From Catching-up to Global Fore-running
- Upgrading the Korea Model of Manpower Development -

26 November 2012

Cheonsik Woo
VP for Global Research Cooperation
Korea Development Institute (KDI)
A Small Peninsular Divided Into Two
The Korean War (1950-53)
Now – Gang-Nam (of Psy)
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Today's featured article

Killer7 is an action-adventure game developed by Grasshopper Soft, published by Capcom. It was the first game released by Grasshopper Soft. The game was developed for the PlayStation 2, with gameplay similar to that of the Myst series. The game is set in the near future, with an elite group of assassins called the "Killer7". The game has received mixed reviews, with some praising its unique concept and others criticizing its gameplay and story. Despite the mixed reception, the game has become something of a cult classic among fans of the genre.

Did you know...

From Wikipedia's newest content:

• ... that architect Aston Webb, who expanded the University of Oxford's New College Library, received a knighthood in 1925?
• ... that the Port of Ancona (opened in 1967) is one of the largest ports in Italy?
• ... that the world's largest ship, the Independence of the Seas, was built by the Meyer Werft shipyard in Germany?
• ... that the first recorded use of the word "Internet" was in 1969, when it was used by one of the creators of the ARPANET?
• ... that the world's highest-steepest roller coaster, the Yukon Stratosphere, is located in Canada?

Archive - By email
The Korean Economy Today
- Two Sides
Remarkably fast and equitable growth – over long time
Marked recovery from the 1997 financial crisis and stabilized
Recovered quickly and stay resilient amid the recent global financial turmoil
Steady growth: the per capita GDP keeps converging toward a global frontier (e.g. US)

Korea and Japan: Relative Income to US (=100)

1. Based on 2009 purchasing power parity exchange rates.
Source: OECD Economic Outlook database.
Future Prospect

Long-term forecasting of per capita GDP (EIU, 2005)

(Korea, US = 100)

* Goldman Sachs (2005): Korea No.2 by 2050?
Positioned at upper tier in several core economic dimensions: Global top 10 or better

<table>
<thead>
<tr>
<th></th>
<th>Index</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GDP</strong></td>
<td>PPP GDP (’12)</td>
<td>12\textsuperscript{th}</td>
</tr>
<tr>
<td></td>
<td>GDP per capita (’12)</td>
<td>34\textsuperscript{th}</td>
</tr>
<tr>
<td><strong>Trade</strong></td>
<td>Exports of goods (’10) – USD 466 bil</td>
<td>7\textsuperscript{th}</td>
</tr>
<tr>
<td></td>
<td>Imports of goods and services (’10) – USD 425 bil</td>
<td>10\textsuperscript{th}</td>
</tr>
<tr>
<td><strong>Industry</strong></td>
<td>Sales of DRAM (’12)</td>
<td>1\textsuperscript{st}</td>
</tr>
<tr>
<td></td>
<td>Production of automobiles (’10)</td>
<td>5\textsuperscript{th}</td>
</tr>
<tr>
<td><strong>Firms</strong></td>
<td>Fortune 500 \textsuperscript{1)}</td>
<td>7\textsuperscript{th}</td>
</tr>
<tr>
<td><strong>R&amp;D</strong></td>
<td>Total expenditure (’11)</td>
<td>6/61</td>
</tr>
<tr>
<td></td>
<td>R&amp;D intensity (percentage of GDP) (’11)</td>
<td>2/61</td>
</tr>
<tr>
<td><strong>IT Infra</strong></td>
<td>Information Society Index (’05)</td>
<td>14/59</td>
</tr>
</tbody>
</table>

\textsuperscript{1) 13 Korean companies listed: Samsung Electronics (20), SK Holdings (65), Hyundai Motor (117), POSCO (146), LG Electronics (196), Hyundai Heavy Industries (203), GS Caltex (235), Korea Electric Power (264), Kia Motors (266), S-Oil (383), Korea Gas (429), Woori Finance Holdings (449), Hyundai Mobis (465)
### Major Industry

