

# Exploring cooperation

between the Republic of Korea  
and the Community of  
Latin American and  
Caribbean States (CELAC)

**in the areas of  
innovation and SME  
internationalization strategies**



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This document has been prepared by the International Trade and Integration Division of the United Nations Economic Commission of Latin America and the Caribbean (ECLAC). It synthesizes inputs prepared by the following consultants: Andrew Berry, Hyeoun Kim, Jai S. Mah, Joong Hae Suh, Roberto Urmeneta and Deok Soon Yim. Contributions were also received from Sebastian Herreros and Dayna Zaclicever, who are staff members of the Division. The drafting of the document was coordinated by Nanno Mulder, Chief of the International Trade Unit of ECLAC, under the supervision of Keiji Inoue, Deputy Director of the International Trade and Integration Division. The research assistance provided by Javier Meneses and Lise Rosat is greatly appreciated.

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The views expressed in this document are those of the authors and may not represent the official views of ECLAC or its member countries. The document refers to the Republic of Korea as "Korea".

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## Summary

Bilateral trade between Korea and the Community of Latin American and Caribbean States (CELAC) increased fivefold from 2000 to 2011, but has since stagnated. Korea's participation in CELAC trade reached 2.3% in 2014, with a higher share of imports (3.1%) than of exports (1.3%). The participation of CELAC in Korea's trade was higher (6.0% of exports and 3.5% of imports in 2014). The CELAC region has also become an important destination for Korean FDI, with 7% participation in Korea's total FDI outflows during the period 2007 to 2012. The CELAC's growing interest in this Asian country not only stems from its growing economic ties, but also from the Asian country's successful economic and social development experience. From being a poor country in the sixties, Korea has managed to become a high-income economy based on an export and innovation-driven manufacturing sector and a society with high levels of social cohesion and educational achievement in less than six decades.

In this context, the CELAC region could benefit from an increase in mutual cooperation with Korea on multiple development pillars, including innovation and SMEs' internationalization. These two themes figure among the United Nations Sustainable Development Goals (SDGs) for the period of 2016 to 2030 and are key topics on the development agendas of CELAC countries and Korea. The first theme, science, technology and innovation (STI), is at the heart of structural transformation and encourages the emergence of new sectors, production networks and businesses. The second theme, SME internationalization strategies, are key for development as SMEs account for the vast majority of firms and provide the largest share of employment in the CELAC region and Korea.

This document aims to contribute to the definition of a new phase of cooperation between Korea and Latin America and the Caribbean through the CELAC in the two aforementioned areas. It consists of four parts. The first looks at the evolution of bilateral trade, FDI and cooperation between Korea and the CELAC countries. The second reviews policies of both partners related to STI and labour skills. Part three focuses on SME internationalization policies. These two parts also summarize bilateral cooperation initiatives in these areas and propose ways to encourage plurilateral cooperation. The final part presents conclusions and provides several proposals supporting a quantitative and qualitative leap in the cooperation between the countries of the CELAC and Korea.



## Introduction

Since 2000, economic relations between Korea and the Community of Latin American and Caribbean States (CELAC) have intensified. Bilateral trade increased fivefold from 2000 to 2011, but has since stagnated. Korea's participation in CELAC trade reached 2.3% in 2014, with a higher share of imports (3.1%) than of exports (1.3%). The participation of CELAC in Korea's trade was higher (6.0% of exports and 3.5% of imports in 2014). As CELAC's exports to Korea are based on a limited number of products originating from a small number of firms based in a few countries, the region faces the challenge in diversifying its trade. The CELAC region has increasingly become a destination for Korean FDI, with 7% participation in Korea's total FDI outflows during the period 2007 to 2012. Korea's FDI into the region is concentrated in manufacturing sectors such as the automobile industry, electronics, wood and its derivatives and textiles, and has the potential to strengthen and diversify economic relations between both partners, and allow the transfer of knowledge and technologies to local suppliers.

The CELAC's growing interest in Korea not only stems from its growing economic ties, but also from the Asian country's successful economic and social development experience. From one of the poorest countries in the world in the early sixties, Korea managed to become a high-income economy based on an export and innovation driven manufacturing sector and a society with high levels of social cohesion and educational achievement in less than six decades. It transformed its export specialization from labour intensive manufacturing (mainly textiles) to capital intensive industries including steel, chemistry, automotive, shipbuilding and electronics. Currently it is transitioning towards a creative and knowledge economy, with technological innovation being the principle driver of their development. The creative economy concentrates on the strengths of the country's education, science and innovation models. In all these development phases, export has been important not only as a means of earning foreign exchange, but also as a mechanism of learning and creating new productive capacities.

The Korean case provides several lessons for Latin America and the Caribbean. First, it is possible for a developing country to converge in a relatively short period to income levels of advanced economies. Second, this convergence depends primarily on the quality and consistency of a country's public policies, its medium and long-term strategic vision, and where the state takes a central role. Third, public policies need to be pragmatic in their design and implementation and deviate from dominant paradigms when appropriate.

For its part, Latin America and the Caribbean have struggled to consolidate a development model during the past couple of decades, including during the recent commodity super-cycle from 2003 to 2013. In particular, it has insufficiently invested in science, technology and education, which



would have improved its productivity levels and generated structural change towards activities of greater sophistication and knowledge content. Instead, the CELAC region finds itself at the end of this cycle with the same production and export structure as ten years ago. The diversification of exports in terms of products and firms remains one of the region's biggest challenges. The structural heterogeneity of the region is reflected by the fact that few large high-productivity companies generate most value added but little employment, while a huge number of low-productivity small and medium sized enterprises (SMEs) generate most employment but little value added. Improving the sophistication of production and export structures is a precondition to sustaining the recently made progress in reducing poverty and inequality.

In this context, the CELAC region could benefit from an increase in mutual cooperation with Korea on multiple development pillars, including innovation and SMEs' internationalization. The latter two figure among the United Nations Sustainable Development Goals (SDGs) for the period of 2016 to 2030 and are key topics on the development agendas of CELAC countries and Korea. The first theme science, technology and innovation (STI) is at the heart of structural transformation and encourages the emergence of new sectors, production networks and businesses, especially those related to sustainable development. While the region spends little on research and development (R&D) in relation to its gross domestic product (GDP), Korea registers the second highest rate in the world after Israel. In addition, most of this spending is done through the private sector, unlike the CELAC region, where this is essentially public.

