Chapter 2

Regional development policy in Korea

Abstract

This chapter reviews the evolution of regional development policy in Korea. The chapter identifies three phases in the Korean regional development policy and describes major changes in the governance and in the policy mix. It draws attention to the relatively recent emergence of the regional debate in the country by comparison with other OECD economies and it stresses the rapid catching up in the policy paradigm and the shift from balanced growth to competitiveness.

Introduction

The Organisation for Economic Co-operation and Development (OECD) and international organisations such as the European Union (EU) and the United Nations Economic Commission for Latin America and the Caribbean (ECLAC) have recently re-emphasised the role of territory and regions in shaping virtuous national development trajectories (European Commission, 2009; ECLAC 2010; OECD, 2011). This topic is also on the rise in several countries, from Germany, Italy, Korea and Spain, to Argentina, Brazil and India, where regions are looked at as key actors for sustaining industrial competitiveness and inclusive growth.

The 2008 financial crisis added a new element to the shifting technological paradigms of information and communication technologies, nanotech and biotech and the challenges of new forms of innovation, in the form of pressure to see how to relaunch growth, addressing at the same time social and environmental concerns. This new and uncertain landscape gives a new role to the territories as socio-economic spaces in which skills, expertise and potential breakthroughs are nested. Both advanced and developing countries are searching for new sources of growth, and regions appear as key allies in the mobilisation of talent and capital for generating jobs and creating new business opportunities.

In Korea the debate on regional development started later than in other countries; however, the content of the discussion caught up quickly, shifting from a logic of compensation to an approach that sought to enhance local opportunities.

The Korean experience in designing and implementing development strategies has been characterised by the ability to set clear targets, to co-ordinate actions for achieving them and to introduce timely reforms when needed. Another feature of the Korean experience is the legacy of a highly centralised policy approach in which target setting follows a sectoral and top-down approach, reinforced by a market structure centred on big conglomerates. Both factors shape the way in which the Korean policy system deals with regional development.

This chapter briefly describes the birth of the regional development issue in Korea, linking it to the overall government approach to development strategy. It then analyses the institutional framework within which Korea addresses regional development; and then describes the evolution of regional policy, highlighting three different phases and subsequent improvements in governance and policy mix. To conclude, the chapter reviews the current policy mix for supporting industrial development in the regions, focusing on the new programmes targeting functional regions and the changing role for a traditional instrument such as the techno parks.

Regional development: a recent priority in the national agenda

The Korean policy system evolved under a highly centralised umbrella up to the end of the 1980s. Then the combination of three main factors pushed the country towards a shift in policy paradigm: the financial crisis, the consolidation of the democratic system, and the innovation imperative required moving from a policy of catching up to a "frontier" one capable of identifying and mobilising new sources of growth. This challenged the accumulated knowledge about "how to do things" and required going beyond the use of traditional policy instruments.

The end of the Five Year Economic Development Plans and the shift towards multi-sectoral planning marked the transition towards a new policy model which started to take into account regional development issues. From the end of the 1990s, sectoral multi-annual plans were introduced and specific plans targeting regional development policy have been or are being implemented, such as the Five Year Balanced National Development Plan (2004-08) and the Five Year Plan for Regional Development (2009-13).

The government played a key role in shaping the national development trajectory and its role has been far from static. Over the past six decades, the state has reshaped priorities and actions, and consolidated virtuous policy practices and instruments. Table 2.1 gives an overview of the evolution of the country's development strategy, placing emphasis on the late introduction of regional development as a key government priority.

The Korean experience called for an intensive learning process in several fields. Industries learned how to manufacture increasingly complex and sophisticated products, introduced more elaborate management techniques, and learned how foreign markets innovated and competed. On the institutional side, policies evolved through a cumulative process of trial and error and institutions learned how better to design and implement policy tools. However, this process remained highly centralised for several decades.

Specific regional development issues were late arrivals on to the national agenda. But the development of governance, resources and policy mix to factor in the regional dimension in industrial policy is an important step forward, and a relevant basis for learning and future improvement.

Table 2.1. **The Korean development strategy, 1960-2013: Evolving targets and cumulative efforts**

		1960s	1970s	1980s	1990-1997	1998-2003	2003-2008	2008-2013
Development vision		Industrial competitiveness (government-led)		Economic stabilisation (government-led)	Industrial competitiveness (market-led)	Globalisation	Balanced growth	Green growth
National multi-annual planning		Five Year Economic Development Plans					Five Year Plan for Balanced National Development (2004-08)	Five Year Plan for Regional Development (2009-13)
		(1962-66)(1967-72)	(1972-76)(1977-81)	(1982-86)(1987-91)	(1992-96)			
Target		Creation of domestic capabilities: light industry	Creation of domestic capabilities: heavy and chemical industry	Creation of self-reliant domestic technological capabilities and global exports	Consolidation of technological leadership	Relaunching of the economy-productivity growth	Diffusion of industrial and technological capabilities	New growth engines and green growth
Policy Leverages	**Industry**	Support to targeted light industry. Imports restrictions conditioned to export-orientation. Infrastructure building.	Building of industrial complexes in heavy & chemical industries. Imports restrictions conditioned to export-orientation.	Focus on high-tech sectors. Gradual trade and financial liberalisation.	Gradual trade and capital liberalisation. Regulatory reforms.	Support to venture business and to industrial R&D in high tech sectors.	Private-sector development and support to SMEs (Techno Parks).	Regional Industrial Promotion Programmes Support to green clusters/green cities.

Table 2.1. **The Korean development strategy 1960-2013: Evolving targets and cumulative efforts** *(continued)*

		1960s	1970s	1980s	1990-1997	1998-2003	2003-2008	2008-2013
Policy Leverages	**S&T (&I)**	Support reverse engineering. Building of Government institutional and legal framework	Support reverse engineering. Investment in S&T infrastructure (Daedeok Science Town)	Government support to R&D and incentives for private sector investment in R&D	Support to private sector R&D	Support to frontier R&D and innovation	National and regional innovation systems;	National and regional innovation systems; cross-regional collaboration
	Human Capital	Literacy (primary and secondary education)	Technical and vocational training	Expansion of higher education system (Masters and PhDs)		Life-long learning systems	Continuous support to higher education	Focus on quality of the education system
	Regional Development				Law on Regional Balanced Development (1994) allows autonomous local elections (1995)	First phase of the Regional Policy. "Specialised approach" focus on 4 provinces and strategic industries	Second phase of the Regional Policy. Amplification: new strategic industries in 9 additional provinces	Third phase of Regional Policy. New policy paradigm and focus on Economic Regions

Source: OECD Development Centre, on the basis of information from KIET and MKE.

The institutional framework for regional policy

Korea is a unitary country with a legacy of a highly centralised policy approach and a brief experience of decentralisation. The institutional infrastructure shapes the policy space, or range of options, and the array of instruments that can be used by different levels of government to support regional development.

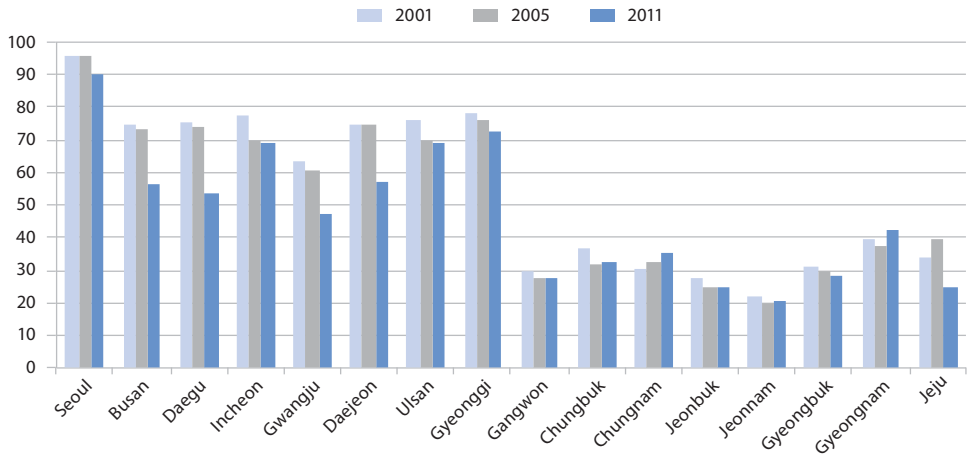
Prioritising regional development requires not only taking into account the territorial dimension in national planning, but also increasing the space and margin for manoeuvre for sub-national levels of government and creating the appropriate incentives for co-ordination (Jones and Yokoama, 2005; OECD, 2011).

Since the mid-1990s the country has implemented a series of reforms to increase decentralisation in the public sector in line with the objective of balanced growth. This has led to an increase in the share of local government expenditures in total government spending of around 50%, which is a relatively high share when compared with OECD countries (Jones and Yokoama, 2005). However, decentralisation efforts are quite recent and the potential to improve the policy space for regional development remains fully to be realised.

The legacy of centralised policy management is embedded in the institutional memory of public institutions in Korea. Institutional changes do not happen overnight and cumulative learning processes explain the path dependency in policy making and the persistence of central government control in spite of reforms towards decentralisation. Local governments, which have been elected since 1994, have little autonomy and space for strategic planning, and national priorities still play a key role over the demands of local constituencies. The central government is attempting to transfer more responsibilities and resources to local governments. However, local governments have little financial autonomy and are still largely dependent on central government transfers for the implementation of policies and delivery of services.

In Korea, as in several OECD countries, there is a high level of heterogeneity between provinces in terms of financing and implementation capacities at the provincial level (OECD, 2011). In Korea, the Capital Region hosts the three provinces with the highest financial independence ratio (*i.e.* the capacity of local authorities to raise taxes to finance local expenditures). Seoul is the province with the highest financial independence ratio (90%) and Jeonnam the lowest (20%) (Figure 2.1).

Figure 2.1. **Financial independence of Korean provinces, 2001-11**



Note: Regional financial independence is calculated: (Local tax and non-tax revenue/Revenue of general account)*100.

Source: Korean Statistical Information System (KOSIS).

OECD assessments have shown that heterogeneity between regions is not only determined by the differences in financial independence across regions. Regions differ for several reasons besides fiscal capacities. Budgetary allocations may not necessarily coincide with decision-making power: budgets can be decentralised but decisions may remain at the national level. The degree of decentralisation differs by types of policies: regions usually have more margin for manoeuvre in service delivery such as education and health than in production development support. Support to production and regional development may also depend on soft or low-cost policies which do not necessarily require high financial capacity but which may have a high impact, such as certification systems and business support services. Differences in administrative capabilities shape regional empowerment. Institutional and professional capacities at sub-national levels of government influence the capacity to design and implement effective policies. Usually lower levels of government suffer from perceptible capacity gaps relative to central government and there are large differences between regions and provinces within countries in terms of institutional capabilities.

In Korea several efforts have been introduced lately to train public officials, including secondments between central and local government positions, to reduce the disparities between provincial administrations. For intermediary levels the

education profile of public administration is similar in both central and local governments. Around 35% of total employees have bachelor degrees, and around 30% have high school degrees, both in central and in local government. The qualification gap between central and local levels appears at the higher educational levels. In central government 8% of total employees have a graduate degree, while the figure drops to 4% in local governments[1] (MOPAS, 2008). To close this capability gap, Korea has encouraged exchange programmes for senior managers between central and local governments. The total number of staff exchanged increased from fewer than five cases a year in 2004 to around 40 in 2010 for the top management level and efforts are being made to increase the number for mid-level managers as well. Korea also offers high quality training for public officials. Courses are reformed regularly in line with new government priorities: current focus is on green growth and e-government, for example. Training programmes are administered by two institutions, one for central government officials, the Central Officials Training Institute (COTI) and one for local officials, the Local Government Officials Development Institute (LOGODI). However, the talent pool – that is, management track officials who enter the public service through a national competitive examination – is mostly assigned to central government posts.

The country's institutional framework is highly centralised but a shift towards increasing the margin of manoeuvre of regional authorities is in progress. There are two major features which define the regional policy space: first, the institutional setting (*i.e.* whether the country is a federation or a unitary state, and whether regional authorities are elected or appointed by the central government); second, the effective empowerment of regional institutions in the fields of industrial and technological development. This depends on a variety of factors, including effective delegation of responsibilities, financial capacities, institutional development at the regional and local level, and the existence of spaces for dialogue and consultation between levels of government (OECD, 2011).

Korea, when compared with other unitary countries, shows an intermediate degree of delegation of powers to local authorities in the fields of industrial and technological development. Table 2.2 illustrates the disparity of institutional models that exists across countries in the institutional framework shaping the policy space for regional actors. The distinction is less clear-cut than what is depicted in Table 2.2: nevertheless, this representation is useful for the understanding of the different areas for policy actions in different countries. In general, regions in federal countries tend to have a greater role in the promotion of industrial and technological development, as it is the case of Germany, the United States and Brazil. But this is not the case in all federal countries, as with Argentina and Mexico. In parallel, there are unitary countries in which regions enjoy high

levels of responsibility in industrial and technological development support, such as in Italy and Spain, or in which regions have little degree of freedom in implementing industrial development support plans, such as Chile and Japan.

Table 2.2. **Institutional framework for regional industrial and innovation policy**

	National Multi-Level Governance Setting		
Degree of devolution of STI issues to sub-national authorities	**Federal countries**	**Countries with elected regional authorities**	**Countries with non-elected regional authorities or decentralised state agencies**
High (Significant role of States/Regions in STI issues)	Austria, Belgium, Germany, Australia, Canada, Switzerland, United States, Brazil	Italy, Spain, United Kingdom (Scotland, Wales, Northern Ireland)	----------
Medium (Some decentralisation in STI issues to States/ Regions)	Argentina Mexico Russia Malaysia	France, Netherlands, Poland, Sweden (pilot regions), Norway, Denmark (autonomous regions) Korea, Colombia	United Kingdom (English regions), Sweden (except pilot regions)
Low (Scant role of Regions in STI issues)		Denmark, Slovak Republic, Turkey, Czech Republic, Portugal (autonomous regions) Chile, Japan South Africa	Hungary, Ireland, Portugal (mainland) Greece, Finland, Luxembourg, Iceland, New Zealand, Slovenia Indonesia Morocco

Note: The degree of devolution of competences in innovation-related matters is subject to change. Information reported in this table refers to the first semester of 2010 for OECD countries, and to second semester of 2011 for non OECD economies. STI means Science, Technology and Innovation.

