National Innovation System of Kazakhstan: Regional Aspect

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Geneva - 2014
DEVELOPMENT OF NATIONAL INNOVATION SYSTEM of KAZAKHSTAN

2003 - 2009

- Law «About state support of innovation activity»
- The first strategy for industrial-innovation development until 2015

2010 - 2014

- Law «About state support of industrial innovation activities»
- Law «About innovation cluster «Park of innovation technologies»
- State Program of Accelerated Industrial Innovation Development 2010-2014
- Conception of Innovation Development of Kazakhstan until 2020

- Nazarbayev University
- Park of Innovation technologies
- 8 technoparks
- 4 sectoral design offices
- 21 office of commercialization
- 5 international centers for technology transfer

2015 - 2019

- Amendments to some legal acts on stimulation of innovation activity
- State program of industrial-Innovation development 2015-2019

- Development of intellectual - innovation clusters
- Sales of industrial parks and design offices to private sector
- Creation of innovation workshops, fablabs, co-working centers
- Development of technology transfer network

- Funding of science programs
- Support for venture funds
- Increasing sums of innovation grants
- Support for innovation infrastructure
- Targeted Technological Programs
- Online centers of competences

Legal basis and programs

Result

- Law «About state support of innovation activity»
- The first strategy for industrial-innovation development until 2015

Plan for 2014:

- Innovation activity of enterprises 10% (2013 – 8%)
- Innovation production in GDP 1% (2013 - 1,7%)
- Kazakhstan in GIC WEF ranking 48 (2013 – 50)

Plan for 2019:

- Innovation activity of enterprises 20%
- Innovation production in GDP 2,5 %
- Kazakhstan in the GIC WEF ranking - 40

- Park of information technologies
- 8 technoparks
- 1 sectoral design offices

- Funding of science programs
- Project funding
- Venture funding
- 9 types of innovation grants
- Technological business incubation
- Targeted technological programs

- Amendments to some legal acts on stimulation of innovation activity
- State program of industrial-Innovation development 2015-2019

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In 2009

- Innovation activity of enterprises 4%
- Innovation production in GDP 0,51 %
- Kazakhstan in GIC WEF funding - 72

Plan for 2014:

- Innovation activity of enterprises 10% (2013 – 8%)
- Innovation production in GDP 1% (2013 - 1,7%)
- Kazakhstan in GIC WEF ranking 48 (2013 – 50)
INNOVATION ACTIVITY IN KAZAKHSTAN

In 2013 Kazakhstan reached historical maximum in the growth of key indexes of innovation activity.

**Innovation activity of enterprises, %**

- 2003: 2.1
- 2004: 2.3
- 2005: 3.4
- 2006: 4.8
- 2007: 4.8
- 2008: 4.0
- 2009: 4.0
- 2010: 5.2
- 2011: 7.1
- 2012: 7.6
- 2013: 8.0

Realization of SPAIID 2010-2014

**Expenditures of enterprises for technological innovations, bln. dollars USA.**

- 2003: 0.1
- 2004: 0.18
- 2005: 0.31
- 2006: 0.39
- 2007: 0.46
- 2008: 0.62
- 2009: 0.34
- 2010: 1.29
- 2011: 1.07
- 2012: 1.79
- 2013: 2.37

Realization of SPAIID 2010-2014

**Capacity of innovation production, bln. dollars USA.**

- 2003: 0.36
- 2004: 0.41
- 2005: 0.66
- 2006: 0.86
- 2007: 0.84
- 2008: 0.61
- 2009: 0.45
- 2010: 0.78
- 2011: 1.3
- 2012: 2.08
- 2013: 3.18

Realization of SPAIID 2010-2014

**Internal expenditures on R&D, bln. dollars USA.**

- 2003: 0.06
- 2004: 0.08
- 2005: 0.12
- 2006: 0.14
- 2007: 0.15
- 2008: 0.19
- 2009: 0.21
- 2010: 0.18
- 2011: 0.24
- 2012: 0.28
- 2013: 0.34

Realization of SPAIID 2010-2014

Growth of 58.6%

Growth in 7 times

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Realization of SPAIID 2010-2014