The second theme is SME internationalization strategies, which is key for development as they account for the vast majority of firms and provide the largest share of employment in the CELAC region and Korea. However, in the CELAC region, the productivity level of SMEs compared to large firms is much lower than in Korea. One mechanism to promote the development and productivity of SMEs is their internationalization, either through direct or indirect exports. Engagement in export-related activities has many potential benefits for SMEs, such as their formalization, improved access to credit, knowledge transfers, greater innovativeness and increased development of labor skills. SMEs represent 18% of the value of exports from the Republic of Korea, compared to a mere 6% in the CELAC region. The success of Korea results from a wide range of public and private initiatives to support SMEs, including preferential financing, export incubators programs, and an extensive network of trade promotion abroad with more than 120 offices.

This document aims to contribute to the definition of a new phase of cooperation between Korea and Latin America and the Caribbean through the CELAC in the two aforementioned areas. Since 2004, the government of Korea has shared its policy experiences in the two areas above with several countries in the region. To this end, it has used two mechanisms. The first refers to the Knowledge sharing Programs, KSP) led by the Korea Development Institute (KDI). The second is the Development Experience Exchange Partnership (DEEP) of the Korea International Cooperation Agency (KOICA). In addition to the bilateral cooperation, Korea aims to intensify cooperation with CELAC on key issues for sustainable development, which is centered on the reduction of inequality through the implementation of coherent economic, industrial, social and environmental policies.

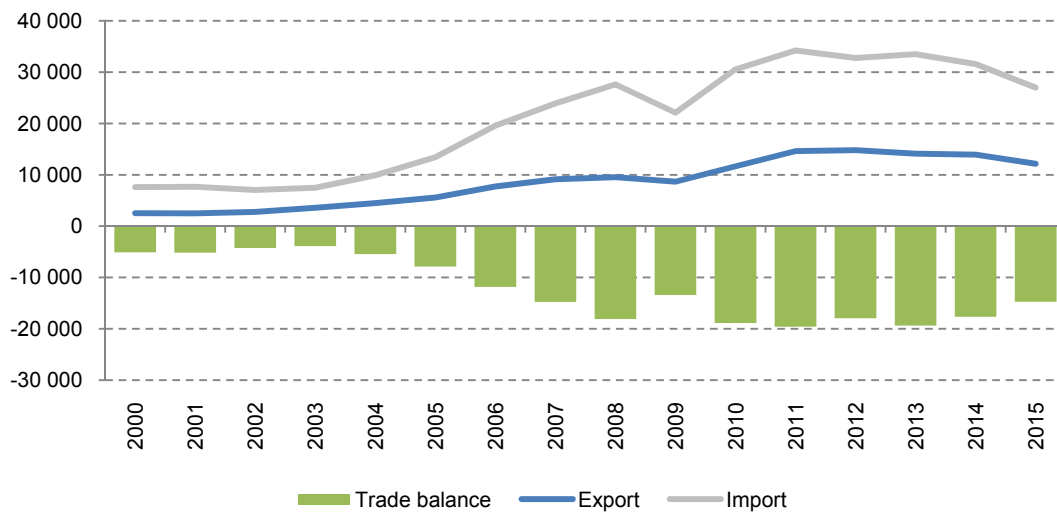
The document has four parts. The first looks at the evolution of bilateral trade, FDI and cooperation between Korea and the CELAC countries. The second reviews policies from both partners related to STI and labour skills. Part three focuses on SME internationalization policies. Parts two and three also summarize bilateral cooperation initiatives in these areas and propose different ideas to encourage plurilateral cooperation. The final part presents conclusions and provides several proposals for a quantitative and qualitative leap in the cooperation between the countries of the CELAC and Korea. Closer collaboration will help economies of the region to better implement policies that strengthen the capacity for innovation and internationalization of SMEs. Governments should identify the most important proposals from the list, prioritising ones, which are plurilateral in nature to ensure the largest possible impact. The proposed areas of work are strongly related to Korea's valuable policy experience and the implementation of Agenda 2030.

## I. Bilateral economic relations and cooperation

### A. Trade

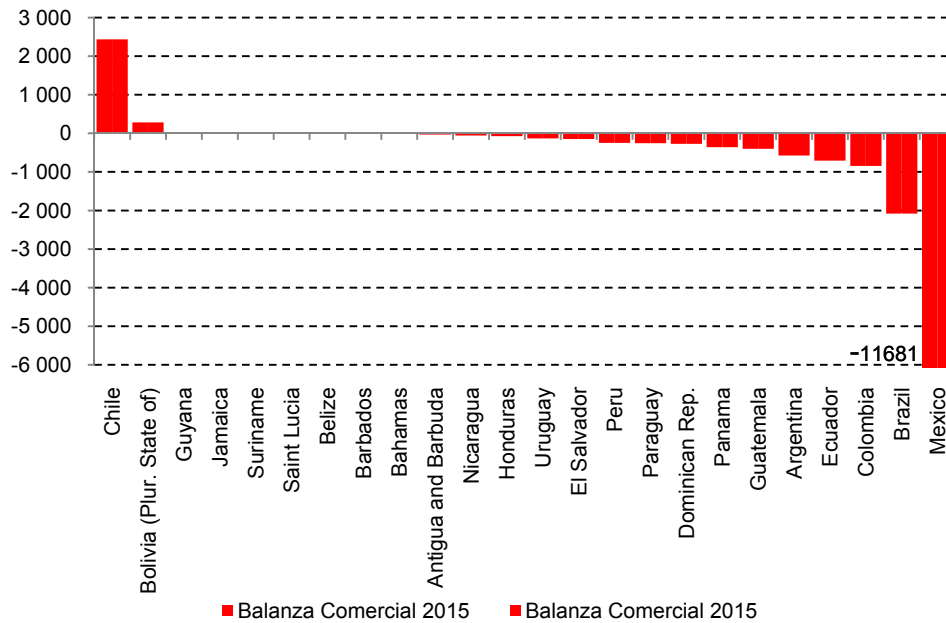
Bilateral trade in goods between CELAC and Korea grew rapidly during the past decade, increasing from US\$ 10 billion in 2000 to US\$ 49 billion in 2011. However, since then the value of exports and imports between CELAC and Korea stagnated, leading to a fall in 2015. The drop in the value of exports from CELAC is due in part to the decline in prices of commodities, which dominate the region's export basket to Korea. CELAC has maintained a constant trade deficit with Korea (see Figure 1). In fact, except for Chile and Bolivia (Plurinational State of), all CELAC countries show trade deficits with Korea (see Figure 2).

