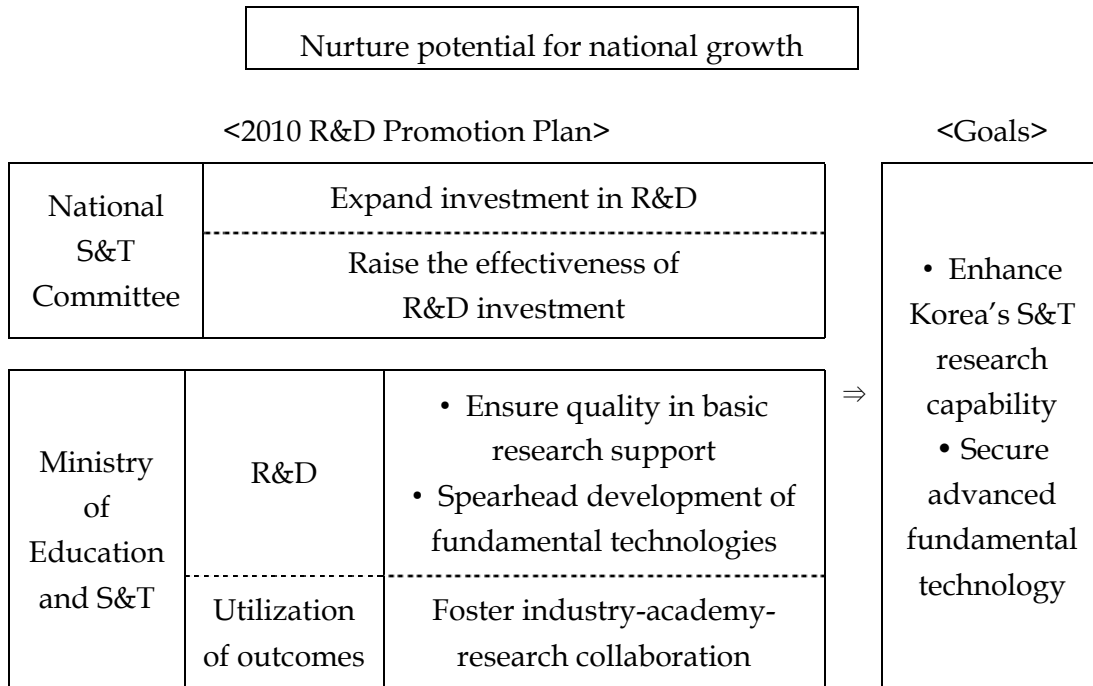
For both national and private universities, the ministry intends to settle in a self-evaluation system, where universities may regularly assess their student admission procedure, curriculum, educational outcomes, etc. on their own. The 'University Information Disclosure System' will see further expansion by adding six more data items to disclose to parents and students, including how admission fees are earned and spent, and how the tuition and per student education expense rates are estimated.

In a bid to raise the global research capability of universities, the ministry will further expand major subsidy schemes including the 'World Class University' project, with grantees to be selected in two new fields of fusion technology in 2010. The WCU project will also include forums delivered by Nobel Prize laureates and lecture sharing through the open course-ware system. Joint research and interaction between Korean and foreign researchers will also be facilitated through the 'Global Research Network' project(7.8 billion KRW) and the 'Global Research Lab' project(15.7 billion KRW), both incorporating international peer reviews. Another 4.06 billion KRW will go into assisting the international exchange of university research personnel, and 16 billion KRW into attracting the physical presence of foreign research institutes.

Meanwhile, the ministry intends to foster sound internal competition at government-funded research institutes, and provide different amounts of research fee subsidy according to the performance level of researchers. Overall, the ratio of direct subsidy for personnel expenses at government-funded research institutes will increase from 54.6 percent in 2009 to 60 percent in 2010. The 'Science and Technology Personnel Pension System' will be expanded to cover 7,090 persons in 2010, nearly double the number of 2009. In addition, an open management system will be introduced at the research institutes, so that they may recruit renowned scholars from abroad and ensure enhanced accountability in operation.