Source: Draws on and updates OECD (2011).

A rapid catching up in the regional policy paradigm

Consideration of the territory as an agent for policy planning and implementation has been largely underestimated in Korea. However, in spite of its late introduction into the national policy agenda, the country rapidly caught up in the policy paradigm by comparison with foreign countries.

Over quite a short period, since the end of the 1990s up to 2011, Korea first introduced specific programmes targeting activities in selected regions, then extended promotion programmes to all provinces (excluding the Capital Region) by targeting balanced growth. Since 2008, in line with current trends in OECD and emerging economies, Korea has been giving priority to regional competitiveness and has introduced a more sophisticated policy package for supporting regional development, by targeting actions to areas of different spatial scales, beyond administrative boundaries.

The upsurge of the regional issue in the country in the mid-1990s was due to the combination of three major factors:

- As the process of democratisation advanced, reforms were introduced to give more power and responsibilities to sub-national governments. The introduction of elections to the executive councils of local governments and of local council members in 1994 set the institutional basis for a more bottom-up approach in policy making. However, in the first years, in spite of this reform, the autonomous power of local governments remained limited because of the poor devolution of government power and the weak financial and managerial capabilities of local governments. Only in more recent years has there been an increase in resources and more initiatives have been executed at the provincial and local levels.
- The Asian financial crisis of the late 1990s required finding new sources of growth. This increased the attention paid to local and regional innovation systems and policies to relaunch national growth.
- The emerging priority of the knowledge economy required the broadening of the technology-centred focus of industrial policy to incorporate innovation. As a result, Korea started to prioritise knowledge-based industries and information technology (IT). To address the challenges of moving towards a knowledge economy the country gave priority to *i)* the development of a new macroeconomic framework which fostered private sector development and entrepreneurship, in contrast with the previous technology-centred paradigm which focused on government support in key technologies; *ii)* the development of a modern information technology infrastructure as an enabling environment for productivity gains and spillovers into the economy; *iii)* the upgrading of skills and human resource capacities; and *iv)* the strengthening of national and regional innovation systems by promoting continuous investment in new technologies and increasing networks

and collaborations for innovation inside and outside the country (Suh and Chen, 2007). The innovation imperative has been matched by an increase in the attention paid to local and regional production dynamics, also on the basis of international experience that showed the importance of environment and interactions for innovation.

Even if regional development policy has a shorter history in Korea than in other advanced and emerging economies, the policy debate caught up quickly with the global trends. In its origins, just as in the EU or other OECD countries, regional policy in Korea was conceived in a compensatory logic as a set of tools and incentives to offset the territorial imbalance generated by rapid industrialisation and growth. Since 2000 regional policy has been undergoing a paradigm shift which focuses on competitiveness as a key objective of regional policy.

The introduction of regional development policies in several OECD countries and in emerging economies such as Brazil responded to the need to guarantee equity and balanced growth in periods of rapid industrialisation and sustained growth, or in parallel with globalisation and opening-up strategies, as in the EU. Since no automatic mechanisms would guarantee the trickledown effect of industrialisation from some poles or industries to the whole country and production apparatus, policies were needed to support more balanced growth and to allow bottom-up diversification patterns. Targeting regional development meant creating incentives for counterbalancing agglomeration forces in catching up processes and fostering production development in given places by supporting production networks and linkages between agents located in particular territories (See Annex 2.A1 for an overview of the evolution of regional policy in the EU and in Brazil in a comparative perspective). With time, policies shifted from a compensatory logic to a regional enhancement logic in which actions targeted endogenous regional development rather than compensation.

In Korea in the first phases regional policy sought to improve the efficiency of industrial policies, while in the more recent phase the objective has been to dig deeper into untapped sources of growth and mobilise growth and innovation potential in all regions of the country by stimulating bottom-up initiatives and networks (Table 2.3). The logic shifted from a distributional to a discriminatory approach which targets all regions but in a differentiated way according to their challenges and potentials. The new paradigm calls for a greater space for private sector development and local government initiatives. The transition is recent and it is still in progress, but the evolution in governance and resource targeting, as well as in the policy mix, are promising steps, as described in the following sections.

Table 2.3. **Evolution of policies for regional development in Korea**

KOREA		1998-2003 Kim Administration	2003-08 Roh Administration	2008-12 Lee Administration
National development strategy	Main growth model	Export-led growth – focus on the knowledge economy		
		Globalisation	Balanced growth	Green growth
Regional development policy (RDP)	Phase	Origins of RDP specialised policy targeting specific industries in specific regions.	Expansion of RDP and creation of legal framework	Consolidation, focus on "Economic Regions"
	Rationale	Finding new sources of growth Consolidation of democracy at provincial and local level	Promoting balanced growth Addressing excessive concentration in Capital Region	Supporting regional competitiveness
	Main Targets	Promotion of industrial development in 4 selected provinces	Promotion of industrial development in all Korean provinces	Promotion of industrial development by targeting functional regions (economic regions, provinces and local areas)
	Governance	Central government initiative	Establishment of the Presidential Committee on Balanced National Development (PCBND) Creation of Regional Innovation Agency (RIA)	Creation of Presidential Committee on Regional Development (PCRD) Establishment of Economic Region Development Committees (ERDC)
	Plan and Resources	No major institutional changes for addressing regional development	5-Year Plan for Balanced National Development (2004-08) Special Account for Balanced National Development	5-Year Plan for Regional Development (2008-13) Special Account for Regional Development

Table 2.3. **Evolution of policies for regional development in Korea** *(continued)*

KOREA		1998-2003 Kim Administration	2003-08 Roh Administration	2008-12 Lee Administration
National development strategy	Main growth model	Export-led growth – focus on the knowledge economy		
		Globalisation	Balanced growth	Green growth
Regional development policy (RDP)	Policy programmes and tools	Regional industry promotion programme (RIPP) (4 major specialised industries in 4 metropolitan cities and provinces)	Regional industry promotion programme (RIPP) (in the 4 provinces and support to additional 9 provinces) Techno parks	Leading Industries (5+2 Economic Regions) Strategic Industries (provinces) Region Specific Industries (local areas)

Source: OECD Development Centre; draws on and updates Kim *et al.* (2011).

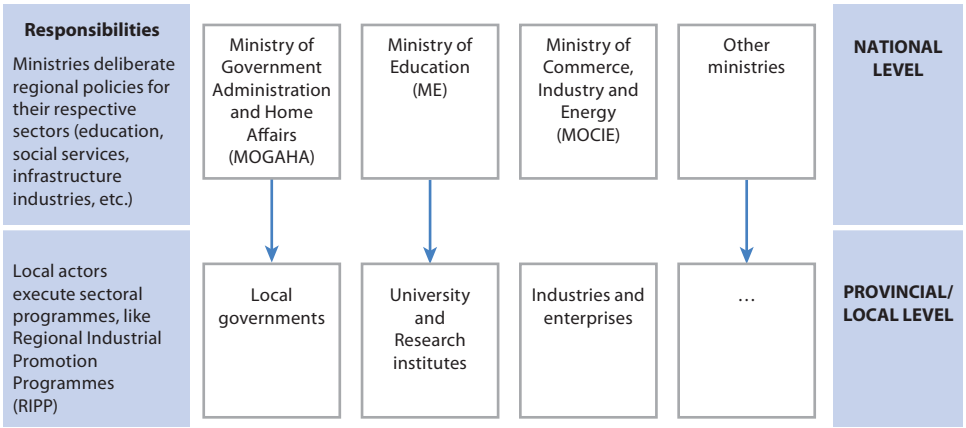
The first phase: a "specialised" policy approach

The birth of regional development policy in Korea was, as usually happens, associated with the attempts by central government to develop programmes in specific regions. The Kim administration (1998-2003) started to implement specific programmes to target regional development. During this period Korea focused on economic recovery and stabilisation. Relaunching growth required not only deepening the industrial transformation and supporting specialisation in knowledge-intensive industries, but also reducing regional income disparities and addressing the excessive concentration of the population in the Capital Region.

During this first phase, the government implemented projects targeting lagging areas and supported relocation of public institutions to reduce population agglomeration. The governance system was simple, with no mandatory collaboration between ministries, or across levels of government and no clear incentives for collaboration (Figure 2.2). The Ministry of Government Administration and Home Affairs (MOGAHA[2]) was in charge of implementing actions in less industrialised areas, while the Ministry of Education (ME[3]) supported university development in regions, and the Ministry of Commerce, Industry, and Energy (MOCIE[4]) implemented regional industrial promotion programmes. Horizontal co-ordination across ministries was weak and the Ministry of Finance and Economy (MOFE) and Ministry of Planning Budget[5] were mainly involved in budgeting rather than planning functions.

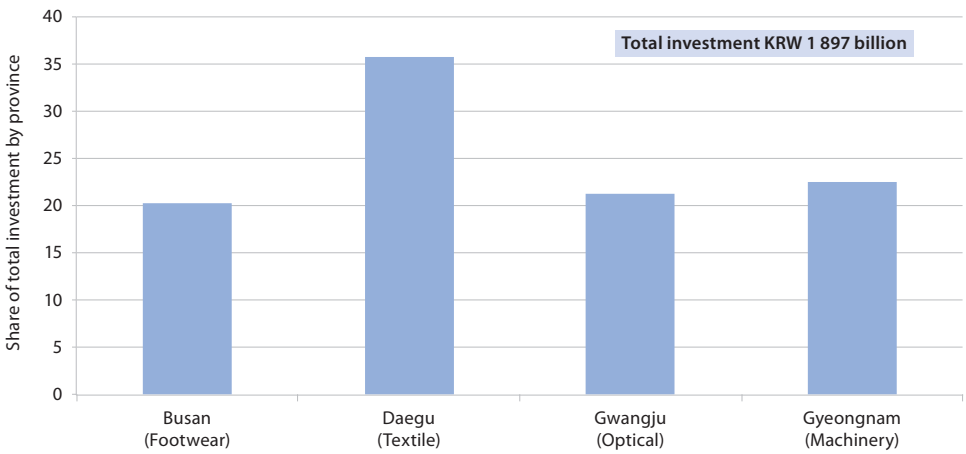
In this phase regional policy was a "specialised" policy implemented through specific programmes targeting strategic industries in selected provinces. The MOCIE introduced the Regional Industrial Promotion Programme (RIPP) to develop industrial clusters outside the Capital Region (Figure 2.3) *(e.g.* textiles

Figure 2.2. **Governance for regional policy, Korea, 1998-2003**



Source: OECD Development Centre on the basis of information from Presidential Committee on Balanced National Development (PCBND), 2007.

Figure 2.3. **Regional Industrial Promotion Programmes, Korea, 1998-2003**



Source: Ministry of Commerce, Industry, and Energy (MOCIE), 2004

in Daegu, footwear in Busan, optical electronic industries and photovoltaics in Gwangju, and machinery in Gyeongnam province). The policy aimed to foster public-private partnerships for innovation between local universities and companies and to strengthen links between industries, universities and research institutes in each of the four selected provinces (KDI and KIET, 2003). Between 1999 and 2003 the government invested KRW 1 897 billion. Each province received support in four main categories: infrastructure, which accounted for around 50% of total investment; technology development, more than 25%; business services, more than 15%; and labour training for around 10% (Kim *et al*., 2007).

The government carried out an assessment of the RIPP projects and showed that they allowed expansion of industrial capacity, effective provision of a skilled labour force, and development of Research and development (R&D) capabilities in the four selected provinces (Choi and Hwang, 2005). The assessment also identified the need to improve institutional capacities at the regional level and led to the creation of Regional Innovation Agencies (RIAs) in the following period. Over the long term the development programmes supported the creation of new national clusters such as the LCD, LED, and photovoltaic industry which derived from the optical industry in Gwangju (Box 2.1).

Box 2.1. **The success cases of regional industrial clusters in Wonju and Gwangju in Korea**

Wonju medical equipment industry

The Wonju medical equipment industry is one of the successful cases of the Korean regional industrial policy. The cluster developed in collaboration with local government and universities. The local government of Wonju City partnered with Yonsei University-Wonju to build a sustainable industrial city specialised in medical equipment. A model was the experience of Tuttlingen in Germany. Wonju was selected as Medical and Health Special Industrial Zone and as Medical and Health Industry City in 2005. As a follow-up to the first phase, Wonju received support in the following years. As a result, the number of operating firms in the medical equipment industry increased from 4 in 2001 to 107 in 2010. Wonju accounts for 14% of national production and 21.5% of exports in medical equipment industry (Table 2.4). Support from local government, the establishment of top companies in the early stages and growing collaboration between firms and local research institutes are the core factors of the success of the Wonju cluster.

Table 2.4. **Medical equipment industry in Wonju, Korea, 2005-10**

	2005	2007	2008	2010
Sales (billion KRW)	63.4	203.6	229.2	376.5
Employees (number)	609	1 456	1 690	2 287
Firms (number)	60	79	93	107

Source: Wonju Medical Industry Techno Valley.