**Figure 1**  
**CELAC: trade in goods with Korea, 2000-2015**  
*(Millions of dollars)*



Source: Economic Commission for Latin America and the Caribbean (ECLAC) based on data from the Korean International Trade Association.

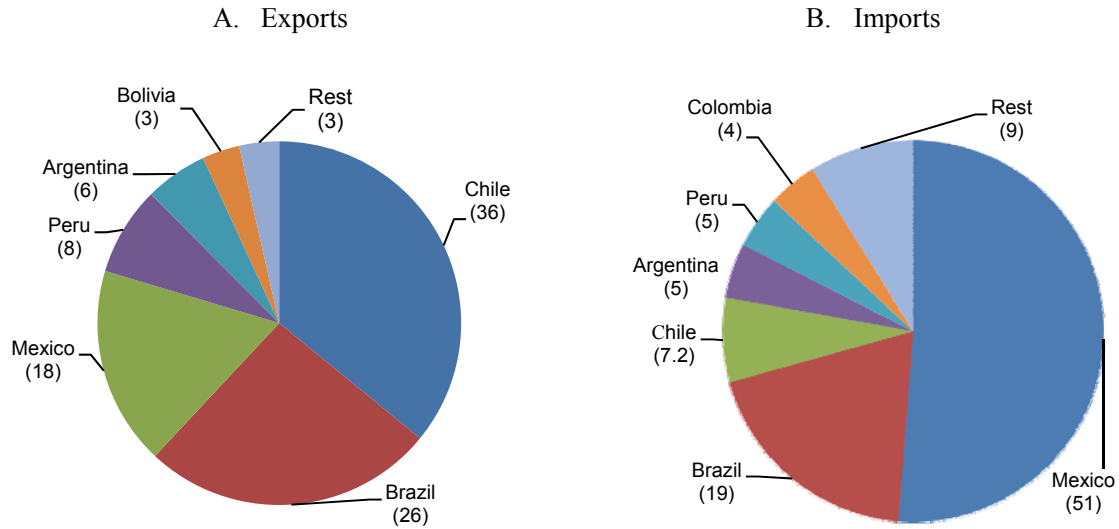
**Figure 2**  
**CELAC member countries: trade balance with Korea, 2015**  
*(Millions of dollars)*



Source: Economic Commission for Latin America and the Caribbean (ECLAC) based on data from the Korean International Trade Association.

Korea has increased its participation in total CELAC trade by 0.8 percentage points from 1.5% in 2000 to 2.3% in 2014. During this period, the Korean share of CELAC imports rose from 1.8% to 3.1%, which was larger than CELAC exports (from 1.1% to 1.5%). CELAC's share of Korean exports remained almost the same (5.7% in 2000 and 5.6% in 2014), while its share of imports rose slightly from 2.9% in 2000 to 3.4% in 2014. The majority of regional trade with Korea is concentrated between Chile, Brazil and Mexico, which combined accounted for 80% of regional exports and 78% of regional imports in 2015 (see Figure 3).

**Figure 3**  
**CELAC: composition of trade with Korea by countries of origin and destination, 2015**  
*(Percentages)*



Source: Economic Commission for Latin America and the Caribbean (ECLAC) based on data from the Korean International Trade Association.

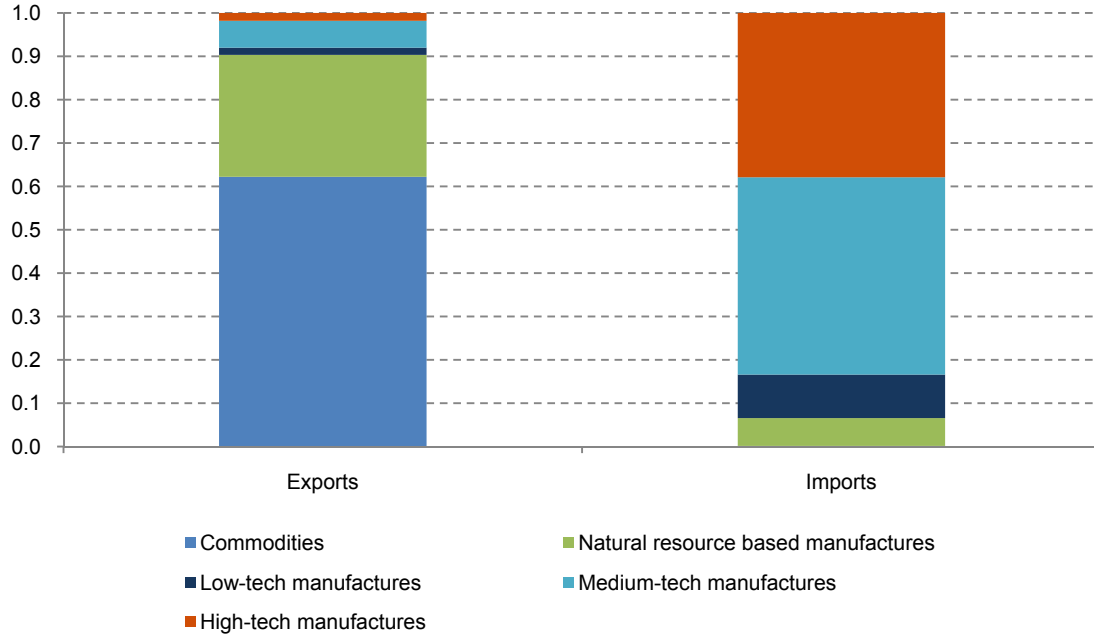
The majority of trade between CELAC and Korea is inter-industry. Almost 60% of CELAC exports to Korea correspond to ten key products including some agricultural items, minerals, metals and oil. In contrast, Korea's key exports to the CELAC region include automobiles, automobile parts, telecommunications equipment, integrated circuits and other manufactured goods.

The trade imbalance between CELAC and Korea can clearly be seen through the composition of imports and exports. Natural resource products (both primary and processed) account for 90% of CELAC exports to Korea, whereas 83% of its imports from Korea correspond to medium- and high-technology products (see figure 4A). Since 2000, the region has consistently recorded a surplus with Korea in primary and natural resource-based manufactures, while the opposite is true in the case of low, medium and high technology products (see Figure 4B).