At the same time, there will be on-going efforts to foster academy-industry collaboration, with aim to nurture workforce tailored to industrial needs and to raise employment rates. The ministry plans to designate 19 universities to lead human resources development programs, with a subsidy of 100 billion KRW involving 500 new job place creations. Thirty-two universities will be designated as central institutions for the promotion of academy-industry collaboration, with a subsidy of 30 billion and 300 job places. Another 23.7 billion KRW will go into subsidizing 54 new projects for the 'Innovative Local HRD Program,' which links regional small-and-medium enterprises with science and engineering departments of local universities for joint research. In addition, the 'Engineering Education Accreditation System' will be extended to junior colleges as a quality control device to ensure that junior college graduates who complete accredited programs reach the quality and skill standards of international engineers.

8. Delivering value for R&D investment



Government investment in R&D will continue to increase, with plans to invest 13.6 trillion KRW in 2010, up by 1.3 trillion KRW from a year earlier. The overall goal is to raise the ratio of gross national R&D expenditure as of GDP to five percent by 2012. Out of the R&D budget allocated for 2010, a large portion will be spent on funding basic and fundamental research. The ratio of fundamental research investment as of government R&D budgets is planned for 31.3 percent in 2010. The ratio of basic research will reach 11.4 percent.

Budget increases will be accompanied by measures to raise the cost-effectiveness of investment, primarily by improving the distribution system of research outcomes. From the initial planning stage of technology development, research projects will be checked by standard of output criteria such as

commercialization and intellectual property management. TLOs will secure a larger number of exclusive staffs so as to facilitate the transfer of research outcomes. Joint planning will also be encouraged so that fundamental/basic technologies are effectively linked with applied technology. In addition, the ministry will introduce a 'Research Outcome Target Management System' by which R&D projects will be checked whether they are sufficiently achieving set targets, during the whole period of research initiation to completion.

In the field of basic research, subsidy for researcher-oriented creative basic research will increase from 500 billion KRW in 2009 to 650 KRW in 2010. The ratio of science and engineering faculty receiving basic research grants will also rise from 20.7 percent in 2009 to 27.2 percent in 2010. As a new initiative, the ministry will launch an 'Adventurous Research Project(four billion KRW in 2010)' that includes a 'positive failure system' so as to foster a culture of failure acceptance and help researchers release their creativity in challenging and spearheading projects. In areas of national and social priority such as green technologies and new growth engine technologies, basic research support will sharply increase from 6.9 billion KRW in 2009 to 21.8 KRW in 2010. Alongside, steps will be taken to secure and further develop facilities and equipment for basic research, including the Korea Superconducting Tokamak Advanced Reactor(KSTAR) which aims at reaching a plasma flash duration of maximum five seconds in 2010.

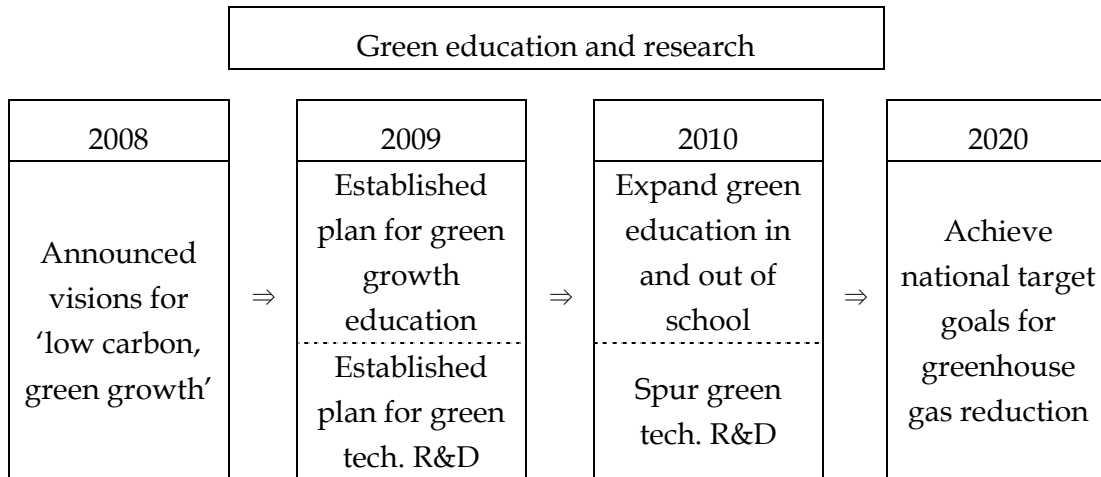
As for fundamental technologies, the ministry has set aside 139 billion KRW for 35 NT including green nano technology, 90.3 billion KRW for BT including new medicine and stem cells, and two billion KRW for IT including intelligence

systems and software engineering. Schemes to expand infrastructure for fundamental research are being planned at the national level, including 30.4 billion KRW in support of establishing a 'New Medicine R&D Center' and the designation of a 'National Biological Resource Data Center' which will bring together all bio information held by different government offices and manage them in an integrated way.