<table>
<thead>
<tr>
<th>Industry</th>
<th>Global Market Share</th>
<th>Global Ranks</th>
<th>Export (US$ Billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automobile</td>
<td>8.7% (5.3)</td>
<td>5 (6)</td>
<td>67.5</td>
</tr>
<tr>
<td>Shipbuilding</td>
<td>52.5% (43.0)</td>
<td>1 (1)</td>
<td>56.6</td>
</tr>
<tr>
<td>Semiconductor</td>
<td>14.3% (7.0)</td>
<td>3 (3)</td>
<td>50.14</td>
</tr>
<tr>
<td>Digital Home Appliance</td>
<td>9.0% (9.0)</td>
<td>5</td>
<td>13.8</td>
</tr>
<tr>
<td>Display (TV)</td>
<td>45.6% (22.0)</td>
<td>1 (1)</td>
<td>29.95</td>
</tr>
<tr>
<td>Machinery</td>
<td>3.0% (2.3)</td>
<td>9 (15)</td>
<td>36.22</td>
</tr>
<tr>
<td>Steel</td>
<td>5.1% (5.2)</td>
<td>6 (6)</td>
<td>28.89</td>
</tr>
<tr>
<td>Petrochemical</td>
<td>5.2% (4.2)</td>
<td>5 (10)</td>
<td>35.7</td>
</tr>
<tr>
<td>Textile</td>
<td>2.1% (4.7)</td>
<td>8 (5)</td>
<td>13.92</td>
</tr>
</tbody>
</table>

Source: MKE, 2010
Number in ( ) : MIKE 2004

… With a Brilliant Industrial/Business Portfolio
Result of Successful, Well-phased Upgrading:  
\[ \text{Imitation} \Rightarrow \text{Innovation} \Rightarrow \text{Creation} \]

R&D continues to rise fast
- 3.5% of GDP (join global leaders)
- Private-sector dominated
- More into science-oriented, creative research

Stages of Development
- Imitating foreign technologies
- Indigenizing industrial technologies
- Developing advanced technologies
- Promoting creative research
- Basic research
- Diversification of NRDP
- HAN (1992)
- Commercialization

Development:
- R&D continues to rise fast
  - 3.5% of GDP (join global leaders)
  - Private-sector dominated
  - More into science-oriented, creative research

KIST (1966)
MOST (1967)
GRIs in 1970s
NRDP (1982~)
PRIs in 1980s
HAN (1992)
Commercialization
Faced with a set of overarching, structural challenges

**Internal**
- Lower Growth – potential growth on a decline
- Widening disparity & Job insecurity
  - Weak SMEs and Services Sector
- Rapid aging (+ Low fertility)

**External Pressure**
- Globalization
- S&T revolution (IT, NT, BT etc)
- Surging-up of emerging economies
  - (+ DDA, FTA)
- North Korea Issue

Fundamental changes under way
- Industrial structure and leading players
- Market and policy environments
- Firm behavior/strategy and exterior interaction
- Polarization across/ within industries and firms

But Not without Problems…
Strained hard these days
Ten-years of serious public attention and debate in Korea, since the 1997-98 financial crisis
- Awakened to the limitations of the “old Korean development model” and industrial/national competitiveness
- Heavy references to IMD/WEF, WB/OECD, TI/PWC etc.

Comprehensive reforms and new policy initiatives to enhance competitiveness and move toward KBE ensued
- The outcome? Views split widely, esp. inside Korea, e.g.
  - “stagnant or even retrogressive” vs. “some progress, but not enough” vs.
  - “substantial progress to the point of societal transformation”

The recent global turmoil and lingering recession add gravely to the existing set of challenges and confusion
- Impressive “Samsung, Hyundai, LG”, but what about the rest?
  - Can other leaders in Shipbuilding, Steel, Petrochemicals, Heavy industries etc. sustain?
  - What about the majority of SMEs and micro business in traditional services?
Lower Growth

<Growing and unstable economy>

Growth performance:
- more precarious since the 1997 crisis
- third business cycles under way now


<Losing growth momentum>

Long-term potential growth rate:
- forecast to fall esp. due to falling labor input (aging problem)