Gwangju photonics industry

Photonics was one of the four strategic industries selected in 2000 as part of the government strategy to overcome the 1998 crisis and to promote regional development. Following the bankruptcy of Asia Motors, automobile company based in Gwangju, the local government of Gwangju City submitted a development plan for photonics industry to the central government, which supported it under the Regional Industry Promotion Project. The photonics is a value-adding technology for other existing industries, such as shipping, cars, medical equipment, thus offering potential synergies with other industries in the region. The Gwangju Institute of Science and Technology (GIST) was established in 1995 and the Korea Photonics Technology Institute (KOPTI), the first government-based research institute specialised in photonics, was created in 2001. KRW 400 billion were invested between 2000 and 2003 (60% central government, 15% local government and 25% private sector); 80% of this budget was spent on soft and hard infrastructure and 20% on R&D. The increase in world demand for liquid electronic display (LED), optical communication and solar power systems supported the development of the regional cluster. A combination of government policies (*e.g.* LED energy efficiency certification programme), private investment in R&D and market development, and conglomerates' participation in the LED industry contributed to the fast development of the photonics industry (Table 2.5).

Table 2.5. **Photonics Industry in Gwangju, Korea, 2000-10**

	2000	2003	2008	2010
Sales (billion KRW)	113.6	323.4	1 307.9	2 540.0
Employees (number)	1 896	2 834	6 018	8 004
Firms (number)	47	190	327	360

Source: Gwangju Metropolitan City.

The second phase: targeting balanced development and setting the legal framework

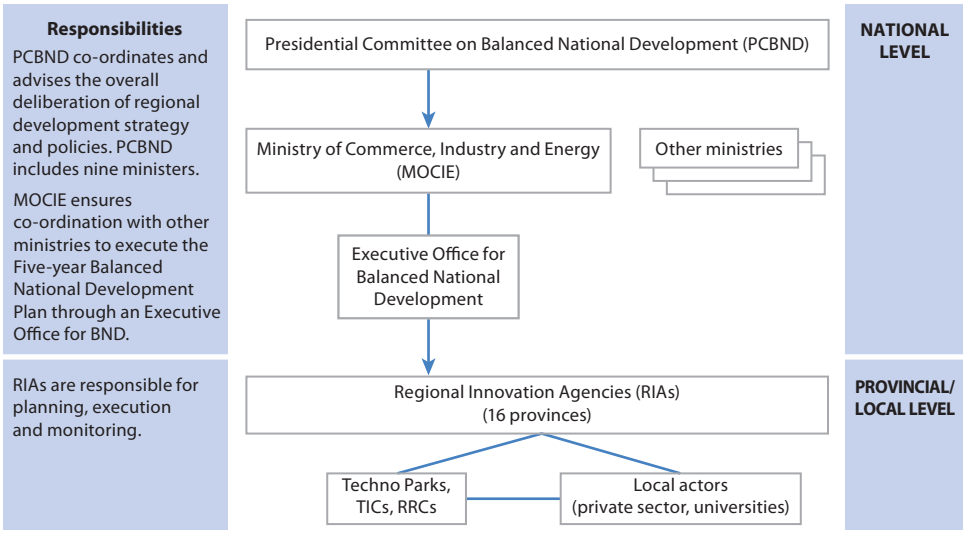
During the second phase of regional development policy (2003-08, Roh Administration), the government intensified efforts to address regional development by introducing balanced development as a national priority, establishing the legal foundations for the national policy on regional development and making the first governance improvements towards more decentralised policy approaches. The balanced growth approach aimed at reducing disparities between regions and at favouring decentralisation from the Capital Region.

In 2003 the National Assembly approved a Special Act on Balanced National Development setting the legal framework for regional development (Figure 2.4). The act introduced three major improvements:

- First, it ensured the political leadership of the regional issue by establishing a Presidential Committee on Balanced National Development (PCBND). The committee had advisory functions and aimed to co-ordinate horizontal and vertical actions. It is composed of 30 members, including nine ministers and experts appointed directly by the president.
- Second, it established the separation of planning and execution functions and strengthened the role of regional actors. The MOCIE was charged with the co-ordination of the regional development policy controlling the implementation of the Five Year Balanced National Development Plan. The assessment of the implementation of the RIPP in the first phase revealed the need to have a regional constituency as an implementation and advisory agency. Regional Innovation Councils (RICs) to advise regional authorities and RIAs were introduced to manage policy implementation and facilitate interaction between the public and private sectors. RICs consisted of firms, universities, research institutes, local governments, civil associations, and had responsibility for devising the regional vision and strategy.[6] RIAs were responsible for regional development planning, for project monitoring and assessment, and for fostering public-private partnerships.
- Third, it fostered the elaboration of a Five Year Plan for Balanced National Development and instituted a Special Account targeting resources at regional development. The Special Account increased the amount of transfers from the central government to local government. Those transfers compensate for the gap between the revenue capacity

of regions and their expenditures and contribute to reducing the differences in expenditure capacities among regions. In addition, the Special Account induced competition between sectoral ministries to design attractive packages for local governments which would apply for them, depending on their priorities.

Figure 2.4. **Governance for regional policy, Korea, 2003-08**



Note: TIC means Technology Innovation Centre. RRC means Regional Research Centre.

Source: OECD Development Centre on the basis of information from Ministry of Knowledge Economy and Presidential Committee for Regional Development.

During the second phase, the RIPPs of the first phase have been maintained and amplified; additional industries have been supported in the four initial provinces and new programmes were developed in the remaining nine provinces (excluding the Capital Region). Investment lent support to construction of public infrastructure, backing for technological development, education and training, and marketing support. The programmes followed a gradual approach helping first infrastructure development and later technological upgrading. R&D accounted for almost 54% of the total budget in the four regions during the second phase, compared with less than 27% in the first phase (Table 2.6).

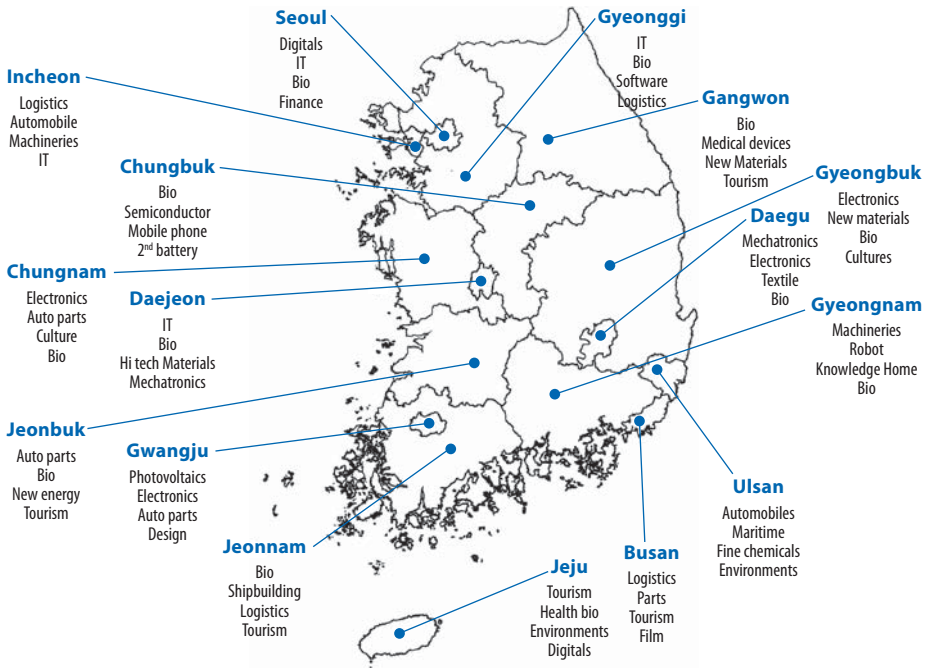
By 2008, 32 Regional Strategic Industries had been established in 13 metropolitan cities and provinces, accounting for around 20% of workers in manufacturing industry and 23% of manufacturing value added. Figure 2.5 shows the location of priority industries in the provinces. The investments in

Table 2.6. **Budget for Regional Industrial Promotion, Korea first and second phase, 1999-2013**

	4 regions		9 regions (2002-07)	Regional innovation infrastructure programme (2005-09)	Post 4+9 (2008-12)	Techno park establishment (1999-2012)	Regional technology innovation (2004-13)	Total
	1st phase (1999-04)	2nd phase (2004-08)						
Total	7 023 (100)	9 496 (100)	7 407 (100)	2 594 (100)	4 196 (100)	2 927 (100)	1 246 (100)	34 889 (100)
Innovation infrastructure	3 302 (47.0)	3 045 (32.1)	5 193 (70.1)	2 089 (80.5)	1 284 (30.6)	2 562 (87.5)	-	17 475 (50.1)
R&D	1 930 (27.5)	5 136 (54.1)	1 761 (23.8)	412 (15.9)	2 002 (47.7)	-	1 246 (100)	12 487 (35.8)
Corporate support service	1 791 (25.5)	1 087 (11.4)	-	93 (3.6)	721 (14.2)	365 (12.5)	-	4 057 (11.6)
Industry planning corps	-	228 (2.4)	453 (6.1)	-	189 (4.5)	-	-	870 (2.5)

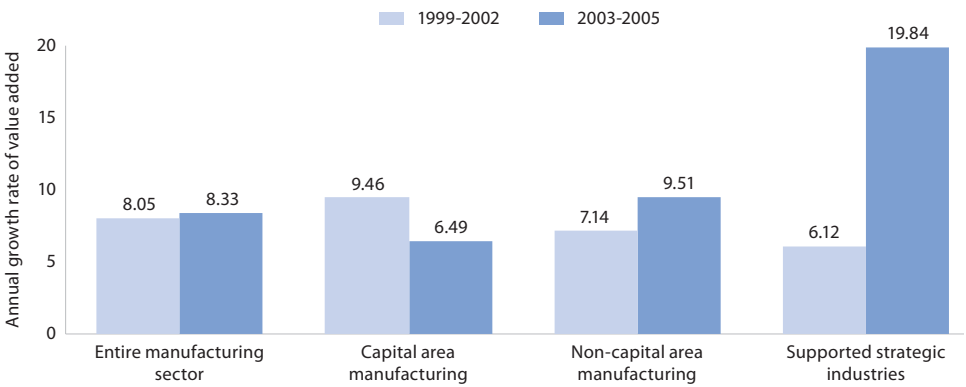
Note: Unit is KRW 100 million.
Source: Kim *et al.* 2011.

Figure 2.5. **Strategic industries in the 16 provinces, Korea, 2003-08**



Source: Ministry of Commerce, Industry and Energy (former Ministry of Knowledge Economy) as reported in Sung (2007).

Figure 2.6. **Annual growth rates of manufacturing industry by location, Korea, 1999-2005**



Note: These are based on constant prices in 2000 National Statistical Office, "Mining and Manufacturing Statistical Survey" report.

Source: Kim (2008).

the two phases contributed to increasing growth in manufacturing in non-Capital Region. The annual average growth rate of the value added of the 32 Strategic Industries rose from 6.1% in 1999-2002 to 19.8% in 2003-05 (Figure 2.6).

During this phase techno parks, Technology Innovation Centres (TIC) and Regional Research Centres (RRC) were the major policy tools for strengthening regional innovation systems in Korea. (See Table 2.7 for an overview of priorities and targets by regions.)

In addition to supporting strategic industries, a specific programme for lagging areas was implemented. The Revitalisation Business programme targeted agriculture-dependent areas and supported processing and distribution

Table 2.7. **Regional Innovative Clusters: visions and targets, 2003-08**

Classification		Development Vision	Growth Target (Sales Revenue)
Government-Supported	Daedeok	R&D Innovation Cluster	KRW 2.6 trillion (2004) → KRW 6 trillion (2009)
	Changwon	Cutting-Edge Machinery Cluster	KRW 24 trillion (2003) → KRW 45 trillion (2008)
	Gumi	Digital Electronic Industry Leader	KRW 36 trillion (2003) → KRW 80 trillion (2008)
	Ulsan	Global Supply Base for Automobile Parts	KRW 69 trillion (2003) → KRW 116 trillion (2008)
	Banwol Shihwa	Cutting-Edge Parts and Materials Supply Base	KRW 25 trillion (2003) → KRW 40 trillion (2008)
	Gwangju	Opto-electronic industry Cluster	KRW 1 trillion (2003) → KRW 6 trillion (2008)
	Wonju	Cutting-Edge Medical Equipments Industry Base	KRW 15 million (2003) → KRW 1 billion (2008)
	Gunsan	Automobile and Machine Parts Base	KRW 1.6 trillion (2003) → KRW 4 trillion (2008)
	Osong	Bio Innovation Cluster	KRW 2.5 trillion (2011)
Private Sector-led	Suwon	Samsung Semiconductor & Digital Valley	KRW 21 trillion (2004) → KRW 48 trillion (2008)
	Paju	LG-Phillips LCD Cluster	KRW 20 trillion (2010)
	Pohang	Pohang University of Science & Technology and High-end Materials Supply Base	KRW 8 trillion (2003) → KRW 10 trillion (2008)

Source: Seong (2007).

linkages to support development of areas specialised in agricultural activities. The programme offered entrepreneurship training, support for collaboration between agents of the innovation system and rural-urban interaction to mitigate rural-urban migration.

The third phase "the paradigm shift": targeting regional competitiveness

Since 2008 the government (2008-11, Lee Administration) has introduced a paradigm shift in regional development policy (Table 2.8). Regional development was no longer considered a compensation policy for regions outside the Capital Region, but an instrument for supporting regional competitiveness in regions. This shift required adjustments in governance, in resource allocation and in the policy mix (Figure 2.7).