Growth in 7 times
RANKING OF KAZAKHSTAN IN GCI WEF

### Sub-indexes on innovations and technologies

<table>
<thead>
<tr>
<th>Sub-indexes</th>
<th>2011-12</th>
<th>2014-15</th>
<th>+/-</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Index</td>
<td>72</td>
<td>50</td>
<td>+22</td>
</tr>
<tr>
<td>Technological readiness</td>
<td>87</td>
<td>61</td>
<td>+26</td>
</tr>
<tr>
<td>Innovation potential</td>
<td>116</td>
<td>85</td>
<td>+31</td>
</tr>
<tr>
<td>Adaptation of technologies by companies</td>
<td>113</td>
<td>90</td>
<td>+23</td>
</tr>
<tr>
<td>Quality of research institutes</td>
<td>121</td>
<td>99</td>
<td>+22</td>
</tr>
<tr>
<td>R&amp;D Expenditures of companies</td>
<td>107</td>
<td>68</td>
<td>+39</td>
</tr>
<tr>
<td>Cooperation between industry and academia in R&amp;D</td>
<td>119</td>
<td>88</td>
<td>+31</td>
</tr>
<tr>
<td>Access to scientists and engineers</td>
<td>106</td>
<td>83</td>
<td>+23</td>
</tr>
</tbody>
</table>

#### 50th position among 148 countries

- **Factors driven economy (group 1)**
  - 37 countries: Kyrgyzstan, India, Ghana, Bangladesh, Yemen, Mali, Tajikistan, etc.

- **Transitional level (group 1-2)**
  - 16 countries: Alger, Azerbaijan, Bolivia, Honduras, Moldova, Philippines, etc.

- **Effectiveness driven economy (2 group)**
  - 30 countries: Armenia, Egypt, Ukraine, China, Paraguay, Romania, Indonesia, etc.

- **Transitional level (group 2-3)**
  - 24 countries: Argentina, Brazil, Hungary, Kazakhstan, Latvia, Malaysia, Poland, Russia, etc.

- **Innovation driven economy (group 3)**
  - 37 countries: Australia, Austria, Finland, Japan, South Korea, USA, Norway, Qatar, etc.
RDI SYSTEM GOVERNANCE STRUCTURE – MACRO LEVEL

President
  Office
Prime-Minister
  Office

MES – Ministry of Education and Science
MF – Ministry of Finance
MNE – Ministry of National Economy
MID – Ministry of Investments and Development

Samruk-Kazyna JSC
PM is the Head of Board of Dir

Bayterek JSC
PM is the Head of Board of Dir

NATD JSC
Owner of 10 key institutions

Nat. Telecom
Nat. Oil&Gas
Nat. Railway
Etc. 70% of KZ economy

MES
Science policy
MF
Budget
MNE
Strat.Plannig
MID
Ind/Innov. policy
Ministries
Sectoral policies

Nat. Telecom
Nat. Oil&Gas
Nat. Railway
Etc. 70% of KZ economy

MNE – Ministry of National Economy
MF – Ministry of Finance
Established in 2003 as JSC “National Innovation Fund”
In 2012 reorganized into the JSC “National Agency for Technological Development”
under the Ministry of Industry and New Technologies of Kazakhstan
Since middle of 2013 a new shareholder – JSC “National Management Holding “Bayterek”

Mission:

Support of innovation activities and development of high-tech enterprises in the Republic of Kazakhstan

Main activities:

- Investments in innovative companies and venture funds
- Administration of instruments of state support for innovation activity
- Management of innovation infrastructure
- Analytical and expert support of innovation activities
- Popularization and promotion of innovation activities
- International cooperation
8 regional technoparks
5 engineering design offices
5 venture funds
5 Regional offices for innovation development
21 commercialization offices
9 special economic zones
16 social-entrepreneurial corporations
**INNOVATION ACTIVITY OF REGIONS**

### Innovation activity of enterprises, %

- Akмола reg.: 6.5
- Aktobe reg.: 7.1
- Almaty reg.: 9.5
- East Kazakhstan reg.: 10.2
- Karagandy reg.: 11.8
- Kostanay reg.: 12.0
- Mangistau reg.: 10.9
- Pavlodar reg.: 6.4
- South Kazakhstan reg.: 8.5
- North Kazakhstan reg.: 5.6
- Astana city: 11.1
- Almaty city: 8.0