Source: KDI (2012), The Korean Economy: its medium–long term challenges and the direction of fiscal policy
Mounting concern over greater income disparity

* Income gap increased among urban wage earners (2/3 of total workforce) +
* among the whole workforce including self-employers and unpaid workers (1/3)
=> New “Working Poor” groups: SMEs labor, self-employers, and temps

Gini-Coefficients (1992~2010)

Poverty Rate (after taxes & transfers)

<table>
<thead>
<tr>
<th>Country</th>
<th>Late 2000s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Korea</td>
<td>15.2</td>
</tr>
<tr>
<td>Japan</td>
<td>15.7</td>
</tr>
<tr>
<td>UK</td>
<td>11.0</td>
</tr>
<tr>
<td>Sweden</td>
<td>8.4</td>
</tr>
<tr>
<td>OECD</td>
<td>11.1</td>
</tr>
</tbody>
</table>

* share of households with 50% of median income

Rising Disparity
Rising Disparity – Everywhere, Deepening (⋯)

**Growth Gap: Sectors**

- Manufacturing
- Services

**Growth Gap: Industries**

- HCI
- Light Mfr

**Earnings by firm size (KOSPI)**

- SMEs (< 300)
- LE (> 300)

**New Jobs (’93~2002)**

- Low-Paying
- High-Paying

**Wage Gap**

- Permanent
- Contractual

**Gini (Wages)**
Education and HR in Korea – Challenges and New Approach
Role of education pivotal to an equitable, high growth of Korea ('East Asian Miracle', the World Bank 1993)

Virtuous circle between Education, HRD and Economic Development

A. Quantitative profile now: impressive; well above the OECD average

- Education up to college level almost universalized
  * College Advancement Rate 81.3 %; (College Entry/HS graduate > 100 %)
Profile of Korea’s Higher Education (2012)

<table>
<thead>
<tr>
<th></th>
<th>Institutions</th>
<th>Students</th>
<th>Faculty**</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under-graduate*</td>
<td>389</td>
<td>3,399,258</td>
<td>78,211</td>
<td>33,383</td>
</tr>
<tr>
<td>Graduate School</td>
<td>43</td>
<td>329,544</td>
<td>6,699</td>
<td>944</td>
</tr>
<tr>
<td>Total</td>
<td>432</td>
<td>3,728,802</td>
<td>84,910</td>
<td>34,327</td>
</tr>
</tbody>
</table>

* 4 yrs & 2 yrs + education univ.  ** excluding part-time instructors
B. Superb **academic performances** at pre-college level

- Persistent leader in various international tests (IEA, TIMSS, PISA)

* Third International Mathematics and Science Study: started in 1996 by OECD
* Program for International Student Assessment: started in 1998 by OECD, covering 32 nations

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**PISA 2000 (by subject)**

<table>
<thead>
<tr>
<th>Country</th>
<th>Reading</th>
<th>Math</th>
<th>Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>Korea</td>
<td>520</td>
<td>540</td>
<td>560</td>
</tr>
<tr>
<td>Japan</td>
<td>500</td>
<td>520</td>
<td>540</td>
</tr>
<tr>
<td>Germany</td>
<td>480</td>
<td>500</td>
<td>520</td>
</tr>
<tr>
<td>Canada</td>
<td>460</td>
<td>480</td>
<td>500</td>
</tr>
<tr>
<td>US</td>
<td>440</td>
<td>460</td>
<td>480</td>
</tr>
<tr>
<td>UK</td>
<td>420</td>
<td>440</td>
<td>460</td>
</tr>
<tr>
<td>OECD Average</td>
<td>440</td>
<td>460</td>
<td>480</td>
</tr>
</tbody>
</table>

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**PISA 2000 (by background)**

- Family Income Background
  - OECD Average:
    - Reading: 440
    - Math: 460
    - Science: 480
  - Korea, Japan, Germany, Canada, US, UK:
    - Reading scores: 520, 500, 480, 460, 440, 420
    - Math scores: 540, 520, 500, 480, 460, 440
    - Science scores: 560, 540, 520, 500, 480, 440