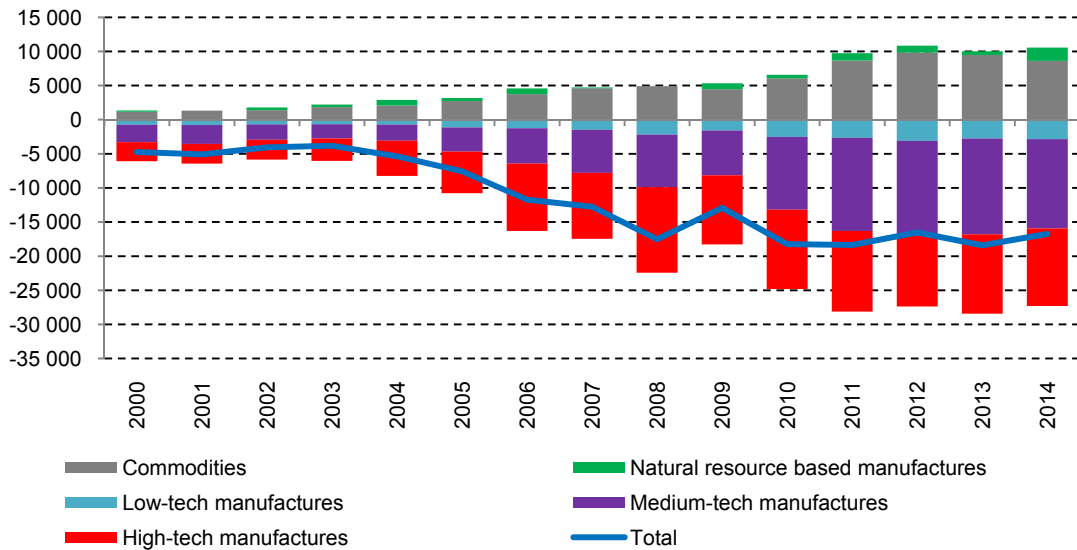
Three countries in the region (Chile, Colombia and Peru) have signed free trade agreements with Korea. Two of these agreements (those signed by Chile and Peru) came into effect in 2004 and 2011, respectively. Since June 2015, six Central American countries (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama) are jointly negotiating a similar agreement with Korea. Ecuador also launched negotiations recently with Korea towards a Strategic Economic Cooperation Agreement.

**Figure 4**  
**CELAC: trade with Korea according to technological content, 2000-2014**  
*(Percentages)*

A. Composition of exports and imports, 2014



B. Trade balance by category, 2000-2014  
*(Millions of dollars)*

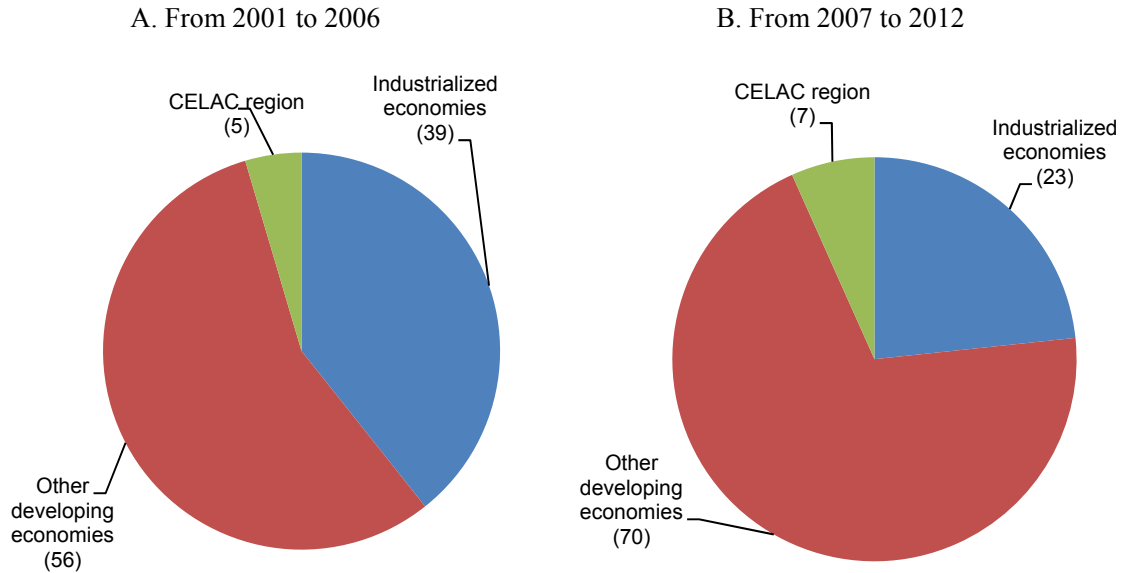


Source: Economic Commission for Latin America and the Caribbean (ECLAC), based on COMTRADE data.

## B. Foreign direct investment

The CELAC region represents a small but growing part of Korea's FDI outflows. The region's share of Korean FDI has grown from an average of 5% between 2001 and 2006 to an average of 7% between 2007 and 2012. Similarly, other developing economies increased their share in these flows from 56% to 70% over the same periods (see figure 5).

**Figure 5**  
**Korea: geographic composition of foreign direct investment outflows,**  
**2001-2006 and 2007-2012<sup>a</sup>**  
*(Percentages)*



Source: Economic Commission for Latin America and the Caribbean (ECLAC) according to UNCTAD, *Bilateral FDI Statistics 2014*.

<sup>a</sup> Flows to the CELAC region exclude the Cayman Islands, the Virgin Islands and the British Virgin Islands.

Both Brazil and Mexico jointly received two-thirds of all Korean FDI to the region between 2007 and 2012. Both countries have large consumer markets with a significant middle class. Moreover, Mexico, as a member of the North American Free Trade Agreement, offers opportunities to enter North American value chains and markets. Thus Mexico has increased its participation in Korean flows to the region, from less than 5% in 2003 to 26% in 2012. In addition, Korean FDI flows were directed towards small and medium countries like Panama, Peru, Chile and Colombia (see table 1).