With aim to spearhead development in future-oriented fusion technologies, the ministry intends to draft a 'NBIC Fusion Technology Map' in the first half of 2010, under which it will strategically support the creation of products and service in the three national priority areas of bio/medicine, energy/environment, and information technology. Investment in fusion technologies of high risk, high return will continue to increase from 55 billion KRW in 2009 to 70 billion KRW in 2010, such as intelligent robots, bio fusion material and state-of-the-art medical facilities. In addition, 13 billion KRW will be invested in 2010 to establish a new 'Brain Research Center' which will activate Korean research on new technologies for the prevention and treatment of brain disease.

The 'Global Frontier Project' will continue with a subsidy of 10~30 billion KRW for each selected project in national strategic research areas, under a long-term goal to raise Korea's competitiveness in key basic/fundamental research to the world's top fourth by 2021. Another 80 billion KRW will be spent on developing technologies to promote the health of the elderly, support the everyday lives of persons with disability, and protect citizens from natural disasters and terrorism threats.

9. Initiatives for green education and research



In terms of school education, the curriculum for primary and secondary students, scheduled to be partially revised in 2010, will newly include contents on green growth education and sustainable development. Textbooks on 'environment and green growth' will also be developed for high school elective courses. At 47 designated 'Green Growth Research Schools,' self-developed curriculum and methodology will be applied on a trial basis for the teaching of green energy, ecology and environment.

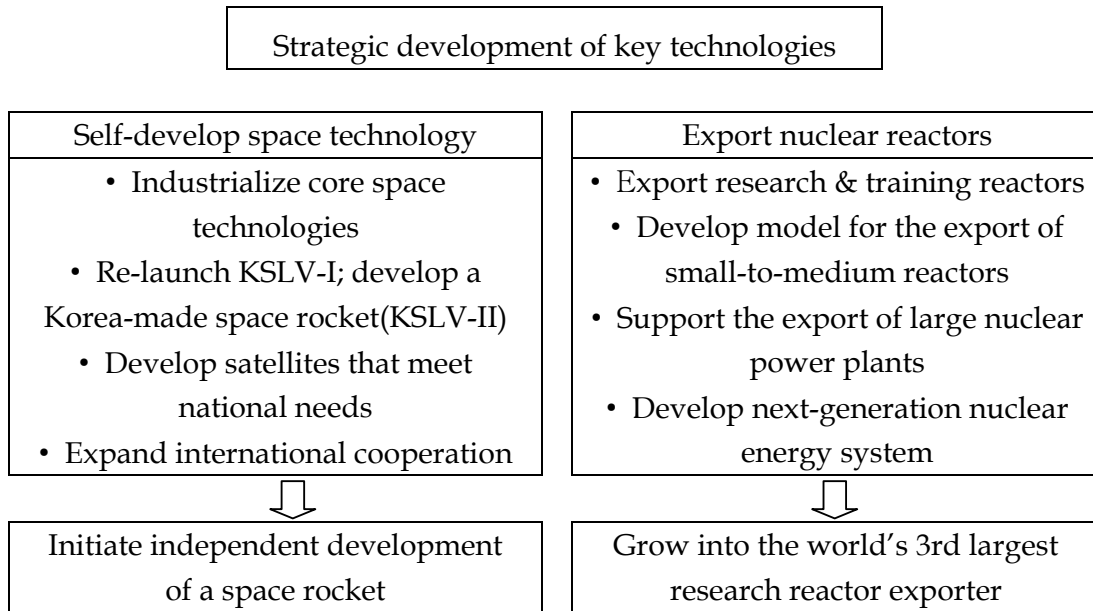
The 'Eco Life Science Class' program will see expansion at primary and middle schools, providing students and community residents with ecological research and experiment education after school. Starting 2010, the science classes will incorporate minimum 20 percent of teaching/learning contents on green growth. With each metropolitan city and province required to designate two schools to operate the science class program, the total number of science classes will double from 16 in 2009 to 32 in 2010.