Table 2.8. **The paradigm shift in regional policy: from balanced growth to competitiveness**

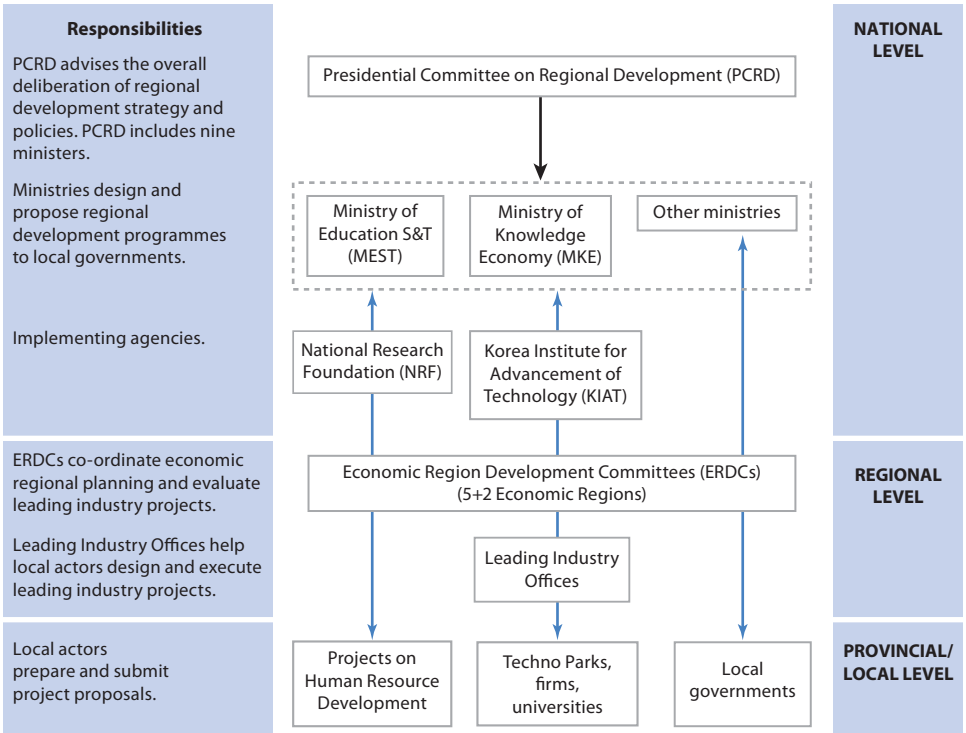
Korea	Traditional Policy Paradigm	New Policy Paradigm
Role of regional policy	Eradicating spatial problems created by economic development	Promoting economic development
Goals/objectives	Expanding production size economic efficiency	Stimulating competitiveness enhancing quality of life
Implementation	Central government initiatives	Local government and private sector initiatives
Investments	Equal investment to all localities	Selective investments on the competitive sector and areas
Policy priority	Economic growth	Strengthening innovation capability

Source: Kim (2009).

The PCBND was replaced by the Presidential Committee on Regional Development (PCRD). The PCRD is an advisory committee aimed at co-ordinating actions of sectoral ministries.[7] The PCRD is composed of nine cabinet ministers and members from academia and civil society. The PCRD has the mandate to draw up visions and elaborate plans for regional development.

The PCRD focused on identifying an appropriate territorial scale for regional development policies to favour cross-regional collaboration and consequently introduced governance improvements. Korea has 16 administrative provinces and 232 local counties. The PCRD identified four relevant scales for

Figure 2.7. **Governance for regional policy, Korea, 2008-11**



Source: OECD Development Centre on the basis of information from Ministry of Knowledge Economy and Presidential Committee on Regional Development.

policy action, according to the type of intervention (Figure 2.8). First, it defined Economic Regions as local economies with at least 5 million inhabitants, with exceptions made for Jeju and Gangwon, thus establishing the 5+2 Economic Regions. In each region, an Economic Region Development Committee (ERDC) was instituted. The ERDCs are substitutes for the former RIAs. They are composed of 15 members including the governors of the different provinces and representatives from the business sectors. They are in charge of working out regional economic development plans to access resources from the Special Account. In addition, five Supra Economic Regions have been identified to support, in the main, infrastructure development projects and to foster cross-regional collaboration in technological development. In addition, specific programmes are being developed for 13 target provinces (excluding the three which form the Capital Region) and 163 local areas have been identified as targets

for investment to support local development in less advanced areas. Among the 232 cities, counties and districts, 163 are classified as Local Areas, excluding those in seven Metropolitan Cities (Seoul, Busan, Daegu, Incheon, Gwangju, Daejeon, and the Ulsan).

The strategy associated with Supra-Economic Regions is to support international collaboration and favour infrastructure development, including transport and logistics networks for export-oriented industries. The strategy associated with the 5+2 Economic Regions requires cross-provincial collaboration for the implementation of regional industrial policy, while the strategy for the 13 provinces is the continuation of the activities implemented during the previous phases. The Local Areas focus has been introduced to deliver better social services, including health care and housing. The local area strategy targets mainly rural villages and small provincial cities.

Figure 2.8. **Targeting functional regions: spatial scales for regional policy, Korea, 2011**

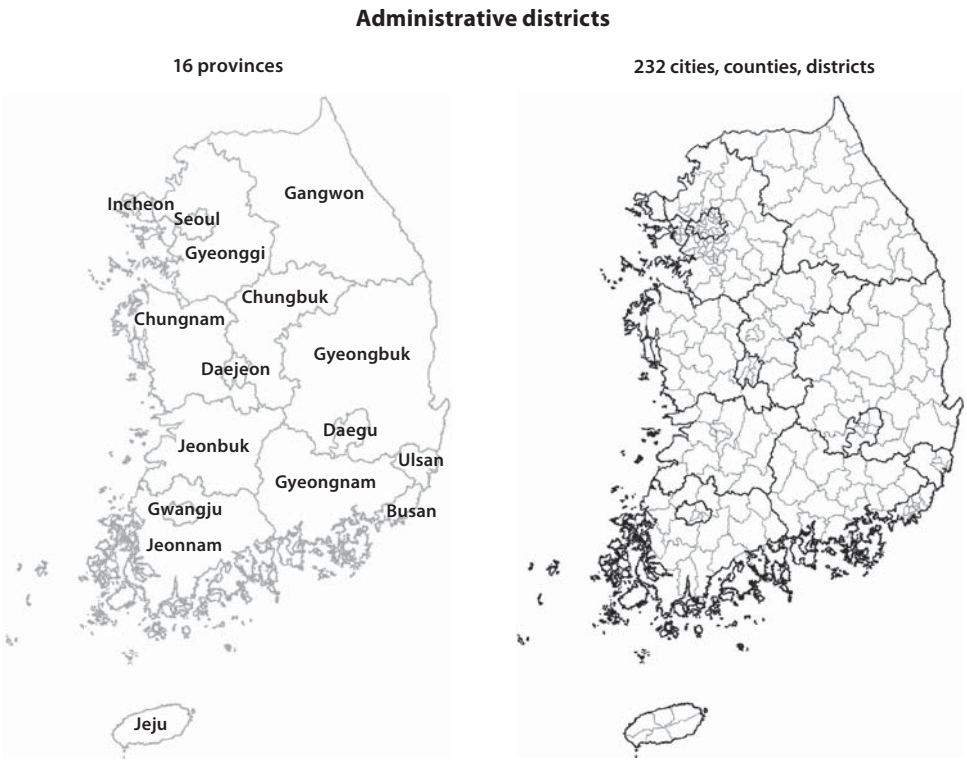


Figure 2.8. **Targeting functional regions: the spatial scales for regional policy in Korea, 2011** *(continued)*

Source: OECD Development Centre on the basis of maps and information provided by the Ministry of Knowledge Economy and the Presidential Committee on Regional Development.

The creation of the PCRD and the new instances for planning at the regional and local level represent an improvement in regional development policy in Korea. However, in spite of the advances, regional development policies still tend to be formulated at the central level based on national priorities and a line-ministerial approach to programme design prevails. Different ministries carry out diverse programmes at the various regional scales (See Table 2.9 for a mapping of programmes by ministries and territorial scales). For example, the Ministry of Land, Transport and Maritime Affairs (MLTM) supported the 30 Leading Infrastructure Project including the expansion of Korean Express Train Railroads and the construction of Sejong City. The Ministry of Knowledge Economy (MKE) supported the implementation of Leading Industries in the

Table 2.9. **Programmes for functional regions in Korea**

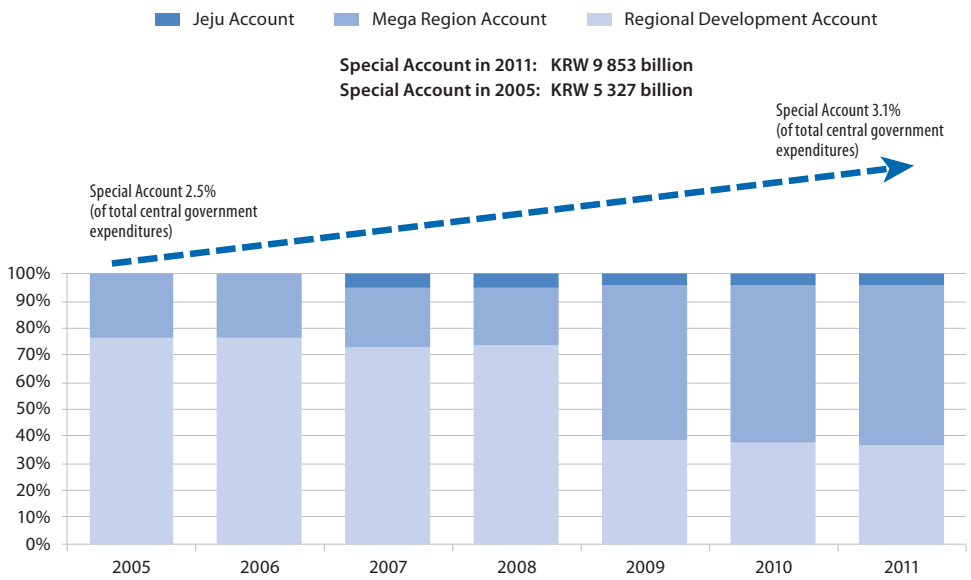
	5 Supra-Economic Regions	5+2 Economic Regions	13 Provinces	163 Local Areas
Ministry of Land, Transport and Maritime Affairs	Infrastructure projects	30 leading infrastructure projects		
Ministry of Knowledge Economy	Inter-economic region collaboration	Leading industry	Strategic industry	Region specific industry
Ministry of Education, Science and Technology		Leading industry Human cap. Local Hub university Local science parks	Regional R&D centres and regional science parks	
Ministry of Public Administration and Security		Support regional development councils		Support local communities Improving living environment
Ministry for Food, Agriculture, Forestry and Fisheries		Support int'l agricultural expo Activation of economic region clusters		Agricultural product marketing centre
Ministry of Culture, Sports and Tourism		Tourism Excavation		Support local festivals Support sports festivals

Source: Kim *et al.* (2011).

seven Economic Regions, Strategic Industries in 13 provinces and Region Specific Industries in the 163 Local Areas. In addition, MKE supported the development and regulation of Free Economic Zones (FEZs) and Research and Development Special Zones. The Ministry of Education, Science and Technology (MEST) invested in human capital and R&D (20 human resources centres for leading industries in the 19 local hub universities) and International Science Business Belt.

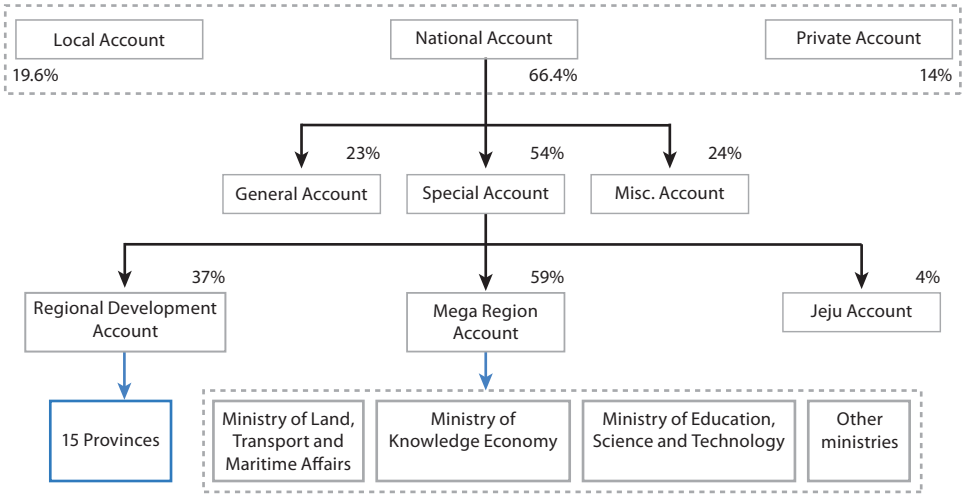
The budget for regional development increased.[8] The Special Account for Regional Development increased from KRW 5 327 billion in 2005 to KRW 9 853 billion in 2011, raising its share from 2.5% in 2005 to 3.1% in 2011 of total central government expenditures (Figure 2.9). The Special Account is divided into three sub-accounts: *i)* the Mega Region Account which is then distributed to different ministries for implementing regional targeted programmes in 13 provinces, excluding the Capital Region; *ii)* the Regional Development Account, which is transferred directly to all provinces and; *iii)* the Jeju Account. In 2011, 59% of the Special Account went to the Mega Region Account, 37% to the Regional Development Account, 4% to Jeju Account (Figure 2.10).

Figure 2.9. **Budget of Special Account for regional development, Korea, 2005-11**



Source: OECD Development Centre on the basis of information from the Ministry of Knowledge Economy.

Figure 2.10. **Structure of the budget for regional development, Korea, 2011**



Source: OECD Development Centre on the basis of information from the Ministry of Knowledge Economy.

The Regional Development Account increases the margin for local governments to devise and present programmes in line with their priorities. The Mega Region requires line ministries to compete for access to resources. The MKE administers around a quarter of the Mega Region Account assuming the core responsibility in managing regional development programmes. The Ministry of Land, Transportation and Maritime Affairs administers about half of Mega Region Account and is in charge of infrastructure development; other ministries carry out regional projects in their respective fields of action, like the Ministry of Education, Science and Technology. A key challenge is to increase the capacity of local government to draw up high quality plans for accessing the resources that they need.

The current policy mix for regional industrial development

The policy mix for regional industrial policy in Korea evolved from specialised programmes targeting development of specific industries in selected regions to a scheme in which different programmes are developed to support industrial development on different spatial scales (supra and intra-regional).