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**Family Income Background**

- Family Income Background:
  - 0~25%: Korea, Japan, Germany
  - 25~50%: Canada, US, UK
  - 50~75%: Korea
  - 75~100%: Korea
Korea: no.1 in Math & reading, no 3 in Science
Problems – Shortage of Global Talent... among others of course

- **Korea**: strong backbone formal education sector
  - => a global powerhouse for mid to mid-to-high level manpower

- However, still wanting in top brains – in global forefront areas: 
  widening gap between ‘Demand and Supply”

- **A shortage of highly skilled workers** in core strategic areas prevalent;
  the capacity to nurture such workers **domestically** is largely constrained

  a. A lack of the top-notch S&T talent to lead the brain-intensive industrial fronts, 
     e.g., based on **BNIC** (BT. NT. IT. CS [cognitive science]) fusion technology

  b. A shortage of global talent in the so-called **knowledge-based services**: 
     Professional Business Services, **Public Administration**, etc.
     = > A critical barrier for Korea's advancement into a more advanced 
     knowledge-based economy with globally competitive service sector

  - **True global performers**, though emerging more frequently and widely, are still 
    “rarities” compared to global forerunners – no Nobel Laureate in S&T;
    few global institutes, whether public and private
Countries around the globe are stepping up efforts to attract and retain the top talent

a. Attracting global talent through preferential measures upon immigration, scholarship, tax break etc.

- **US, Germany**: Granting flexible labor certification (e.g. green card)
- **Ireland, France**: Allowing **work permit** exemption and easing work permit regulation
- **Sweden, Canada, Singapore**: Providing **tax break**
- **Ireland, Taiwan, China**: Drawing back talented emigrants (**diaspora**)
- **US, UK, Germany, Singapore, France, Japan**: Attracting foreign top students
  - (cases of **US, UK, and China**) 

b. A significant increase in the international mobility of highly skilled labor force has been spotted, esp. in areas such as **S&T**, and **Professional Business** (mainly towards OECD countries with **excellent universities**)

- Highly skilled labor constitutes 41.1% of **US Worker Immigration**, 37.4% of **UK Work Permit Issuance**, 84.8% of **Canadian Federal Skilled Worker/Investor/Business Immigration Program** (in 2004)
Unlike in the past, an increasing portion of foreign educated/trained top brains not returning to Korea or flowing out again after coming back.

- Since the late '90s, No. of students staying overseas after finishing graduate programs has surged (Many of them return to Korea after a while, but often leave Korea again for good)
- Korean students studying abroad: increasing sharply, estimated 290,000 in 2011; ranked No. 1 in the world in terms of per head of population

* Rising sharply esp. among the school-age youngsters => a new generation of foreign-educated young talents cumulating (a meaningful phase-shift under way)

* IMD, the Brain Drain Index (BDI): Korea has plummeted from 7.53 in 1995 to 3.68 in 2011 [ranked 44 among 59 countries]
Koreans residing/staying abroad (7.3 million total including permanent residents and the neutralized foreigner Koreans[5.7m together]) are increasing.

- But most are neglected in the blind spots of our government policies. The majority are disconnected from the (Korean) national knowledge network, and possibly at the risk of being marginalized or become diasporas.

- Korea’s situation contrasts sharply with Israel, China, India and other small European countries (Ireland, Sweden etc.) that have established their own national global brain network. It is worrying that the brain gap with these nations will widen even more.

- Korean nationals residing abroad: In 2011, 7.27m in 160 countries (China 2.70; US 2.18; Japan 0.90 etc.; not counting foreign-born, second-generation Koreans) The majority is presumed to be highly skilled labor force.
Call for a More Globally-Integrated Approach

c. Despite these circumstances, Korea remains basically as a **semi-closed society** with very limited international mobility of high manpower

   ▪ The number of foreigners in Korea are increasing, but still very small compared to other countries (less than 3% of whole population)

• Needs a new strategy to secure top talent from a true, global perspective.

• **Policy efforts** to nurture/secure top talents have stepped up recently with **some desirable outcomes** (e.g. overseas employment) but still wanting in intensity, scope, specific measures, and policy implementation & coordination.

