Brain Korea 21, a project for Nurturing Highly Qualified Human Resources for the 21st Century Knowledge-based Society

Ministry of Education & Human Resources Development

Republic of Korea
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Introduction to BK21 Project

- History of BK21
- Background of BK21
- Vision and Goals of BK21
- Action Strategy
Ministry of Education & Human Resources Development

History of BK21 Project

- ’98. 4 - ’99. 5: Basic planning, Public hearing
- ’99. 6: 1st Announcement for the Project (2nd: ’99. 10)
- ’99. 7-8: 1st Selection of teams (2nd: ’99. 10)
- ’00. 6-8: 1st year Annual Review
- ’01. 5: Built Comprehensive Management Sys.
- ’01. 6-8: 2nd year Annual Review
- ’02. 4-: Mid-term Review
- Low output of research and development
  - 16th in SCI-level publications in ’98 (3.9% of USA’s and 15.5% of Japan’s)
- Low competitiveness in higher education
  - Less than 1/4 or 1/20 of annual educational expenditure per student at major universities compared with world’s leading universities
- Deepening reliance of education & research on foreign countries (Deficit: $ 700M)
- Need to strengthen creative education system in K-12 schools
Developing world class graduate schools and nurturing R&D manpower

- Nurture 1,300 doctorates in each year in natural sciences and engineering fields after 2005
- Promote supported sectors toward world top-10 graduate schools after 2005
Enhancing research capability through supporting future R&D manpower financially

- Invest over 70% of total funding for graduate students and post-doctorates, contracting researchers to exert their efforts solely on research and study
- Leap into world top-10 nation in SCI-level publications after 2005 (17th in 1998 → 14th in 2001)
Nurturing specialized regional universities and strengthening industry-university ties

- Establishment of independent system through raising matching-fund from industry and local government and support for merchandizing research outputs
- Collaborative operation of curricula and projects to nurture human resources relevant to industry
Reforming university system to nurture creative human resources

- Diversifying admission system, widening enrolment units, etc.
- Building central management system of research funding, universalizing professor performance review system
Invest $1.2 B for 7 years (’99 - ’05)

- More funding for advanced applied fields
- University reform as a prerequisite to funding
- “Selection and concentration”
- Over 50% of investment to graduate students
- Strengthen Industry-university ties
1. Overview by sub-projects

2. Overview of selected project teams
Overview of Sub-projects

- Develop world-class graduate schools ($1.1B/7 Year)
  - Science and Technology ($70M/Year)
    - Develop world-class R&D manpower and research capability in basic sciences and strategic fields
  - Humanities and Social Science ($7.7M/Year)
    - Develop high-qualified researchers in strategic humanities and social science fields for advanced society
Overview of Sub-projects

- Infrastructure for developing graduate school ($38M/Year, $266M/7 Year)

- Developing Leading Regional Universities ($38M/Year, $266M/7 Year)
  - Develop manpower to meet the need of regional industries cooperating with local governments
Overview of Sub-projects (Continued)

- Enhance Research Capability of Graduate Schools ($127M, 5 Year)
  - Professional Graduate Schools ($8.5M/Year)
    - Develop human resources in the fields related to high-value-added industries (Design, Oriental medicine, Film, etc.)
  - Small Research Groups ($30M/Year)
    - Nurture researchers in all fields to develop research capability (Arts, Medical science, Humanities, etc.)
Overview of selected project teams

- **Science and Technology**
  - 26 Primary Project Teams (11 Universities) (22 Secondary Project Teams associated with PPT)

- **Humanities and Social Sciences**
  - 18 PPT (11 Universities) (2 SPT)

- **Leading Regional Universities**
  - 13 PPT and 29 SPT (38 Universities)

- **Professional Graduate Schools**
  - 11 Professional Graduate Schools (11 Universities)
- **Performing objectives**

  *proposed by project teams*
Performing Objectives

- **Main Objectives**
  - Nurture R&D manpower and enhance research capability by proposing 629 tasks from 69 teams
  - Build supportive system for merchandizing research outputs
  - Launch international collaboration programs by benchmarking world leading universities

- **Reforming Academic System**
  - Admission system
  - Reduction of enrollment establishment
  - Open-door policy to graduate schools
  - Widening enrollment units
  - Centralizing management of research funding
  - Link professor performance review to personnel system

Brain Korea 21
1. Operation System

2. Tasks and Function
Operation System

Ministry of Education & HRD

Korea Research Foundation

Support and Mgn. Committee for BK21

Bureau for Univ. Policy

Review Panel for Project Sectors

Academic & Research Affairs Division

Management and Support Team for BK21
Tasks and Function

- Ministry of Education and HRD
  - Academic & Research Affairs Division, Bureau for University Policy

- Main Function
  - Policy development and establish basic direction for management
  - Ensure and distribute finance for BK21
  - Develop Post- BK21 Project
Management and Support Team for BK21

- Attached to Korea Research Foundation (Since October 2000)

- Main tasks
  - Assist Committee on Support & Management for BK21 Project
  - Plan and support annual and mid-term review, develop review standards, etc.
  - Analyze project teams’ annual reports
  - Operate data base for the Project
Committee and Panels for BK21

- Committee on Support and Management
  - Vice ministerial advisory committee
  - Deliberate major issues
  - Composed of 11 members, representing academic society, industry, press, etc.

- Review Panels
  - Under CSMBK21
  - Annual and mid-term evaluation
  - 85 members in 5 groups
Main Performances of BK21 (1999 - 2001)

1. Infra-structure for nurturing R&D manpower and research

2. Research Products

3. International patents and collaboration / exchange
- Nurture high-qualified R&D manpower through developing world-class graduate schools
  - Financial support to 34,153 graduate students for 3 years and nurture next generation of R&D manpower
  - Recruit 1,933 post-doctorates and 1,096 contract professors and enhance research capability

- Change in research and higher education
  - Competition in research and development and in recruiting excellent students nationwide
Research Products

- Publication of SCI-level paper in science & engineering
  - Top 7 universities participating in BK21 Project share 56% of total publications of SCI-level papers (Total 192 4-year colleges or universities in Korea)
  - 3,842 papers before BK21 (’98) → 5,698 papers in 2001
  - 2.74 per participating professor before BK21 → 3.72(’01)

- International and national publications in humanities and social sciences
  - 288 publications before BK21 → 624 publications in 2001
  - 1.1 publications per participating professor before BK21 → 2.3 publications in 2001
International Patent and Collaboration

- International Patents
  - Increase in merchandizing research outputs such as international patents
    * 116 cases before BK21(’98) → 189 cases in 2001

- Upgrade in educational and research through international exchange and collaboration
  - Equipping with global mindsets through supporting short-term (12,751) and long-term (510) overseas training for graduate students for three years
  - Inviting 431 distinguished foreign scholars and implanting state-of-the-art research and education

Brain Korea 21
Taiwan, China, and Japan’s cases
Cases in Other Countries

- **Taiwan**: 『4-year Development Plan for University Research Excellence』
  - Selection and financial support of internationally leading fields [$400 M (4 Year)]

- **China**: 『211 Project』
  - Nurture 800 departments at 100 major universities [$162 M (5 Year)]

- **Japan**: 『Project for Top 30 Departments』
  - Support Top 30 departments in basic science and advanced fields [$1-5 M/Year per department (5 Year)]
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