### Internal expenditures on R&D, mln. dollars USA.

- Akmolа reg.: 4.1
- Aktobe reg.: 3.1
- Almaty reg.: 6.1
- East Kazakhstan reg.: 10.3
- Karagandy reg.: 20.7
- Kostanay reg.: 8.7
- Mangistau reg.: 2.4
- Pavlodar reg.: 1.2
- South Kazakhstan reg.: 1.8
- North Kazakhstan reg.: 1.2
- Astana city: 1.2
- Almaty city: 6.4
- Astana city: 170.3
- Almaty city: 53.5

### Capacity of innovation production, mln. dollars USA.

- Akmolа reg.: 10.0
- Aktobe reg.: 209.2
- Almaty reg.: 601.0
- East Kazakhstan reg.: 107.9
- Karagandy reg.: 295.2
- Kostanay reg.: 196.3
- Mangistau reg.: 36.5
- Pavlodar reg.: 7.7
- South Kazakhstan reg.: 88.1
- North Kazakhstan reg.: 182.3
- Astana city: 68.7
- Almaty city: 658.9

### Key aspects of regional development of innovations

**Weaknesses:**
1. Different level of innovation activity;
2. Weak links between regions;

**Strengths:**
1. Establishment of new elements of infrastructure;
2. Increasing funding for science and innovations, including by private sector;
3. Examples of positive results of implementation of regional innovation policy;
4. New innovation clusters in Almaty and Astana.
EXAMPLES OF REGIONAL DEVELOPMENT OF INNOVATIONS

Capacity of innovation production, mln. dollars USA

<table>
<thead>
<tr>
<th>Region</th>
<th>Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Kazakhstan reg.</td>
<td>601.0</td>
</tr>
<tr>
<td>Astana city</td>
<td>658.9</td>
</tr>
<tr>
<td>Pavlodar reg.</td>
<td>458.1</td>
</tr>
<tr>
<td>Karagandy reg.</td>
<td>295.2</td>
</tr>
</tbody>
</table>

**Leaders**

**Key aspects:**
- active support of local administration;
- development of processing industry;
- functioning of innovation infrastructure (technoparks, regional offices for innovations).

**Outsiders**

**Key aspects:**
- weak development of infrastructure;
- development of raw materials sector;
- absence of regional offices of innovations supported by local administration.
NEW INSTRUMENTS FOR DEVELOPMENT OF REGIONAL INITIATIVES

Support for regional offices for innovations

- Methodological support from NATD;
- Strengthening of financial support from local administration;
- Strengthening of functions of regional offices.

Innovation grants program

- Grant for Targeted Technological Programs;
- Grant for Establishment of Centers of Competence (co-working, Fablab, Innovation workrooms);
- Grant for Establishment of Centers of Excellence at universities;

Development of innovation cluster

Establishment of innovation cluster and ACF in Almaty

- 1% of Total Annual Income or donations
- Solutions of tasks
- R&D projects on solutions of technological tasks of enterprises
- Start-ups, innovation projects, R&D
- Technological tasks
- Company / Subsoil user

Company
Foreign partner
Enterprise
University / R&D lab
Consortium
Technological task

ACF
1. Implementation of regional innovation policy is more successful, where support of regional institutions for innovation development is in place;

2. Role of local administration is very important;

3. Crucial need of methodological and coordination support by NATD JSC;

4. Innovation grants are the most effective instruments for support of regional initiatives, including establishment of infrastructure, cooperation, technology transfer;

5. Need for constant learning and introduction of the best world practice of development of regional innovation policy including recommendations from international organizations;

6. Innovation policy of each region should be implemented taking into account special factors of development of particular region;

7. Key factors of innovation activity is creation of innovation environment, increase of competences and demand through instruments of state support.
Thank you for attention!

We are open for a mutually advantageous cooperation!

More information on our web-site [www.natd.gov.kz](http://www.natd.gov.kz) or on your request

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