• Korea’s education and HR model still remains “**formal education stage – centered, and domestic residents – oriented**”, with very limited tapping on ‘available talents overseas” and limited attention given to “in-career talent upgrading from a true global perspective.
A New (Supplementary) Model for Korea: Global Korean Brain Network (GKBN)

1. **Build up stronger linkage with the highly skilled Koreans residing overseas**
   - Reinforce educational/socialization programs for 2nd & 3rd generation immigrants to instill ethnic awareness and teach the language etc. (placement and redeployment)
   - Support and exchange seminars with the Overseas Korean Academic/Professional Associations to tie with domestic institutions (Global, Korean Academic/Professional Network)
   - Operate Koreanology and Korean language training program in a way to utilize human resources (Korean Foundation programs, etc.)

2. **Reinforce the existing support programs for students studying abroad and highly skilled work force dispatched overseas**
   - Enlarge scholarships/grants; Implement policies to bring back highly skilled Koreans
     - Trace their education and career tracks
   - Increase exposure to the international arena by promoting overseas volunteer work, dispatching visiting scholars of Koreanology, increasing the number of Korean staff in international organizations, hosting international organizations (e.g. ICF of late) etc.
   - Utilize retired, but still active and competent engineers/technicians/professional in relation to ODA, overseas technical assistance and other related activities (e.g., KSP program, KOICA programs)
3. **Attract and retain more foreign talents** in Korea
   - Increase medium-to-long term hiring at domestic universities & institutes (e.g., WCU program of MoES&T)
   - Expand human network by encouraging and funding foreign students to study in Korea etc.
   - Diversify international linkage activities by hosting international seminars, inviting foreign scholars on short term basis etc.
   - Improve adaptation to the domestic environment by expanding medical and education facilities for foreigners and by revising the visa policy and immigration law

4. **New policy scheme**: Construct comprehensive policy & Manage long term policy actions
   - Establish *GKBN agency* as a central hub for global talent from home and abroad
   - Collaborate with relevant ministries to review vision and long term missions of the GKBN program
   - Set up an extensive, micro level *DB on overseas korean nationals*; review the case studies of other advanced countries' international network
   - Long term management of the GKBN program by GKBN agency
Messages to the International Society

• **Education and Manpower Policy: Balanced**
  - Formal schools vs. Non-formal (LLL, In-career etc)
  - Talent inside(closed) vs. Talent outside (Open)
  - National initiatives vs. International Initiatives

• **Calls for New International Leadership and Initiatives**
  - War for Talent (Zero-sum) =
    Cooperation around Talent (Positive-sum)
    Global Brain Nurturing, Circulating, Sharing
  - New Global Partnership:
  - New and Greater roles for International Organization:
    UNESCO, World Bank, OECD, etc.
  - More extensive and intimate partnership with government, businesses, and CSO
Appendix
Migration of the OECD Countries

Net balance: Highly skilled emigrants and immigrants, 2001

Source: OECD Database of Immigrants and Expatriates; “The Global Competition for Talent” OECD (2009)
Brain Drain Index (IMD)

Brain Drain Index 1995-2011 (higher the figure, the lower brain-drain)
### Overseas Koreans