The majority of Korean FDI goes to the manufacturing industry. Greenfield investment data taken from 2003 to 2014 shows that 83% of the total amount was invested in the manufacturing sector (Interamerican Development Bank, 2015). A census of FDI stock by country of origin in Brazil in late 2012 also confirms that three quarters of Korea's FDI was invested in industry. Targeted sectors include metals, electronics and more recently the automotive sector. In Central America, Korea invests in the textile and clothing sector.

FDI from CELAC (excluding financial centers in the Caribbean) to Korea is still emerging. Between 2001 and 2006, these flows reached 38 million dollars. However, between 2007 and 2012 they accounted for just 26 million dollars (UNCTAD, *Bilateral FDI Statistics, 2014*). The top three investing countries were Uruguay, Belize and Panama.

**Table 1**  
**Korea: foreign direct investment in CELAC, 2001-2012<sup>a</sup>**  
*(Million dollars)*

	2001-2006	2007-2012
Brazil	332	3 497
Mexico	184	1 137
Panama	375	779
Peru	387	433
Barbados	1	301
Chile	21	212
Colombia	5	195
Other countries	150	224
<b>TOTAL</b>	<b>1 454</b>	<b>6 781</b>

Source: Economic Commission for Latin America and the Caribbean (ECLAC) according to UNCTAD, Bilateral FDI Statistics 2014.

<sup>a</sup> Flows to the CELAC region exclude the Cayman Islands, the Virgin Islands and the British Virgin Islands.

### C. Regional and international cooperation

Official development assistance (ODA) from Korea increased sharply in the past decade, reaching US\$ 1.31 billion in 2013. In that year, 60% of Korean ODA went to Asia, whereas CELAC's share was just 7%. Recently, Korea has stepped up its cooperation with Africa (ECLAC, 2015c). Korea recognizes that the CELAC region, despite being a middle-income region, still faces many economic, environmental and social challenges. In this context, Korean cooperation is aimed at mitigating social inequality, strengthening the administrative capacity and transparency of governments and promoting sustainable development in the region. Korea also supports the development of economic infrastructure through soft loans.

Three visions underpin Korea's cooperation with the CELAC region: 1) creating a high value-added industry that goes beyond the current, inter-industry (commodities for manufactures) trade; 2) creating a common market that allows the free movement of people, goods and capital between Korea and the CELAC region; and 3) sharing knowledge and experience, that is, building a foundation for mutual prosperity through Korea's sharing of its development experience with CELAC members.<sup>1</sup> At the Korea-Latin America High Level Forum in November 2015, Korea's Minister of Foreign Affairs, Mr. Yun Byung-se, announced three action plans to implement the three visions (see table 2).

Korean cooperation is principally implemented by two of Korea's ministries. The Ministry of Foreign Affairs executes Korea's grant policies through the Korea International Cooperation Agency (KOICA). Meanwhile, the Ministry of Strategy and Finance handles soft loans in the Economic Development Cooperation Fund (EDCF) through the Export-Import Bank of Korea (EximBank). Other ministries, agencies and municipalities are also involved in cooperation although on a smaller scale. Compared with KOICA, EDCF provides more cooperation on a concentrated number of countries within the CELAC region. KOICA issued grants to over 30 CELAC countries between 2007 and 2013 for a total amount of US 288.4 million, representing 11.7% of total ODA processed through KOICA during that period. Meanwhile, EDCF made loans to just six countries in the region, in total amounting to US 402.1 million (ECLAC, 2015c).

<sup>1</sup> Byung Jun Kim, Director for Cooperation with Latin America and the Caribbean at Korea's Ministry of Foreign Affairs, presentation at ECLAC's academic seminar on 11 April 2016 [online] [http://conferencias.ECLAC.org/seminario\\_corea2016/Camtasia%20editado/Byung%20Jun%20Kim/Byung%20Jun%20Kim.html](http://conferencias.ECLAC.org/seminario_corea2016/Camtasia%20editado/Byung%20Jun%20Kim/Byung%20Jun%20Kim.html)ECLAC.

**Table 2**  
**Korea's action plan to implement three visions for cooperation**  
**with the CELAC region**

Implementing economic cooperation in high added-value industries	Building infrastructure to enhance connectivity	Enhancing partnership on development cooperation
<ul style="list-style-type: none"> <li>• ICT</li> <li>• Healthcare</li> <li>• Bio-engineering</li> </ul>	<ul style="list-style-type: none"> <li>• Physical infrastructure</li> <li>• Institutional infrastructure (for example, free trade agreements, e-commerce, e-government)</li> </ul>	<ul style="list-style-type: none"> <li>• ODA/EDCF</li> <li>• KSP</li> <li>• SaemaulUndong</li> </ul>

Source: Byung Jun Kim, Director for Cooperation with Latin America and the Caribbean at Korea's Ministry of Foreign Affairs, presentation at ECLAC's academic seminar on 11 April 2016 [online] [http://conferencias.ECLAC.org/seminario\\_corea2016/Camtasia%20editado/Byung%20Jun%20Kim/Byung%20Jun%20Kim.html](http://conferencias.ECLAC.org/seminario_corea2016/Camtasia%20editado/Byung%20Jun%20Kim/Byung%20Jun%20Kim.html).

Korea also promotes knowledge-sharing to encourage development in other emerging countries. The Ministry of Strategy and Finance implemented the Knowledge Sharing Program (KSP) in 2004, an initiative that offers detailed analysis of the Korean experience, national policy consultation and training opportunities. KSP has various member institutions. The Korea Development Institute (KDI) is in charge of bilateral policy consultations, while the EximBank handles consultations with international organizations and the KDI School arranges training based on the Korean experience. Several countries in the region have benefited from KSPs, including Brazil, Colombia, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Haiti, Honduras, Jamaica, Mexico, Panama, Peru, the Plurinational State of Bolivia, Trinidad and Tobago and Uruguay (ECLAC, 2015c).

In 2014, Korea's total ODA to the CELAC region reached 109 million dollars, with KOICA providing 55% of that amount and EDCF a third (see table 3).