In most OECD countries, as in Korea, the policy mix for regional industrial development policy was, in its early phases, composed of fiscal incentives such as special tax credits or subsidies to production activities located in specific regions, investment in infrastructure in targeted regions and state-owned companies as delocalisation agents. Nowadays, the policy mix is more articulated and it includes several instruments at the national level, such as specific funds targeted at lagging regions, mixed instruments that require the collaboration of central government and local governments, such as specific agreements on industrial development programmes, competitiveness poles or techno parks, and a variety of instruments that are directly managed by regional and local governments, such as innovation vouchers, business services, incubation services.

By comparison with OECD countries the Korean policy mix for regional industrial development is characterised by the prevalent focus on regional industrial policy instead of innovation (Box 2.2). This can be explained by the prevalent focus of OECD countries on innovation rather than industrial policy from the 1990s onward (Soete, 2007), and by the specificities of the Korean model which is, on the contrary, centred on industrial development support. In Korea there is also a reduced variety of regional policy tools. The Korean policy mix is mainly composed of grants and fiscal incentives and techno parks. Techno parks have played a key role in mobilising production development and innovation at the regional level and provide additional services such as business consulting, management and marketing advisory, in addition to infrastructure provision and R&D support. The policy mix in Korea is also relatively more focused on central government policy tools; while in most OECD countries the policy mix is mostly designed and managed directly by local governments through specific tools including innovation vouchers or incentives for local companies to absorb skilled labour force (Box 2.2). Those characteristics derive from the path-dependency in policy making of a highly centralised system, which is still in the process of decentralisation.

Box 2.2. **The policy mix for regional innovation policy in OECD countries**

From an assessment of the policy mix in OECD countries it is possible to classify instruments both according to their objectives – knowledge generation, diffusion and exploitation – and to their level of political acceptability (Table 2.10).

Traditional instruments are those which are commonly used by several countries such as regional technology funds, science and techno parks, business incubation and innovation services. Emerging instruments tend to target knowledge generation, diffusion and exploitation at the same time by bundling financial support facilities with additional services, such as new generation of science and techno parks and competitiveness poles which foster networks as drivers of regional competitiveness.

Among the emerging instruments, *i.e.* tools that are increasingly accepted as key components of the policy mix, there are also regional public-private partnerships, innovation vouchers schemes, and incentives for absorption of the skilled labour force by SMEs. Experimental instruments are in the development phase because they respond to new and emerging challenges, such as cross-border research centres which address the challenge of fostering research from a local perspective taking into account the globalisation of research and innovation, and regional industrial policy tools which respond to the emerging challenge of fostering job creation and supporting national growth through diversification and upgrading of production. In general, new generation instruments tend to have an integrated approach offering support for knowledge generation, diffusion and exploitation at the same time (OECD, 2011).

Table 2.10. **The policy mix for regional competitiveness: a taxonomy**

	Knowledge generation	**Knowledge diffusion**	**Knowledge exploitation**
Traditional instruments	Technology funds, R&D incentives/ supports/grants Support for scientific research and technology centres Support for infrastructure development Human capital for S&T	Science parks Technology transfer offices Technology brokers Mobility schemes, Talent attraction schemes Innovation awards	Techno parks Incubators Start-up support Innovation services (business support and coaching) Training and raising awareness for innovation
Emerging instruments	Public-private partnerships for innovation Research networks/ poles	Innovation vouchers Certifications/ accreditations	Industrial PhDs Support for creativity and design Innovation benchmarking
	Competitiveness poles Competence centres New generation of scientific and technological parks and clusters Venture and seed capital Guarantee schemes for financing innovation		
Experimental instruments	Cross-border research centres	Open source/open science markets for knowledge	Regional industrial policy Innovation-oriented public procurement

Source: Nauwelaers and Primi (forthcoming).

Targeting "functional areas": main programmes of the Ministry of Knowledge Economy

The Ministry of Knowledge Economy implements actions in four major fields which are related to territorial development: *i)* it supports the restructuring of old industrial complexes channelling resources to hosting locations mainly for infrastructure upgrading and, in certain cases, industrial reconversion (Box 2.3); *ii)* it supports relocation of industrial capacities through fiscal incentives to favour de-concentration of activity outside the Capital Region; *iii)* it fosters the development of FEZs to attract foreign direct investment in key selected places; *iv)* it manages three specific programmes which support industrial development in regions by targeting different spatial scales. While the first three lines of action impact on regional development through the old logic of channelling resources to places via industrial targeting, the fourth, the regional industrial programmes, represent a new entry into the Korean policy mix because they target resources to "places" on the basis of the definition of local industrial development priorities.

Box 2.3. **Restructuring industrial complexes in Korea**

Korea has invested heavily in industrial infrastructure. In the framework of the first Five Year Economic Development Plan (1962-66) the central government targeted Ulsan, a province located in the south-eastern coastal area of Korea, for the building of the national industrial complex in the chemical and fertiliser industry. Starting in 1964 the government also invested in building export-oriented industrial complexes in the south-western and western coastal regions, as well as in the Capital Region. There were two categories of industrial complexes: the national and the general. The former were directly financed by the national government while the latter were assigned to local authorities, which managed implementation of the policy.

The investment in building industrial complexes was followed by heavy investment in infrastructure, particularly in transport. In addition to the three major expressways built in the early 1960s, the 1970s saw the densification of the expressway network. Large investments to improve connections between regions and cities were made in the 2000s. The Korea Train Express (KTX: rapid-transit railway) was inaugurated in 2004; the KTX (Seoul-Busan) contributes to improving the spatial accessibility and reduces travel time from five and a half hours (the existing train) to a little over two hours.

In the 1960s, textile and garment industries were established in the Guro National Industrial Complex in Seoul. In 1970s priority funding went to the industrial complexes on the southeast coastline: steel in Pohang, electronics in Gumi, machine plants in Changwon. Since 2000 IT industries have been developed in industrial complexes around the Capital Region. In the 1990s the government invested in restructuring some of the old industrial complexes to modernise them and improve the services they offered. For example, a restructuring programme was developed for the Guro Industrial Complex (established in 1964) from 1997 to 2008. As a result it has been converted from a textile complex to a digital IT one.

Today there are 915 industrial complexes, of which 40 are national industrial complexes, 447 general industrial complexes, six urban high-tech complexes and 422 agricultural and industrial complexes (Table 2.11). In 2010, the total sales of the enterprises in industrial complexes accounted for 62% of the sales of the national manufacturing industry, 72% of exports and 43% of total employment.

Table 2.11. **Industrial complexes in Korea, 1960-2010**

Types of Industrial Complex	Level of government responsible	1960s	1970s	1980s	1990s	2000	2010
National industrial complex	Central government	2	17	10	7	4	40
General industrial complex	Local government	9	18	13	111	296	447
Urban high-tech Complex	Central government	-	-	-	-	6	6
Agricultural and industrial complex	Central government	-	-	168	126	128	422
Total		11	35	191	244	434	915

Source: Outlook of Industrial complexes in Korea, KICOX (December, 2010).

Central government support to these industrial complexes evolved over time. In the 1980s there were restructurings and rationalisation efforts, and agricultural and industrial complexes were used as ways of revitalising small and medium-sized cities and regions. In the 1990s most of the support to industrial complexes shifted to R&D and innovation activities and investments were made to transform industrial complexes into knowledge-based centres, as in the case of the Seoul Digital Industrial Complex. From 2000, the central government established urban high-tech industrial complexes to support venture business and development of SME networks.

The restructuring process was reinforced in 2009 and four complexes have been prioritised for restructuring and reconversion: the Banwol-Shihwa established in 1977, Namdong opened in 1980, Gumi in 1969, and Iksan in 1970 (Table 2.12). The restructuring process started in 2010 and required changes in four areas: *i)* introduction of business support for R&D; *ii)* infrastructure including waste recycling systems, road expansion, parking space; *iii)* amenity facilities such as employee dormitories, gyms, child care and leisure centres; *iv)* industrial restructuring.

Table 2.12. **Restructuring four industrial parks in Korea**

Industrial Complexes	Business Support	Infrastructure	Amenity Facilities	Industrial Restructuring
Banwol-Shihwa at Gyeonggi	R&D centre Business centre Convention centre	Waste renewable facility Road expansion Parking spaces	Dream town with Child care Dormitories Gyms Parking lot Gas station	Knowledge Industry centre
Namdong at Gyeonggi	Business centre Logistics centre Convention centre	Road expansion Cargo parking lot	Auto mechanics shop Parking lot Gas station	Knowledge Industry centre
Gumi at Gyeongbuk	Convention centre	Bike road Special street	Dormitories Gyms	Medical device Industrial complex
Iksan at Jeonnam	Convention centre		Studio type facility	

Source: Korean Industrial Complex Corporation (KICOX).

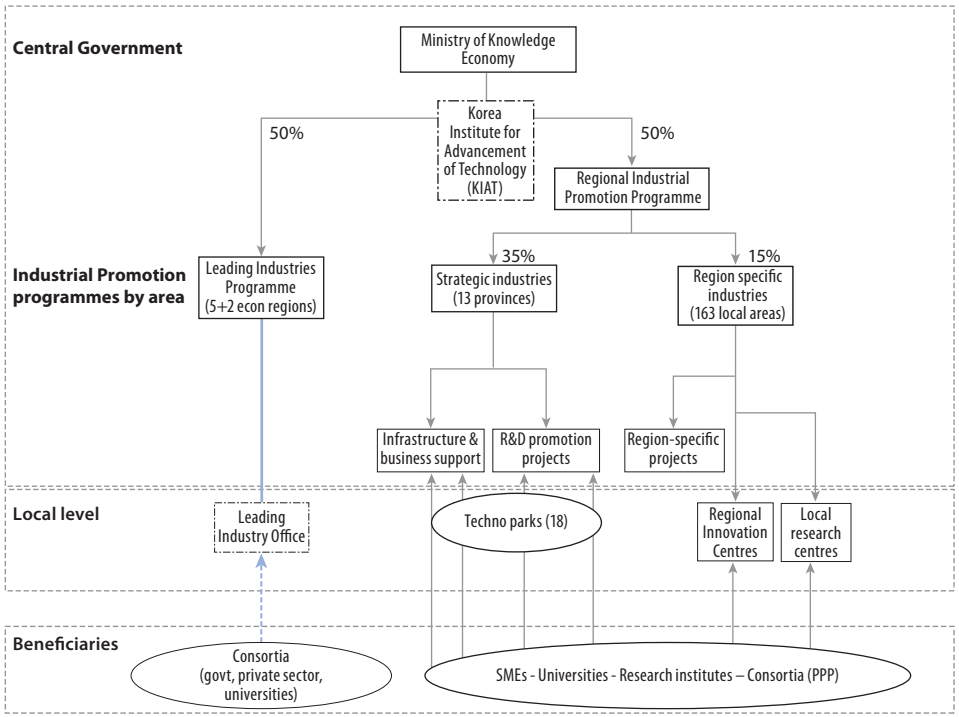
The MKE administers about 25% of the Mega Region Account of the Special Account for Regional Development. Since 2008, the MKE has introduced three main programmes supporting industrial development targeting the Economic Regions defined by the Presidential Committee on Regional Development (PCRD) (Figure 2.11):

- The Leading Industry Programme targets industrial development in the 5+2 Economic Regions; it supports the R&D activities of cross-regional consortia. Priority orientations are established by the Economic Development Committee of each Economic Region.
- The Strategic Industries Programme supports industrial development in the 13 Korean provinces (*i.e.* all provinces excluding the Capital Region); it targets firms, universities and techno parks in the provinces.

- The Region Specific Industries Programme supports industrial development at the Local Economic Area Level (a sub-provincial spatial unit created to foster industrial development at the local level) and supports programmes which address specific local development challenges.

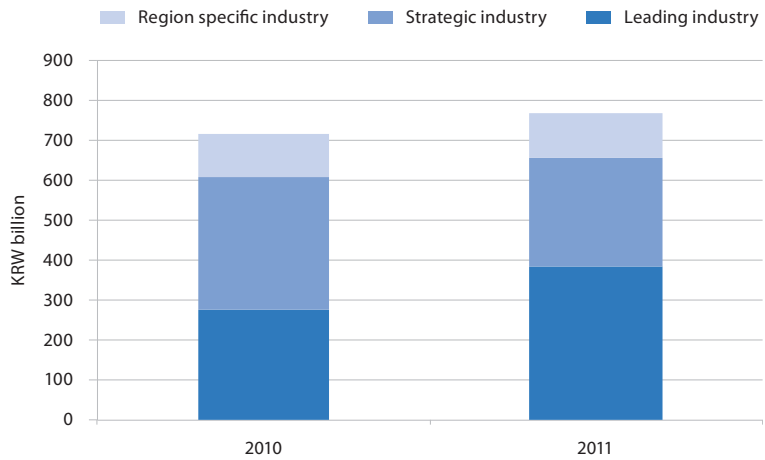
The Leading Industry Programme accounts for half of the budget; the rest is split between the Region Strategic Industry and the Region Specific Industry programme (Figure 2.12). Local governments participate in both the Strategic Industry and Region Specific Industry programmes with matching funds. The MKE budget for regional industrial development is distributed in the different provinces following a complex procedure with regional ceilings; in 2010 resources were distributed more evenly across the provinces compared with 2007 (Figure 2.13).