#### Status quo of Korean nationals living abroad (2011)

<table>
<thead>
<tr>
<th>Region</th>
<th>Subtotal</th>
<th>Permanent Residents</th>
<th>Sojourners</th>
<th>Students</th>
<th>Citizenship Holders (foreign nationality)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia</td>
<td>1,361,698</td>
<td>520,252</td>
<td>680,133</td>
<td>161,313</td>
<td>2,701,522</td>
<td>4,063,220</td>
</tr>
<tr>
<td>Japan</td>
<td>578,135</td>
<td>461,627</td>
<td>96,146</td>
<td>20,362</td>
<td>326,671</td>
<td>904,806</td>
</tr>
<tr>
<td>China</td>
<td>369,026</td>
<td>4,161</td>
<td>307,142</td>
<td>57,723</td>
<td>2,335,968</td>
<td>2,704,994</td>
</tr>
<tr>
<td>Others</td>
<td>414,537</td>
<td>54,464</td>
<td>276,845</td>
<td>83,228</td>
<td>38,883</td>
<td>453,420</td>
</tr>
<tr>
<td>Americas</td>
<td>1,290,496</td>
<td>603,402</td>
<td>559,920</td>
<td>127,174</td>
<td>1,230,974</td>
<td>2,521,470</td>
</tr>
<tr>
<td>USA</td>
<td>1,082,708</td>
<td>464,154</td>
<td>512,938</td>
<td>105,616</td>
<td>1,094,290</td>
<td>2,176,998</td>
</tr>
<tr>
<td>Canada</td>
<td>128,826</td>
<td>85,951</td>
<td>22,084</td>
<td>20,791</td>
<td>102,666</td>
<td>231,492</td>
</tr>
<tr>
<td>Central-South America</td>
<td>78,962</td>
<td>53,297</td>
<td>24,898</td>
<td>767</td>
<td>34,018</td>
<td>112,980</td>
</tr>
<tr>
<td>Europe</td>
<td>116,784</td>
<td>23,644</td>
<td>53,920</td>
<td>39,220</td>
<td>539,923</td>
<td>656,707</td>
</tr>
<tr>
<td>CIS</td>
<td>12,137</td>
<td>420</td>
<td>9,303</td>
<td>2,414</td>
<td>523,542</td>
<td>535,679</td>
</tr>
<tr>
<td>EU</td>
<td>104,647</td>
<td>23,224</td>
<td>44,617</td>
<td>36,806</td>
<td>16,381</td>
<td>121,028</td>
</tr>
<tr>
<td>Middle-East</td>
<td>16,163</td>
<td>20</td>
<td>15,509</td>
<td>634</td>
<td>139</td>
<td>16,302</td>
</tr>
<tr>
<td>Africa</td>
<td>10,883</td>
<td>1,573</td>
<td>8,072</td>
<td>1,238</td>
<td>189</td>
<td>11,072</td>
</tr>
<tr>
<td>Total</td>
<td>2,796,024</td>
<td>1,148,891</td>
<td>1,317,554</td>
<td>329,579</td>
<td>4,472,747</td>
<td>7,268,771</td>
</tr>
</tbody>
</table>

*Source: Overseas Korean Statistics (2011), Ministry of Foreign Affairs and Trade*
Korean Students Studying Abroad

Korean students studying abroad by regions (2010)

<table>
<thead>
<tr>
<th>Region</th>
<th>Degree</th>
<th>Overseas Language Program</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Graduate</td>
<td>Undergraduate</td>
<td>Subtotal</td>
</tr>
<tr>
<td>Asia</td>
<td>10,119</td>
<td>52,253</td>
<td>62,372</td>
</tr>
<tr>
<td>North America</td>
<td>25,463</td>
<td>50,362</td>
<td>75,825</td>
</tr>
<tr>
<td>Central-South America</td>
<td>30</td>
<td>52</td>
<td>82</td>
</tr>
<tr>
<td>Europe</td>
<td>4,660</td>
<td>9,327</td>
<td>13,987</td>
</tr>
<tr>
<td>Middle-East</td>
<td>115</td>
<td>59</td>
<td>174</td>
</tr>
<tr>
<td>Africa</td>
<td>192</td>
<td>220</td>
<td>412</td>
</tr>
<tr>
<td>Total</td>
<td>40,579</td>
<td>112,273</td>
<td>152,852</td>
</tr>
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Source: Annual Korean Education Statistics (2010), Korean Educational Development Institute
# Global Talent Training Program