**Table 3**  
**Korea's economic cooperation with the CELAC region, 2014 to 2016**

Program/institution	Amount/number of projects and/or countries
<b>ODA (KOICA)</b>	US 60 million (2014) (10.9% of KOICA's total bilateral ODA)
<b>DEEP<sup>a</sup></b>	US 5.6 million (2016) 12 projects in 4 countries
<b>KSP</b>	24 Policy Consultation Programs in 9 countries (2015) 6 Joint Consulting Programs in 4 countries
<b>EDCF</b>	US 37.3 million (2014) (6.6% of total EDCF loans)

Source: Byung Jun Kim, Director for Cooperation with Latin America and the Caribbean at Korea's Ministry of Foreign Affairs, presentation at ECLAC's academic seminar on 11 April 2016 [online] [http://conferencias.ECLAC.org/seminario\\_corea2016/Camtasia%20editado/Byung%20Jun%20Kim/Byung%20Jun%20Kim.html](http://conferencias.ECLAC.org/seminario_corea2016/Camtasia%20editado/Byung%20Jun%20Kim/Byung%20Jun%20Kim.html).

<sup>a</sup> Development Experience Exchange Partnership program.





## II. Innovation and skills strategies

Over the past decade, the CELAC region has made modest progress in improving its innovation and skills capacities. Several countries in the region have created and improved institutions, methodologies and instruments to step up innovation efforts. Moreover, they increased their penetration rates of information and communication technologies, and improved their coverage of tertiary education. However, as developing countries in Asia and other parts of the world are pursuing more aggressive innovation and skills policies, the CELAC region risks falling behind. This section reviews the progress made and key challenges that CELAC countries face, what policies are being implemented to overcome these challenges, while taking a look at how Korea could assist the region with some good practices.

### A. National Innovation System governance structures

The design and implementation of innovation and skills policies can be analyzed using the framework of an Innovation Ecosystem or National Innovation System (NIS). For the purpose of this report a NIS framework is adopted as it offers a holistic approach that is based on the idea that innovation occurs through intrinsic interactions between public policy institutions, businesses, universities and research centers (Padilla, 2013).

The design of NIS in the region takes different forms. For example Argentina, Brazil, Costa Rica, the Dominican Republic, Ecuador and Uruguay all have dedicated science, technology and innovation Ministries that oversee the management of their NIS. In 2016, several governments are creating or considering creating dedicated Science, Technology and Innovation Ministries, including Bolivia (Plurinational State of), Chile, Colombia and Peru. Moreover, Chile, Colombia, Mexico and Peru have created national councils. In Chile, the National Innovation Council for Competitiveness (CNIC) provides guidance to the Office of the President of the Republic who leads the NIS. The Mexican National Council on Science and Technology (CONACYT) is the strategic body for innovation policy and an advisory body to the Mexican government. CONACYT oversees the implementation of the NIS and promotes technical modernization and STI research throughout the country. In Colombia, Colciencias (Colombia's Administrative Department of Science, Technology and Innovation) is a department of science, technology and innovation that is responsible for the design, coordination, promotion and implementation of STI policies. (UNESCO, 2010; UNESCO,

2015; OECD, 2011; OECD, 2012; OECD, 2013; <http://www.colciencias.gov.co>). Table 4 below shows the main Institutions governing National Innovation Systems of selected CELAC countries.

In many countries in the region, the NIS suffers from incohesive management and insufficient coordination. Few countries have adopted policy evaluation mechanisms that ensure policies are implemented and working as designed. Moreover, lack of capacity to evaluate and monitor implemented programs fails to provide essential feedback to policy designers and limits action for improvements. Policy design and coordination issues can lead to project duplication between ministerial departments. Few countries have developed institutions to monitor private sector developments with the ability to forecast future skills requirements, which is essential for coordination between the public and private sector (Fundación Telefónica, 2011; OECD, 2012; Padilla, 2013).

**Table 4**  
**Selected CELAC countries: Institutions governing National Innovation Systems, 2015**

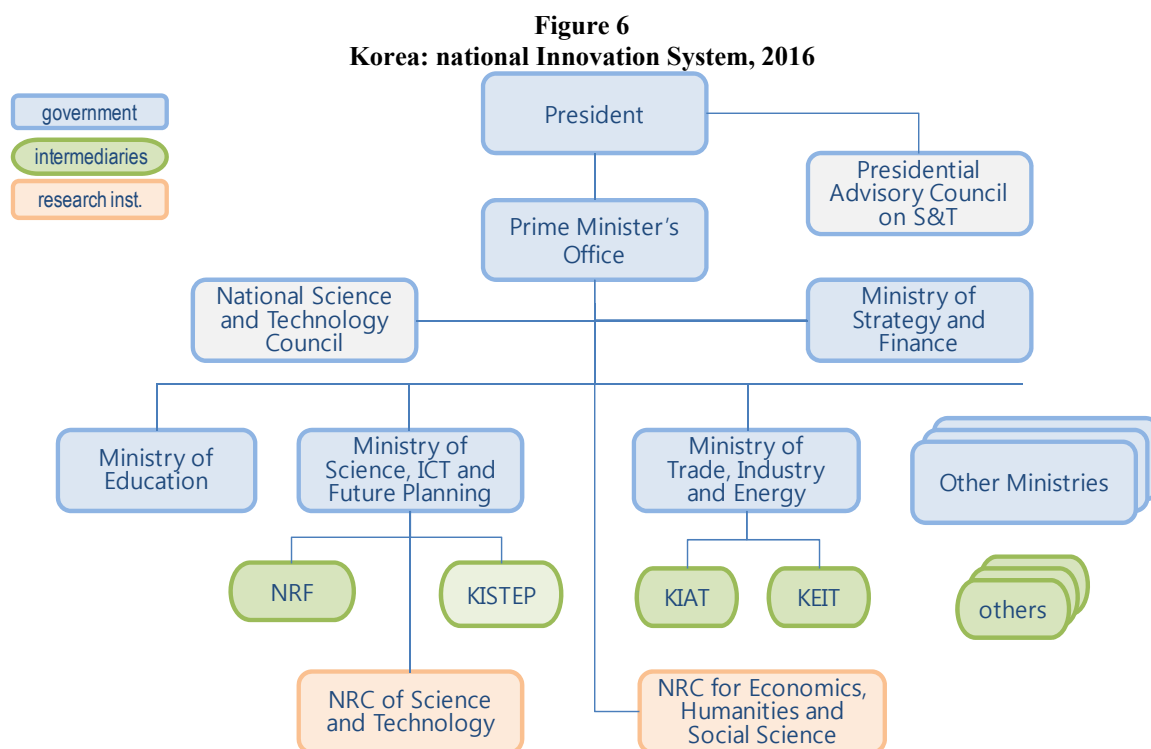
Country	Different institutions participating in NIS			
Argentina	Ministry of Science, Technology and Productive Innovations (MINTYT)	Science & Technology Burea (GACTEC)	Inter-institutional Council on Science and Technology	Federal Council on Science and Technology
Brazil	Ministry of Science and Technology (MCT)	National Council of State Secretaries for Science, Technology and Innovation Affairs	National Council of State offices for Science, Technology and Innovation	National Council on Science and Technology (CCT)
Bolivia	Vice-Ministry of Science & Technology (VCyT)	Ministry of Education	Inter-Ministerial Committee for Science, Technology and Innovation	
Chile	Inter-Ministerial Committee for Innovation	President of the Republic	National Innovation Council for Competitiveness (CNIC)	
Colombia	Department of Science, Technology and Innovation. (Colciencias)	Ministry of Commerce, Industry and Tourism of Colombia		
Costa Rica	Ministry of Science, Technology and Telecommunications (MICITT)	National Scientific and Technological Research Council (CONICIT)		
Dominican Republic	Ministry of Higher Education, Science and Technology (MESCYT)			
Ecuador	Ministry of Higher Education, Science, Technology and innovation (SENESCYT)	The Ministry Coordinator of Knowledge and Human Talent (MCCTH)		
Mexico	General Council for Scientific Research and Technological Development	National Science and Technology Council (CONACYT)	Scientific and Technological Consultative Forum (FCCyT)	
Peru	National Science, Technology and Technological Innovation Council (CONCYTEC)	Office of the President of the Council of Ministers (PCM)		
Uruguay	Ministerial Cabinet for Innovation (GMI)	Innovation, Science and Technology for Development Office (DICYT)		