Figure 2.11. **The policy mix for regional industrial development, Korea, 2011**



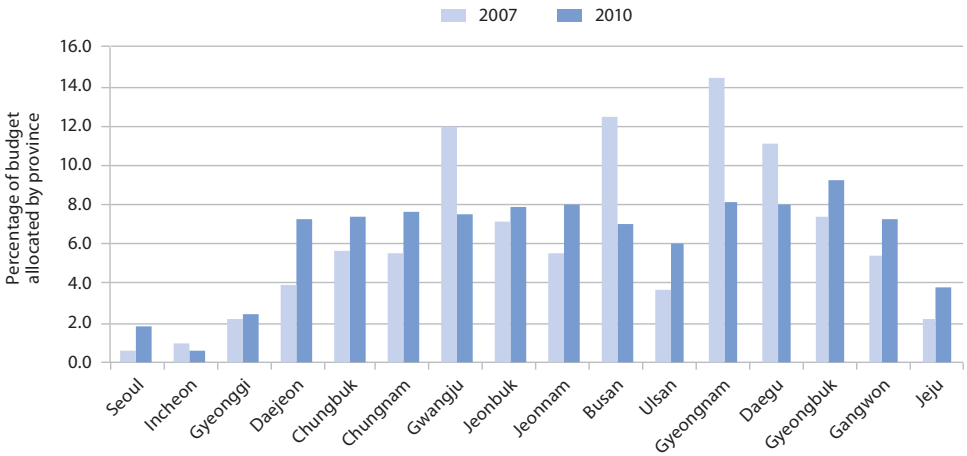
Source: OECD Development Centre on the basis of information from the Ministry of Knowledge Economy.

Figure 2.12. **Budget for regional industrial development, Korea, 2010-11**



Source: Ministry of Knowledge Economy, Korea.

Figure 2.13. **Allocation of MKE budget for regional industrial development by province, 2007-10**



Note: This budget includes the Leading Industries Programme, Strategic Industry Programme and Region-Specific Industry Programme.

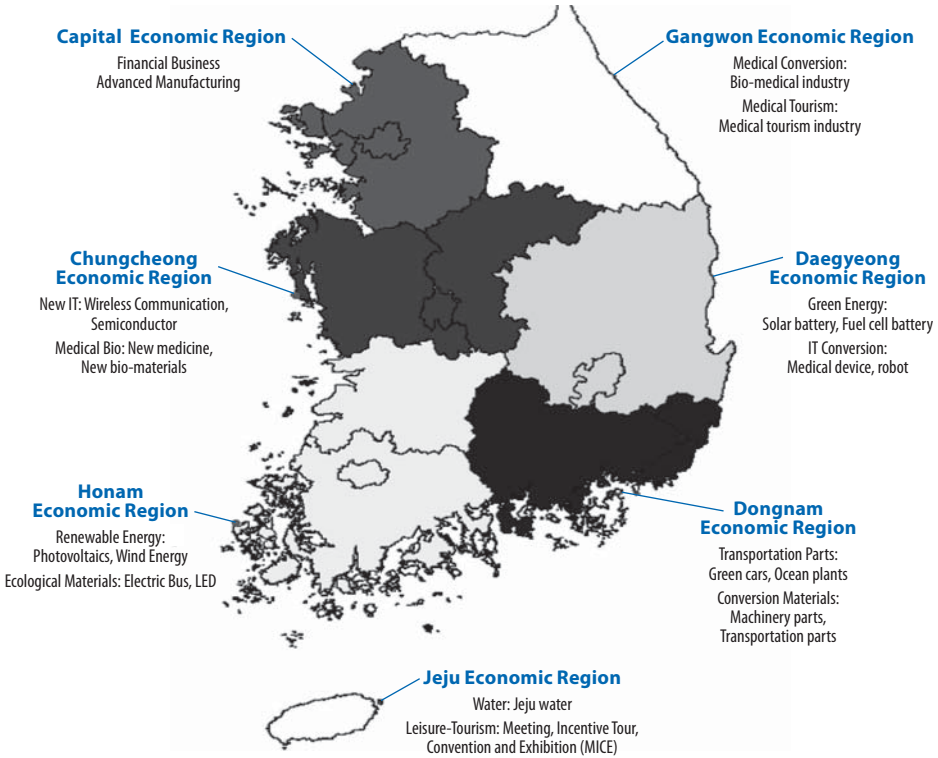
Source: OECD Development Centre on the basis of information from KIAT.

The Leading Industry Programme seeks to support job creation and regional growth by focusing on 12 leading industries in seven economic regions (Figure 2.14). The programme concentrates resources on consortia of firms and universities located in the economic region and it mainly supports R&D development (75% of total budget over the three years targets that field). The programme offers support for: developing new products, including new services; supporting development of local value chain from production, to branding and international collaboration, and it provides incentives for collaboration in the regional innovation system. The major lines of action for programme implementation derive from the Economic Region Development Committee which draws up the development plan for each Economic Region. The Leading Industry Office instituted by the MKE in each economic region is in charge of programme execution. Leading Industries Offices are currently headed by central government representatives but it is planned that responsibilities be devolved to regional constituencies. The challenge is to empower these new institutions in a context in which techno parks have been playing the role of regional development agencies in each province.

The Leading Industry Programme started in 2009 with a three year budget of KRW 743 069 million. SMEs are required to provide matching funds of up to 25% of the total project cost, while big enterprises are required to finance up to 50% of it. Yearly evaluations are required to monitor programme implementation. Since 2009, 12 Leading Industries with 20 projects in six Economic Regions have been implemented. Monitoring showed that goals have been attained for job creation and sales but not yet for exports (Table 2.13). New jobs have been created mainly in the renewable energy, automobile and IT sectors. The support to local industry also helped to increase foreign direct investment (FDI) in the regions.

The Regional Strategic Industry Programme is the continuation of the previous RIPP. It targets 13 provinces and has a three-year budget of KRW 457 000 million. It offers grants to local governments for construction (covering up to 40% of total investments), equipment purchase (covering up to 80%) and business services support (for up to 60% of total investment). The programme also helps strengthening strategic planning and evaluation functions in techno parks. In its turn, the Local Specific Industry Programme supports production development at the local level; the allocated budget was KRW 150 000 billion from 2009 to 2011. Local governments and the private sector are required to invest matching funds and beneficiaries need to form a consortium of at least three members.

Figure 2.14. **Leading Industry programmes in the Economic Regions, Korea, 2009**



Source: Presidential Committee on Regional Development.

Table 2.13. **Targets and performance of Leading Industries Projects, Korea, 2009-10**

	1st year (2009)		2nd year (2010)		Total		
	Goal	Achieves	Goal	Achieves	Goal	Achieves	Ratio
Employment	1 621	2 264	3 508	3 418	5 129	5 682	110.8
Sales (KRW billion)	797	876	1 622	2 150	2 418	3 026	125.1
Exports (USD million)	390	170	990	920	1 380	1 080	78.3

Source: Kim *et al.* (2011).

Box 2.4. **The policy mix for regional industrial development: examples from OECD countries**

Regions are increasingly relevant in the policy space of several OECD countries. While in Korea, in spite of the advance, the policy mix for regional development mainly consists of targeted programmes of central government ministries, in other OECD countries there are several policy instruments which are designed, financed and managed directly by local authorities in specific regions or places. The policy mix used by regions is varied and different tools address the various regional development challenges. Below there is a synthesis of some tools for regional industrial development in use in regions of OECD countries.

Business clusters in the West Midlands (United Kingdom)

The Regional Clustering Programme in the West Midlands was developed as a tool for implementing the West Midlands Economic Strategy (WMES). The strategy aimed to develop markets and sectors with the highest growth and employment potential. In 2005, the region implemented the three-year programme through *Advantage West Midlands*, the regional development agency for the region. There are 12 business clusters in the region: aerospace, automotive, building technologies, environmental technologies, food and drink, ICTs, interiors and lifestyle, medical technologies, rail, screen image and sound, specialist business and professional services, and tourism and leisure. An analysis of the first programme (2005-08) showed a significant increase in business confidence in the sectors where collaboration occurred, as well as the creation of informal and formal networks (linkages with university departments and other network organisations that have direct access to sectors and markets). In the second stage, the programme focused more on markets where the region had accumulated capacities and competitiveness. Each cluster had a three year plan for the period 2008-11 to support business development.

The Knowledge Cluster Initiative for Japanese regions

The Ministry of Education, Culture, Sports, Science and Technology (MEXT) of Japan has been implementing the Knowledge Cluster Initiative since 2002 with the objective of boosting regional economies. The Second and Third Science and Technology Basic Plans of 2001 and 2006 called for the creation of knowledge clusters and the support of regions that had the potential to develop world-class knowledge clusters. The initiative promoted joint research by industry, academia and government to produce new technologies. The programme fosters patenting of research results and commercialisation of research outputs. The Knowledge Cluster Initiative is divided into two programmes: an Innovative Stage focusing on six Japanese regions and the second stage focused on nine regions. The initiative prioritised knowledge clusters in green materials, life sciences, health and medicine, marine biology industries, nanotechnology, environment, and

materials. Local universities have a directive role, and they set the minimum amount of expenditure by local actors. The second stage programme includes a sub-programme named the "Expansion Programme", which encourages collaboration with other regions in Japan and abroad. An example of international collaboration in the Fukuoka Kitakyushu Iizuka region is the Fukuoka Cluster for Advanced System LSI Technology Development, which built collaboration networks in the Silicon Sea Belt, and research achievements have been expanded through research collaborations with universities in Chinese Taipei and Shanghai as well as with business associations in Bangladesh. The Knowledge Cluster Initiative is complementary to the Industrial Cluster programme promoted by the Ministry of Economy, Trade and Industry (METI).

Design Centre Bologna (Emilia Romagna, Italy)

The Design Centre Bologna is a project of the Academy of Fine Arts in Bologna with funding provided by the Business Development Department of the Emilia Romagna Regional Authority and by contributions from the Foundation of Savings and Loans in Bologna. The centre is a design services provider, the first of its kind in Italy, with the primary objective of helping facilitate the economic implementation of entrepreneurial activities across the field of design, based on the extensive examples of similar models at an international level. The centre is overseen by a scientific committee made up of the leading figures in the world of design, and by a team of experts in the field, formed by representatives of the region, the academy, the foundation, and other design professionals. The Design Centre is a research and development centre that: manages extensive databases; develops projects – not only at a local level, but also on a national and international scale; liaises with institutions and experts in the field of design; and provides a framework of global references as well as networks for the presentation of outstanding local services and products. The activities of the centre include workshops, conferences, consulting services, pilot projects, trend analysis, collaborative research, concept design and strategic design.

Innovation vouchers for SMEs: Baden-Württemberg (Germany)

In 2008, Baden-Württemberg became the first German region to issue innovation vouchers to SMEs with fewer than 50 employees. Innovation vouchers were designed to strengthen SME capacity for innovation and growth. SMEs in many different sectors are eligible, including those in: trade, small industrial supply, business-related services in the health sector, information and communication technology, renewable energies, nanotechnology and other promising sectors. These innovation vouchers support SMEs without their own R&D resources, allowing them to make use of R&D services for product innovations, service innovations and process innovations. The vouchers have a value of between EUR 2 500 and

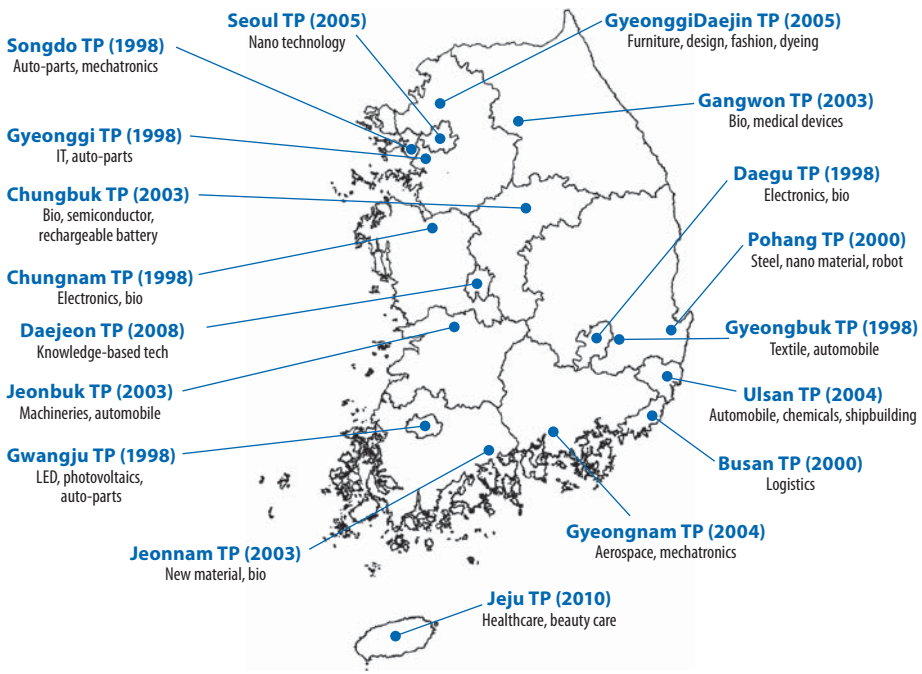
EUR 6 000 each and can be used to purchase R&D services. The sources come from companies across Europe. Baden-Württemberg has set aside EUR 3 million for the period 2008-10 for its innovation vouchers scheme. Following the completion of the pilot project (in 2010), the instrument will be revised and it is likely to be included as part of a longer-term programme of support measures targeting SMEs in the region.

Source: OECD (2011).

A new role for techno parks?

Techno parks were introduced in Korea in the mid-1990s on the basis of the successful experience of techno parks in frontier countries (Figure 2.15). In 1997 the Korean Government invested KRW 25 billion for five years in the creation of each of the six pilot techno parks. Following the success of this experience, the government supported the creation of additional eight parks. Today in Korea there are 18 operating parks, among which four are financed by private investments (see Table 2.A2.1 in Annex).

Figure 2.15. **Localisation of techno parks in Korea, 2011**



Source: Korea Technopark Association (www.technopark.kr).

The government looked at the successful experiences of foreign techno parks such as Silicon Valley and Route 128 in the United States, the Cambridge Science Park in the United Kingdom, Sophia Antipolis in France and Hsinchu in Chinese Taipei, among others. International experience demonstrated that collaboration among industries, universities and research institutes creates positive externalities and promotes technological innovation and industrial development in clusters of economic activities in specific places. However, assessments of the impact of techno parks on regional development are varied; there is a risk of high mobilisation of resources for the creation of infrastructure and a low capacity to mobilise private sector development (OECD, 2011). When techno parks are well-planned and strategically managed, they can play a key role in supporting private sector development in specific sectors, such as ITC in Silicon Valley or in specific regions, as is the case of the Techno Park on IT services for Tourism in the Balearic Islands in Spain (Box 2.5).