In terms of research, the ministry intends to spur green technology development and commercialization, under a mid-term goal to cut greenhouse gas emissions by four percent point compared to 2005, and by 30 percent point as of the Business As Usual(BAU) by 2020. According to the 'Green Technology R&D Plan' established in January 2009, government investment in green technology R&D will grow from 1.4 trillion KRW in 2008 to 2.8 trillion KRW by 2012. The ministry will also develop sub-plans for R&D support this year, including a 'Pan-governmental Green Technology R&D Promotion Plan (February 2010)' and a 'Green Workforce Development Plan(first half of 2010).'

The ministry's budget for green technology R&D will increase from 517.4 billion KRW in 2009 to 556.8 billion KRW in 2010. The ratio of individual green basic research as of all basic research will also rise from 2.9 percent in 2008 to seven percent in 2012. A master plan for the development and commercialization of carbon capture and storage(CCS) technology will be announced in the first half of this year, and 17 billion KRW will be invested in advancing R&D for climate change prevention technology.

Reaching overseas, the Korean government seeks international cooperation in green technology development, under a 'Green S&T Diplomacy' plan which involves proposals for joint research and development assistance in global environment and energy issues. This year, the government will launch a tripartite Korea-China-Japan cooperation framework for scientist exchange and joint research in the areas of climate change, global warming and energy depletion. The Global Korea Scholarship, which funds foreign students and scholars to study and teach in Korea, has allocated scholarships for 30 students in the field of green growth in 2010, and funding for 30 university faculty from developing countries in key S&T fields.

10. Strength in space and nuclear technology



In the field of space science, focus is placed on developing and industrializing key technologies by linking with areas that Korea is relatively strong in, such as IT and NT. By 2020, the ministry plans to secure 60 core space technologies. As a start, in 2010, the ministry will launch development of six core technologies including infrared light sensors, high-speed material storage/transmission devices, and digital satellite receivers/transmitters.

While taking steps to re-launch the Korea Space Launch Vehicle I(KSLV I), the Korean government will initiate development of KSLV-II during the second half of 2010. KSLV-II, which is to be completed in around 2018, will be used for sending a 1.5-kilogram satellite into a sun-synchronous orbit at an altitude of somewhere between 600 to 800 kilometers. Unlike the KSLV-I, which relied on the technology of Russia, KSLV-II is projected to be fully homemade.

Another task for the ministry is to develop satellites tailored to national demands. The 'Communication, Ocean and Meteorological Satellite,' to be launched by the first half of 2010, is designed for communication purposes and weather monitoring. The 'Multi-purpose Satellite-V' will provide high-resolution video material in adverse weather conditions and during nighttime. And KSLV-I, the second launching of which is scheduled for this year, will observe the radiant energy of the earth's atmosphere, to provide data for global warming research.

Collaboration with the world's space powers will be diversified, including the possibility of participating in the U.S.-led International Lunar Network project. Together with NASA, the ministry will also initiate co-development of space science in five core areas including space exploration, earth science and space communication.

More support has been promised for the nuclear energy sector. The ministry intends to draw from its experience of designing and constructing a 'High-flux Advanced Neutron Application Reactor(HANARO),' and increase exports of self-developed research reactors to foreign countries. Korea has been selected to construct a research reactor in Jordan in the next four years, and anticipates approximately 50 overseas requests for reactor construction up to 2025.

Expectations are high for the country to take up a leading role in the world's market for small-to-medium nuclear reactors, as the ministry intends to complete development of 'SMART,' a self-designed mid-sized nuclear reactor, by 2011. 'SMART' is capable of providing electricity and water sources to cities that have a population of maximum 100,000. By 2050, the ministry looks forward to constructing about 700 'SMART' reactors for export.

III. Policy Tasks to Raise National Prestige and Create Jobs

1. Sharing Korea's experience in education, science and technology; Expanding the Global Korea Scholarship

As the world's only country to have turned from a beneficiary to a donor of international aid, the development experience of Korea offers many implications for other countries, in particular its strength in education, science and technology. Korea's illiteracy rate has plunged from 78 percent in 1945 to 1.7 percent in 2008, thanks to a six-year compulsory education plan introduced in 1953. The middle school enrollment rate has risen from 54.3 percent in 1965 to 99.9 percent in 2008, and the high school enrollment rate reaches the world's top rate of 83.8 percent. Korea's educational strength is repeatedly proven in international academic assessments including the Trends in International Mathematics and Science Study(TIMSS), in which Korea ranked 2nd in math and 4th in science in 2007. In the field of science and technology, Korea was placed at the world's 3rd and 17th in terms of science and technology competence, respectively, in the 2007 IMD World Competitiveness Yearbook. Korea has also topped the World Skills Competition 16 times, and ranks the world's 12th in terms of the number of scientific papers in SCI-level journals(35,569 papers as of 2008).