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Lemarchard, G.A. (2010), "National Science, Technology & Innovation systems in Latin America and the Caribbean", Science Policy Studies and Documents in LAC, No. 1, UNESCO, Montevideo.

Note: This table has been updated according to information drawn from government websites.

Korea has a highly developed NIS that is built on a multi-layered model composed of the government, intermediary organizations, and government-funded research institutes (Figure 6). The President and the Presidential Advisory Council on S&T (PACST) preside over the NIS. PACST is responsible for presenting S&T policies to the President and is composed of around 30 members from different specialties. Due to the increasing number of stakeholders involved in governing R&D programs, the NIS has gradually become more complicated. The Framework Act (and its predecessor the Special Act) mandated the S&T Basic Plan as the backbone of Korea's S&T policy-making and authorized the National Science and Technology Council (NSTC) as the main body in charge of designing, overseeing and implementing the Basic Plan. The NSTC is chaired by the Prime Minister and composed by 14 government members (13 ministers and the Administrator of SMBA) and 9 civilian members.

At the middle of the administrative structure lie a number of intermediary organizations that provides a link between the government and practicing institutions including government-funded research institutes, universities and business enterprises. Except KISTEP (Korea Institute of Science and Technology Evaluation and Planning), all of these organizations play a mediating role in the government's R&D spending.



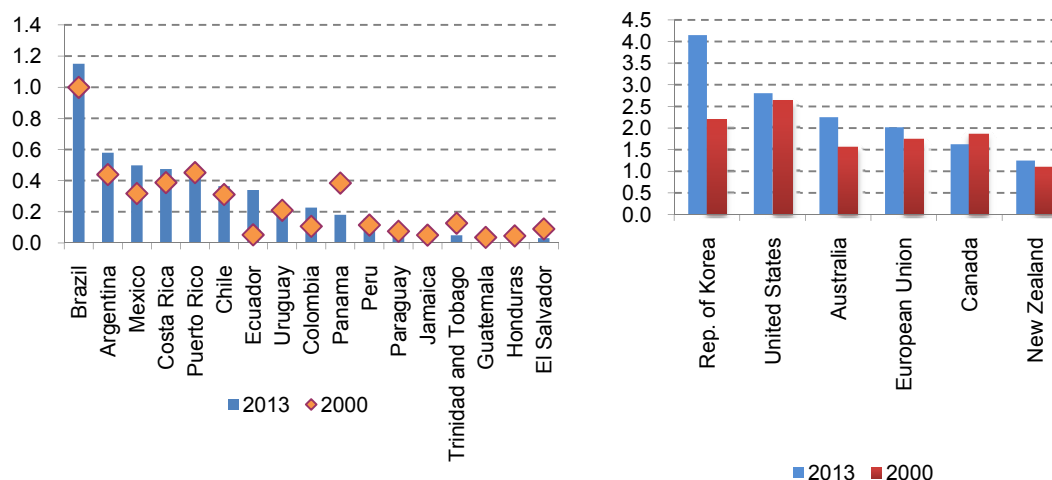
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of a background report by Suh, J.H., 2016, "Korean policies related to science, technology, innovation and skills development and possible lessons for Community of Latin American and Caribbean", ECLAC, Santiago, forthcoming.

## B. Funding mechanisms

Investment in R&D in the region continues to be low compared to developed countries. Brazil was the only country in the region with a level of spending above 1% in 2013 (see figure 7) (OECD, 2013). In addition to Brazil, only Argentina, Mexico and Costa Rica had expenditure levels above 0.4% of GDP. In all countries, the expenditure increased as a share of GDP between 2000 and 2013, with the exception of Panama, Trinidad and Tobago and El Salvador. One additional drawback is that most of this spending comes from the public sector, whereas R&D investment by the private sector in the

majority of countries accounts for only one-third or less. The majority of public spending primarily focuses on basic instead of applied research.