Box 2.5. **Techno parks in Spain: an effective tool for regional industrial development**

Since the 1980s Spain has invested in the creation of techno parks in all its communities as part of plans to support growth and job creation and to give backing to diversification of production in the different territories. Techno parks in Spain are affiliated to the Association of Science and Technology Parks of Spain (APTE) which currently has 80 members; of which 47 are full members (operating parks) and 33 associated partners (support entities and parks in development). The Autonomous Communities with most parks hosted are Catalonia (nine parks), Andalusia (eight), Valencia (six), Madrid (five) and the Basque Country (four). Regions manage techno parks in different ways; some, such as the Basque Country and Andalusia, support techno park development following a balanced territorial approach, while other communities such as Madrid and Catalonia use parks as hubs for fostering networks between business and science entities.

Techno parks have proved to be very effective in job creation and business dynamics in Spain. Since 2000 they have increased in number, sales, value added, as well as in the number of employees of operating SMEs (Table 2.14).

In advanced regions such as Catalonia, techno parks have been used to support business development in key technology fields such as biomedicine, biotechnology and aerospace; in the region there are 24 operating parks. In less advanced regions techno parks have been a successful tool for developing new industries and employment opportunities. The Balearic Islands, for example, became a global reference for ICT solutions for tourism thanks to public policy support and the creation of specialised centres nested in regional techno park.

Table 2.14. **Impact assessment of techno parks in Spain: 5 indicators, 2000-10**

	No. of affiliates to the National Association of TP	Sales (EUR million)	Value added (EUR million)	Employment	No. of firms
2000	16	3 034	1 488.65	25 464	965
2005	22	7 494	3 520.99	51 488	2 010
2008	32	18 323	8 608.89	127 559	4 592
2009	44	21 520	10 110.97	136 218	5 115
2010	47	21 475	10 089.83	145 155	5 539

Source: Association of Science and Technology Parks of Spain (APTE).

A recent assessment on the performance and impact of techno parks in Spain showed that beyond external factors (effective policies and availability of resources), efficient and professional park management and processes built on "*trust, communication and coherence*" determine the effectiveness of parks.

Long-term political and institutional support, and experience exchanges within networks and working groups of the International Association of Science Parks (IASP) or Association of Technology Parks (ATPS) are important. From the Spanish experience a key factor for effectiveness is the integration of Science and Technology Parks (STPs) and Technology Centres (TCs) in broader territorial R&D strategies. Techno parks are also positive tools for mapping the current specialisation existing in a territory in terms of innovative, emerging or high-tech activities. In Spain several techno parks also operated as key players in strategic territorial marketing. Additionally, they performed well as links with international and European territories within the same specialisation.

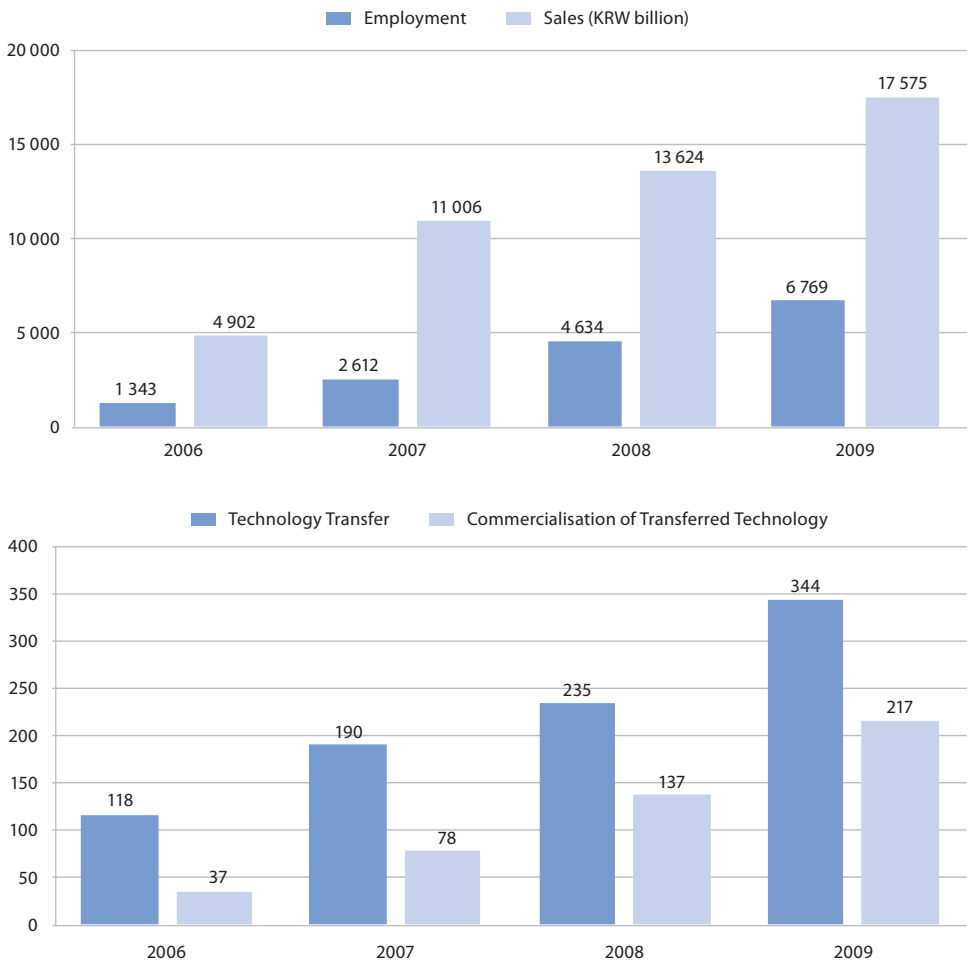
Source: European Commission (2011).

Techno parks offer different types of services and perform different functions. They offer infrastructure and location facilities for business and R&D activities, they provide business services and high knowledge content services to firms, including managerial, marketing and technological services, and they principally target local and medium-sized firms located near the park. Some techno parks support the creation of start-up companies, others focus on support to existing firms and still others offer a mix of the two services. Techno parks often perform as intermediary institutions for facilitating access to national public policy tools for SMEs. Assessments show that it is important to involve them in regional development planning, given their capacity to act as bridges between individuals and institutions in regions. Some techno parks are also a powerful source of monitoring of regional

specialisation since they conduct business surveys in the local area and can provide information about industrial territorial specialisation. In several cases techno parks have been built close to technical universities to facilitate the transfer of knowledge.

Techno parks in Korea tend to be specialised in different industries, some are green-field developments, and others build up on installed industrial capacities. Some support business creation, others favour technological upgrading

Figure 2.16. **Techno parks' performance indicators, Korea, 2006-09**



Source: Korean Techno Park Association.

of existing firms and others perform both functions (Box 2.6). Over the years, the central government has carried out several impact evaluation studies which conclude that there are performance gaps between the 18 techno parks; on average techno parks contributed to technology transfer, venture business and rising sales and employment in the hosting region (Figure 2.16).

Since the end of the 1990s, techno parks have played a key role in supporting the implementation of Regional Strategic Industries Programmes, as beneficiaries but also simultaneously acting as an operating agency transferring resources to SMEs in the region. In a context of weak regional institutional capacities, techno parks started to perform functions similar to those of a regional development agency, and played a major role in regional industrial development planning.

The focus on Economic Regions and the introduction of the Leading Industry Promotion Programme in 2008 changed the institutional setting for regional industrial policy. The creation of Leading Industry Offices that oversee territories composed of multiple provinces, each hosting a techno park, will require identifying appropriate mechanisms for co-ordination. The success of the Leading Industry Programme will depend on its capacity to create synergies and incentives for collaboration between provinces and to align the actions of existing institutions.

Box 2.6. **Variety of techno parks and special science zones in Korea**

Chungnam Techno Park

The Chungnam Techno Park (CTP) was founded in 1998 by the Chungnam provincial government and the central government. The president of the park is nominated by the provincial government. The park employs 130 people and is located close to the major production sites of Samsung Electronics and Hyundai Automobiles. The province is specialised in high-tech industries and the local innovation system is dense, hosting 36 universities and 623 research institutes. The CTP plays a key role in fostering science and industry linkages and supporting creation of knowledge based companies. The support from the central government (MKE) also includes incentives for localisation in the province and infrastructure provision. The CTP promotes regional strategic industries in information technology, automobiles, multi-media contents, and agricultural biotechnology. The CTP manages three R&BD (research and business development) centres for strategic industries, and three agencies for provincial industry planning, business services, and one enterprise education programme. The CTP offers funding to R&D, infrastructure facilities, roadmaps services to firms, training and commercialisation services. Firms located in the park can benefit from park location between three and seven years. The park

has to report to the MKE performance indicators, including number of firms created, sales and employment. During the decade of the 2000s CTP created 245 new enterprises and 13 000 new jobs. One of the most successful stories at CTP is Evertechno Co., Ltd. The enterprise began its business with three people at CTP in 2000, listed on the Korean Stock Exchange Market in 2007, and reached its production amounting to USD 150 million with 450 employees in 2008. CTP is a member of Asia Science Parks Association and International Association of Science Parks. It has partnerships with Surrey University Research Park in the UK, Qinghua University Science Park in China, Kumamoto Technopolis in Japan, and the Thailand Science Park, among others. In addition, the CTP collaborates with the University of Texas, Arizona State University and Metroplex Technology Business Council to develop IT fusion technology.

Jeonbuk Techno Park

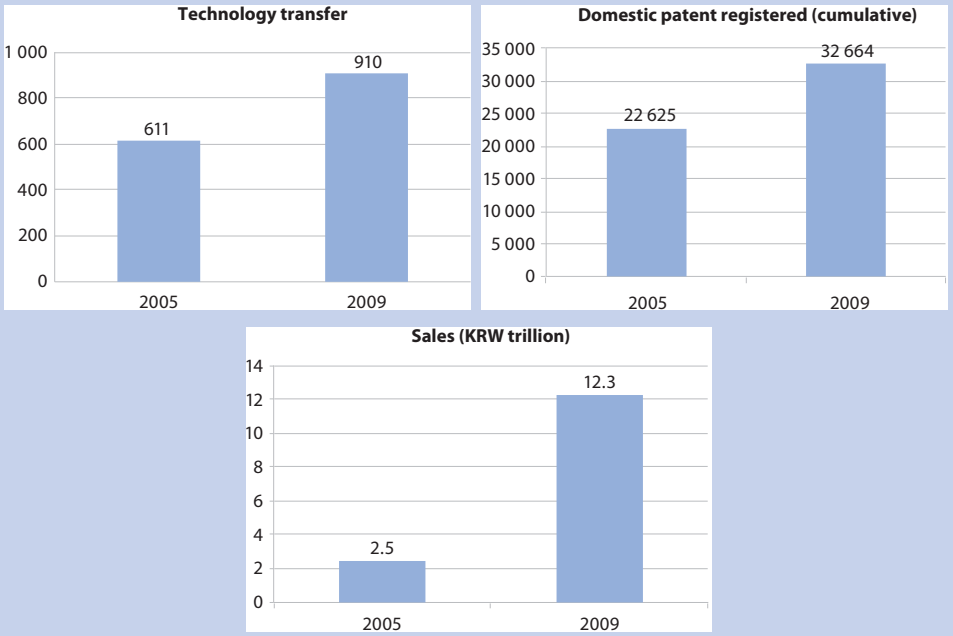
The Jeonbuk techno park was created in 2003 by the provincial government and the MKE with the aim of supporting regional industrial development in a mainly agricultural area by upgrading local production. The park focuses on regional priority clusters: car manufacturing, agricultural machines, shipbuilding, food processing, carbon textiles and renewable energies. It aims to create start-up based companies, supporting SMEs development in the region and attracting firms from other provinces. The park offers infrastructure, information, R&D planning and consulting services. The incubation service offers a 2+3 year support and subsidies for prototype development. The park plays also an active role in provincial planning.

Daedeok: from a R&D Special Zone to an Innovation Hub

Daedeok was built in the 1970s to become the main national science hub, while techno parks are built with the objective of fostering industrial development in the regions in which they are located. From the 1970s to the early 1990s several institutes have been located to Daedeok, like the Korean Advanced Institute of Science and Technology (KAIST), or relocated there, such as the Electronics and Telecommunication Research Institute (ETRI).

In 2005, the park was transformed into Daedeok Innopolis and the range of offered services has been increased, including support to R&D, business services and technology transfer support. Today, Daedeok Innopolis is home to more than 1 000 SMEs, including 29 government-funded institutions, 5 universities, and over 400 corporate R&D centres. Daedeok accounts for 10% of all Ph.D researchers in Korea specialised in engineering and natural sciences. According to Daedeok Innopolis, the performances of resident companies are extremely positive. Technology transfer operations, patents and sales of resident companies noticeably increased from 2005 to 2009 (Figure 2.17).

Figure 2.17. **Performance of resident companies in the Daedeok R&D Special Zone, 2005 and 2009**



Source: Korea Tech-park Association and Daedeok Innopolis.

Conclusions

Regional development is a rising priority in the Korean development strategy. The industrial policy mix evolved to include specific programmes targeting regions and fostering inter-provincial collaboration. The country shifted from a balanced and compensation approach to a competitiveness approach aiming to create incentives for business development in all provinces. Among the advances made in recent years are the increase in resources targeted for regional development, the strengthening of planning capacities at the regional level and the creation of incentives for business development in all territories. However, regional development is not achieved overnight and the country is still in the learning and experimentation phase of designing and implementing policies for regional development.