Strategic publicity works are being designed to better inform the world of such achievements and policies, and to raise the brand value of Korean education, science and technology. The 2010 Global Human Resources Forum will be held in linkage with the G20 Summit this fall, where Korea will lead the

development of global initiatives in education and HRD. In September, Korea will host the 1st International Contest of Outstanding New Ages, during which global participants will be able to learn of Korea's spearheading developments in e-learning. The International Atomic Fusion Energy Conference will also be organized in Korea this year, through which Korea seeks to assume function as a bridge between advanced and less-developed countries in efforts to reduce greenhouse gas emissions.

Korea has also mapped out plans to increase its Official Development Assistance in the sectors. It will continue to provide consulting for the establishment and operation of higher education institutions in developing countries, including the restructuring of the Hanoi University of Pharmacy in Vietnam and the College of Science and Engineering of the Laos National University. Around 2,300 university students and 35 Internet technicians will also be dispatched to aid developing countries with medical service, education and e-learning. The dispatch of Techno Peace Corps will increase to 60 technicians in 2010, who will provide research and technology guidance for developing countries at universities and research institutes.

The Global Korea Scholarship(GKS) program is set to see great expansion in 2010, under a core objective to generate deeper mutual understanding between world countries by facilitating educational exchange and human resources mobility. In particular, the ministry seeks to develop mutual and reciprocal cooperation with developing countries by providing software-oriented development assistance in education and HRD, drawing from the experiences Korea holds in the fields of human resources development and education.

GKS inbound programs include the 'long-term degree-pursuing program(Korean Government Scholarship Program)'for 700 invited foreign students, the 'short-term study program' for 720 foreign students studying in Korea for one year or shorter, and 'visit/study program for incumbent leaders' which will support 30 public officials, journalists, and senior researchers of state-run research institutes from developing countries, so that they may establish a research support program in areas of interest at a university or research institute in Korea. The 'short-term study program' consists of 'subsidy for foreign exchange students(500),' 'subsidy for financially self-supporting students(400),' and 'short-term training for undergraduate students(120).'

The GKS outbound program has been reformed to provide more opportunities for general Korean students and those from low-income families. This year, 70 excellent Korean students will be selected for the scholarship through a written examination and in-depth interviews based on an admissions officer system. In addition, the 'Korea-Japan Government Scholarship for Young Engineers' will fund 100 Korean undergraduate students to study in Japanese national/public universities in the fields of science and engineering, and the 'Korea-Japan Undergraduate Exchange Program' will exchange 200 Korean and Japanese undergraduate students for a three-year period.

2. Creating new job opportunities in education and S&T

The overall goal of 2010 is to create 73,481 job places in the sectors of education, science and technology. A total of 53,329 new jobs have been designed for the education services sector, including 2,000 English conversation lecturers, 7,000 intern teachers to support subject instruction, 7,717 after-school lecturers and

coordinators, 5,500 day-long kindergarten staffs, and 5,001 special education assistants. In employment-related education and S&T projects, the ministry will create 18,611 new jobs, including 1,900 job places for employment-related university funding projects, 1,820 places for the S&E skills training project, 50 places for S&T consultation for developing countries, and 2,300 places for the overseas social service of undergraduate students. In addition, 1,541 internships will be newly created in administrative positions, including 160 interns at the Ministry of Education, Science and Technology and 742 interns at government-funded research institutes.

In an effort to expand infrastructure for employment support, the ministry will build a database of job searchers and employment training opportunities, together with the Ministry of Labor and the Ministry of National Defense. For undergraduate students, the ministry will provide industry-tailored curriculum and employment linkage programs at selected exemplary universities for industry-academy collaboration. The ministry intends to increase the number of such designated universities to 42 by 2011, from which 550 million students will benefit. For graduates of higher education institutions, the ministry will offer customized training in core science and engineering skills. Alongside, the ministry will carry out a pan-governmental campaign to foster a social atmosphere that welcomes university graduates into employment at small and medium-sized businesses. This includes plans to increase description of the role of SMEs within the primary and secondary curriculum, and the designation of 100 universities that accredit students' participation in job experience programs with academic credits.