## Key government programs to foster and support Global Talent

<table>
<thead>
<tr>
<th>Program</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fostering Global Young Leader</strong></td>
<td></td>
</tr>
<tr>
<td>- Overseas Internship</td>
<td>Broaden the program to include university students (before only vocational college students)</td>
</tr>
<tr>
<td>- Overseas Volunteer Work</td>
<td>Expand volunteer activities and S&amp;T support group to help developing countries</td>
</tr>
<tr>
<td><strong>KOR-US WEST (Work, English, Study, and Travel) program</strong></td>
<td>Since its initiation in 2009, 7 batches (about 1000 students) have been dispatched to the US (2011)</td>
</tr>
<tr>
<td><strong>ETA (English Teaching Assistant) program</strong></td>
<td>This year was the 20th Anniversary of the program (2012). The government will continue to run the program</td>
</tr>
<tr>
<td><strong>Fostering and Attracting Global Talent in Science</strong></td>
<td></td>
</tr>
<tr>
<td>- Strengthen educational programs for young talents in Science</td>
<td>Extend the targets to top 1% students; Establish a model for Science Academy etc.</td>
</tr>
<tr>
<td>- Reinforce education and research capacity of universities &amp; institutes</td>
<td>Open WCU (World Class University)- 2 step procedures (5+5 years) ; Supporting KRW 1.65 bil. per annum since 2008</td>
</tr>
<tr>
<td>- Attract global talent in Science</td>
<td>Enlarge the international research personnel exchange program to strengthen research capability and build international-level research base</td>
</tr>
</tbody>
</table>
Central and local governments support of Overseas Employment Programs

<table>
<thead>
<tr>
<th>Ministry /Agency in charge</th>
<th>MOEL (Ministry of Education and Labor)</th>
<th>MOGEF (Ministry of Gender Equality and Family)</th>
<th>MOFAT (Ministry of Foreign Affairs and Trade)</th>
<th>MEST (Ministry of Education, Science and Technology)</th>
<th>Busan City Govt.</th>
<th>SMBA (Small &amp; Medium Business Administration)</th>
<th>Others</th>
</tr>
</thead>
</table>

Overseas Employment (1998-2011)

Highly-skilled foreigners in Korea

### Changes in the number of highly-skilled foreign workers residing in Korea

<table>
<thead>
<tr>
<th>Profession</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temporary Employment (C-4)</td>
<td>1,036</td>
<td>957</td>
<td>715</td>
<td>712</td>
<td>679</td>
</tr>
<tr>
<td>Professorship (E-1)</td>
<td>1,279</td>
<td>1,589</td>
<td>2,056</td>
<td>2,266</td>
<td>2,474</td>
</tr>
<tr>
<td>Foreign Language Instructor (E-2)</td>
<td>17,721</td>
<td>19,771</td>
<td>22,642</td>
<td>23,317</td>
<td>22,541</td>
</tr>
<tr>
<td>Research (E-3)</td>
<td>2,318</td>
<td>2,057</td>
<td>2,066</td>
<td>2,324</td>
<td>2,606</td>
</tr>
<tr>
<td>Technological Guidance (E-4)</td>
<td>174</td>
<td>121</td>
<td>197</td>
<td>233</td>
<td>202</td>
</tr>
<tr>
<td>Professional Employment (E-5)</td>
<td>414</td>
<td>530</td>
<td>536</td>
<td>594</td>
<td>629</td>
</tr>
<tr>
<td>Arts &amp; Performance (E-6)</td>
<td>4,421</td>
<td>4,831</td>
<td>4,305</td>
<td>4,162</td>
<td>4,246</td>
</tr>
<tr>
<td>Special Occupation (E-7)</td>
<td>7,175</td>
<td>8,405</td>
<td>8,896</td>
<td>10,712</td>
<td>14,397</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>34,538</td>
<td>38,261</td>
<td>41,413</td>
<td>44,320</td>
<td>47,774</td>
</tr>
</tbody>
</table>

Source: KIS Statistics 2011, Korea Immigration Service, Ministry of Justice
Foreign Students Studying in Korea

Changes in the number of foreign students studying in Korea (1999-2011)

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>6,279</td>
</tr>
<tr>
<td>2006</td>
<td>32,557</td>
</tr>
<tr>
<td>2008</td>
<td>63,952</td>
</tr>
<tr>
<td>2010</td>
<td>83,842</td>
</tr>
<tr>
<td>2011</td>
<td>89,537</td>
</tr>
</tbody>
</table>