Korea still needs further to improve the governance and the capabilities for regional government. Although there has been progress in democratisation, the country remains highly centralised. Even when there are more resources for regional development, regions have little margin for manoeuvre for setting targets and planning. Fostering secondment practices between central and local levels of government and the private sector can be useful. Co-ordination between new agencies, such as the Leading Industries Offices and the techno parks, is necessary to increase the effectiveness of policies.

Local government accountability to local civil society will need to be further strengthened. Beyond the advances, the country is still highly centralised and local governments are frequently engaged in negotiations with central government which sets priorities and targets. Investing in the creation of a local sense of community and creating spaces for dialogue between citizens and local governments are key steps in raising the accountability of local government to their electors.

Regional development encompasses more than industrial upgrading. It includes well-being, quality of life, good employment opportunities and delivery of high quality public services. To make further progress, in regional development policy Korea needs to shift from a "de-concentration" logic towards a place-based approach to policies. Public policies should not aim at moulding population distribution over the territory, but at creating the best opportunities for education, employment, production and consumption in each place. Regional development is not only about reducing population concentration in the Capital Region; it is also about creating the opportunities for development and fulfilment in all the regions. This requires empowering regions as agents of change and broadening the policy mix to include education and social cohesion issues.

After six decades of growth and development, Korea has achieved sound macroeconomic management, high and stable growth and a strong industrial base. Social cohesion and green economy are two big challenges head. To face them the country needs to shift from a catching up logic in policy making to a frontier one. Not only did the country advance, thus changing constituencies and the demands, but the world changed too. Global economies challenge the spaces for national development strategies and call for new approaches in which the capacity of the state to articulate actions between and across levels of government is crucial to addressing the emerging social and environmental challenges. A centralised approach allowed the country successfully to catch up, but it might not be the best framework for the country to sustain its development path and to achieve its development potential. Supporting the development of SMEs, fostering basic research and improving social equity are key challenges for Korea. And regions can be precious allies in this effort.

Notes

1. These figures do not take into account national teachers, who are mostly regarded as central government officials. When national teachers are included, the figure for central government officials goes up to 21% for graduate degree holders and 89% for bachelor degree holders, while figures for local government do not change.
2. Now the Ministry of Public Administration and Security, MOPAS.
3. Now the Ministry of Education and Science Technology, MEST.
4. Now the Ministry of Knowledge Economy, MKE.
5. Now merged as the Ministry of Strategy and Finance, MOSF.
6. By the end of 2006, there were 14 Regional Innovation Councils (RICs) with 780 active council members throughout the country. In addition, several regional organisations have been introduced: 132 with a total of 4 123 active council members, such as the Regional Innovation Forum Business and Connect Korea Business that favour technology transfer between research and firms.
7. The PCRD co-ordinates actions by the Ministry of Knowledge Economy; the Ministry of Strategy and Finance; the Ministry of Education, Science and Technology; the Ministry of Public Administration and Security; the Ministry of Culture, Sports and Tourism; the Ministry for Food, Agriculture, Forestry and Fisheries; the Ministry of Health and Welfare; the Ministry of Environment; and the Ministry of Land, Transport and Maritime Affairs.
8. The budget for regional development in Korea is composed of a Private Account, *i.e.* expenditures in provinces by private firms; a Local Account, which includes expenditures from local governments; a National Account, which includes general expenditures and the Special Account for regional development. More than half of the National Account goes to the Special Account for Regional Development.

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Annex 2.A1. Evolution of regional development policy: Brazil and European Union

Regional development policy (RDP) follows different patterns across countries and regions. Comparing the evolution of the Korean case with Brazil and the European Union (EU) allows identification of common challenges and differences in policy approaches.

Table 2.A1.1. **Evolution of regional development policy, Brazil, 1950-2011**

BRAZIL		1950-70s	1980-90s	2000-10	2011 on Proposals
National development strategy	Main priority	Industrialisation	Minimalist role of the state targeting inflation and macroeconomic stability	Growth with social inclusion	Consolidation of growth with social inclusion
	Main economic growth model	Import substitution by creation of endogenous scientific and industrial capabilities	Export-led growth and attraction of foreign direct investment	Mixed model: internal demand and export-led growth	Mixed model: internal demand and export-led growth
Regional development policy	Phase	Origins of the Regional Development Programme (RDP): creation of institutions and planning mechanisms	Minimalist role of RDP	Rebirth of the regional issue: first phase of the National Policy for Regional Development (PNDR)	Second phase of the PNDR: towards an integrated approach for regional development
	Main objective/target	Reduction of disparities through compensatory policies (mainly fiscal incentives and credits for attracting production facilities to marginalised areas)	Dynamisation of endogenous growth potential	Targeted support to specific regions facing major challenges in production development and social inclusion	Towards differentiated policies for all Brazilian regions supporting production development and social inclusion

Table 2.A1.1. **Evolution of regional development policy, Brazil, 1950-2011** *(continued)*

BRAZIL		1950-70s	1980-90s	2000-10	2011 on Proposals
Regional development policy	Institutional arrangements	Creation of institutions for regional development Creation of the Superintendency for the Development of the Northeast (SUDENE) in 1958	1999: closure of regional development agencies and creation of the Ministry for National Integration (MIN)	MIN 2003: recreation of Regional Development Agencies The Ministry of Planning, Budgeting and Management refocuses on the regional development issue	MIN proposes a high-level interministerial body for co-ordination linked to the Presidency of the Republic
	Financial resources	Role of state-owned companies in strategic sectors	1988: creation of Constitutional Funds for Regional Development (FCO, FNE, FNO) Limited programmes to support entrepreneurial activities and environmental sustainability (Ministry of Environment, EMBRAPA, etc.)	Constitutional Funds (FCO, FNE, FNO) and Federal Budget (Orçamento Geral da União or OGU) for regional programmes (*Promeso, Conviver* and Integrated Development Regions, RIDEs). Major financing from infrastructure investments (PAC 1 and 2) and major horizontal programmes (Bolsa Família, Minha Casa, Minha Vida, etc.)	Proposal: creation of a National Fund for Regional Development; use of royalties from exploitation of deep-sea oil for regional development.

Source: OECD *Territorial Review of Brazil* (forthcoming).

Table 2.A1.2. **Evolution of regional development policy, EU, 1950-2020**

EU		1950-70s	1980-90s	2000-10	Towards EU 2020?
Development strategy	Main priority	Consolidation of postwar equilibrium (peace) by the creation of the "European space"	Creation of the European single market and social cohesion	Growth with social cohesion and EU enlargement process	EU 2020 strategy: towards a smart, sustainable and inclusive economy
	Main economic growth model	Economic integration of European countries (export-led growth)	Social market capitalism	Moving towards a market-oriented economy and export-led growth focus on innovation and job creation	In search of new sources of growth
Regional development policy	Phase	Origins of the RDP as a complement to economic integration	Birth of RDP. European Cohesion Policy as a complement to the policy for the single market and as an instrument of consolidation of democracy	Regional policy as a compensation instrument. Minimalist role of policies	Debate on possible reforms of regional policy
	Main objective/ target	Reduction of disparities through compensatory policies (mainly resource transfers to marginalised areas)	Convergence	Make the EU the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion	Allow EU regions to emerge from the crisis, reduce disparities and contribute to the EU 2020 strategy

Table 2.A1.2. **Evolution of regional development policy, EU, 1950-2020** *(continued)*

EU		1950-70s	1980-90s	2000-10	Towards EU 2020?
Regional development policy	Institutional arrangements	Creation of institutions at the European level	Strengthening the role of regions as relevant policy and economic "spaces". Consolidation of EU institutional arrangements and strengthening of regional capacities in EU member countries 1993: creation of the Committee of Regions	Emphasis on procedures: control and compliance	Introduction of conditionalities, strengthening of monitoring and evaluation for a results-based EU policy
	Financial resources	1958: creation of the European Social Fund (ESF) 1975: creation of the European Regional Development Fund (ERDF) (EUR 1.3 million for three years)	Creation of structural funds for priority regions 1989-1993: first period ECU 68 billion 1993 creation of the Cohesion Fund 1994-1999: second period (15 member states) EUR 177 billion	Structural funds 2000-06: third period (25 member states) EUR 213 billion Structural funds 2007-13: fourth period (27 member states) EUR 347 billion	Structural funds 2014-20: EUR 376 billion

Source: OECD *Territorial Review of Brazil* (forthcoming).

Annex 2.A2. Techno parks in Korea

Korea has 18 techno parks, four of which are privately owned. The following table presents an overview of the main characteristics of each techno park (localisation, number of firms involved, industries and sales).

Table 2.A2.1. **Description of techno parks in Korea**

	Songdo	Gyeonggi	Daegu	Gyeongbuk	Gwangju	Chungnam
Location	Songdo Landfill in Incheon	Hanyang University – Ansan Campus	East-Daegu Venture Valley	Yeungnam University	Gwangju High-Tech Industrial Complex	Cheonan Asan
Involved institutions	Incheon-Shi 2 universities 1 research institute	Gyeonggi-Do Ansan-Shi 6 universities	Daegu Metropolitan City 3 universities	Gyeongbuk-Do Gyeongsan-Shi 5 universities	Gwangju Metropolitan City Jeonnam-Do 7 universities 1 research institute	Chungnam-Do Cheonan-Shi Asan-Shi 12 universities Standard Chartered First Bank (SC First Bank)
Established	18 June 1998	17 September 1998	2 December 1998	27 August 1998	7 December 1998	7 December 1998
Space (m^2)*	453 523	200 000	157 355	152 727	99 197	252 933
Total cost (KRW 100 million)*	1 809	978	502	350	533	2 373
No. of firms (as of 2010)**	140	93	136	69	60	129
Sales (as of 2010) (KRW 100 million)**	16 802	6 683	2 255	756	1 397	9 353
Specialised industries	Logistics, Electronics, Information & telecommunication Biotechnology Mechatronics Digital design	Electronics, Information & Telecommunication Auto parts Biotechnology Robotics	Electricity & Electronics Biotechnology Mechatronics	Textile Automobile Machinery Biotechnology Oriental medication IT Electronics	LED/LD Optical communication Electronics components	Display Auto parts Biotechnology Visual industry

*Jeonbuk Technopark mid- and long-term development plan 2015.

**MKE media release on 9 November 2010.

Table 2.A2.1. **Description of techno parks in Korea** *(continued)*

	Pohang	Busan	Jeonbuk	Jeonnam
Location	Close to POSTECH	Donga University Jisa Industrial Complex	Jeonju-High-Tech Machinery Venture Complex	Suncheon Yulchon Industrial Complex
Involved institutions	27 institutions - 5 universities - 18 firms - 2 others	13 institutions - Busan local government - 12 universities	6 institutions - 2 local governments - 4 universities	15 institutions - 4 local governments - 6 universities - 2 firms - 3 others
Established	28 February 2000	18 December 1999	December 2003	December 2003
Space (m^2) *	180 856	301 452	142 170	105 919
Total cost * (KRW 100 million)	902	705	515	733
No. of firms (as of 2010) **	51	69	32	47
Sales (as of 2010) ** (KRW 100 million)	1 481	969	217	303
Specialised industries	Steel and iron Nano materials Bio-medical materials Energy Intelligent robotics	Logistics Auto and high-tech machinery S/W, Information and telecommunication Shipbuilding	Machinery and auto Biotechnology (BT) Culture, visual industry Renewable energy Renewable fuel technology (RFT)	New materials Shipbuilding Logistics Culture and tourism

*Jeonbuk Technopark mid- and long-term development plan 2015.

**MKE media release on 9 November 2010.

Table 2.A2.1. **Description of techno parks in Korea** *(continued)*

	Chungbuk	Gangwon	Gyeongnam	Ulsan
Location	Cheongwon Ochang Scientific Industrial Complex	Chuncheon HQ Wonju-Donghwa Agricultural Industrial Complex Gangneung Scientific Industrial Complex	Changwon	Ulsan
Involved institutions	25 institutions - 5 local governments - 12 universities - 7 firms - 1 research institute	27 institutions - 4 local governments - 12 universities - 8 firms - 3 others	32 institutions - 5 local governments - 9 universities - 16 firms - 2 research institutes	8 institutions - 1 local government - 2 universities - 4 firms - 1 research institute
Established	December 2003	December 2003	28 December 2004	27 December 2004
Space (m^2) *	254 457	222 492	138 857	135 604
Total cost * (KRW 100 million)	1 693	547	567	311
No. of firms (as of 2010) **	55	62	176	123
Sales (as of 2010) ** (KRW 100 million)	873	1 185	2 812	1 209
Specialised industries	Biotechnology (BT) Information Technology (IT) Bio-Information Technology (BIT)	Bio and medical instrument industry New materials Marine biology	Aerospace Mechatronics Robotics and precision instruments	Automobile Shipbuilding Chemicals Environment New materials

* Jeonbuk Technopark mid- and long-term development plan 2015.

** MKE media release on 9 November 2010.

Table 2.A2.2. **Characteristics of private techno parks in Korea**

	Gyeonggi Daejin	Seoul	Daejeon **	Jeju **
Location	**Gyeonggi Pocheon**	**Seoul**	**Daejeon**	**Jeju**
Involved institutions	6 institutions - Gyeonggi Pocheon local government - 4 universities - 2 interagency	31 institutions - 3 local governments Seoul metropolitan government and 2 other local governments - 10 firms - 15 universities - 3 research institutes	9 institutions - Daejeon local governments - 2 universities - 2 research institutes	N/A
Established	March 2005	September 2005	March 2008	August 2010
Space (m^2) *	105 638	83 214	53 019	115 502
Total cost * (KRW 100 million)	667	165	476	152
No. of firms (as of 2010) **	10	40	60	N/A
Sales (as of 2010) (KRW 100 million)**	115	631	2,385	N/A
Specialised industries	Information and telecommunication Life science Cultural contents Logistics	Digital contents Information and telecommunication Biotechnology Finance	Information and telecommunication Biotechnology Mechatronics High-tech materials	Marine biotechnology Bio-industry

*Jeonbuk Technopark mid- and long-term development plan 2015.

**MKE media release.