**Figure 7**  
**Selected CELAC and other countries: R&D expenditure, 2000 and 2013**  
*(As percentage of GDP)*



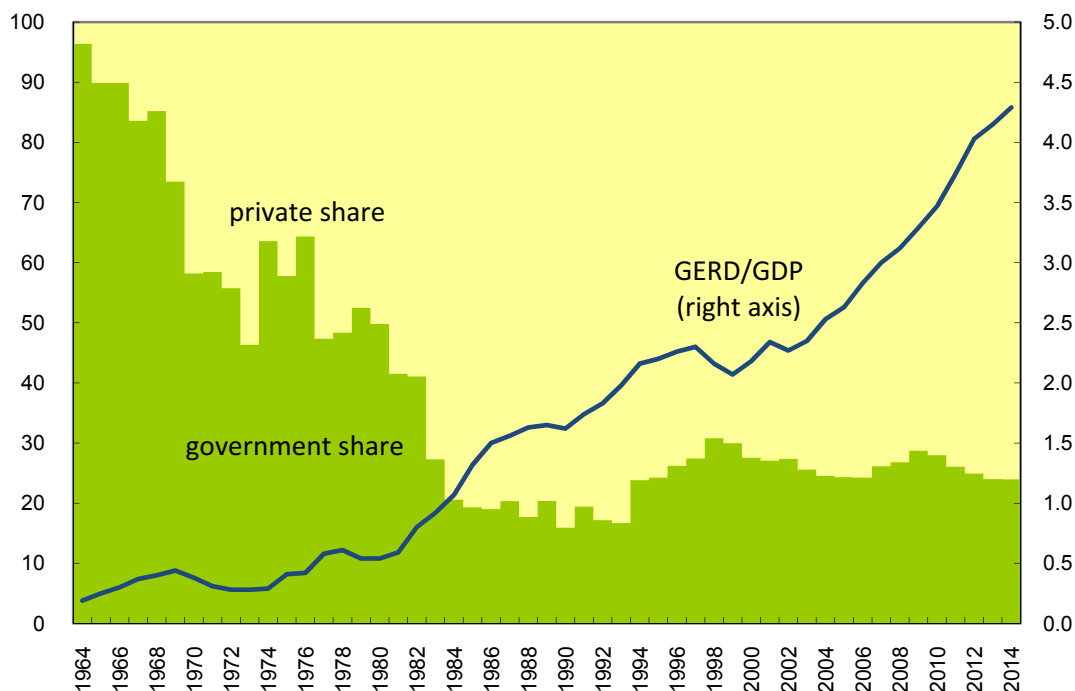
Source: Economic Commission for Latin America and the Caribbean (ECLAC) based on World Bank, World Development Indicators.

In addition to general tax revenues, some governments have explored new sources of income to promote innovation. For example Chile, Colombia and Peru have sought to generate funds through royalties from natural resource extraction (UNESCO, 2015). Argentina, Brazil, Mexico and Uruguay have remodelled their funding policies based on the sectoral model, which allows rents to be gained from specific sectors (UNESCO, 2015). The sectoral model seeks to generate bigger impacts in shorter timeframes, and requires greater dialogue with public and private stakeholders to identify priority areas and develop tailor-made solutions. Sectoral policies provide support for sectors that have high export potential, are susceptible to external competition or show signs of strong growth (Szirmai et al., 2013).

While few countries in Latin America provide fiscal incentives for private sector R&D (Brazil, Chile, Colombia and Uruguay), most have innovation funds that distribute resources to private funds for innovation projects on a competitive basis (Navarro et al., 2016). For example, in Argentina FONTAR (Fondo Tecnológico Argentino) has been supporting firm innovation through non-reimbursable funding, reimbursable funding, credits for innovation, tax credits and matching grants (Crespi et al, 2014). In Colombia, COLCIENCIAS provides funding for firm innovation. The fiscal return of these funds is mostly positive, because the expanded tax revenues by innovative firms are higher than the cost of the funds promoting innovation.

Korea's expenditure on research and development grew from 0.3% of GDP in 1963 to 4.3% in 2014. The rapid increase in total R&D expenditure has been possible due in part to an active expansion of private sector investment. During the earlier years of industrialization, private sector's R&D spending was negligible. However, rapid economic growth led to proportionate investment in technological development, which resulted in the private sector continuously increasing their R&D investment over the next five decades. Consequently, the governments' share of national R&D expenditure has continuously decreased in recent years to only about one-fourth of GERD (Figure 8).

**Figure 8**  
**Korea: expenditure on research and development in Korea, 1964–2014**  
*(Percentages)*



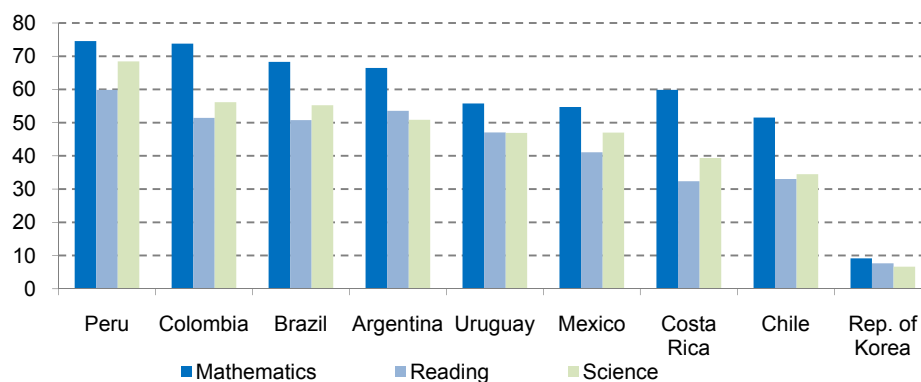
Source: Economic Commission for Latin America and the Caribbean (ECLAC) based on Suh (2016), "Korean policies related to science, technology, innovation and skills development and possible lessons for Community of Latin American and Caribbean", ECLAC, Santiago, forthcoming.

### C. Skills development

A very positive trend in most CELAC countries between 2000 and 2012 is the increasing expenditure on education as a percentage of GDP. Nevertheless, the region continues to face a challenge to produce high quality skilled workers. The shortfall of skilled workers in Latin America is around 36%, compared to the global average of 21% making it one of the biggest mismatches between public and private sectors in the world. This mismatch contributes to the detriment of firms in the region that suffer operational issues due to a shortage of skilled workers. The root cause of the problem is the lack of provision of quality education that disadvantages the regions youth (ECLAC, 2015a).

This lower quality of education can be illustrated with 2012 data of the OECD's Program for International Student Assessment (PISA) for selected CELAC countries and Korea. On the basis of exams taken by 15 year olds in the areas of mathematics, reading and science, Figure 9 shows the share of low performers (OECD, 2016). More than 50% of all students in the selected CELAC countries had low scores in mathematics and more than 40% in science (except Chile and Costa Rica). In contrast, the total share of 15-year old students that were low performers in Korea amounted only to 23%, with science showing the lowest rate at 6.6%.

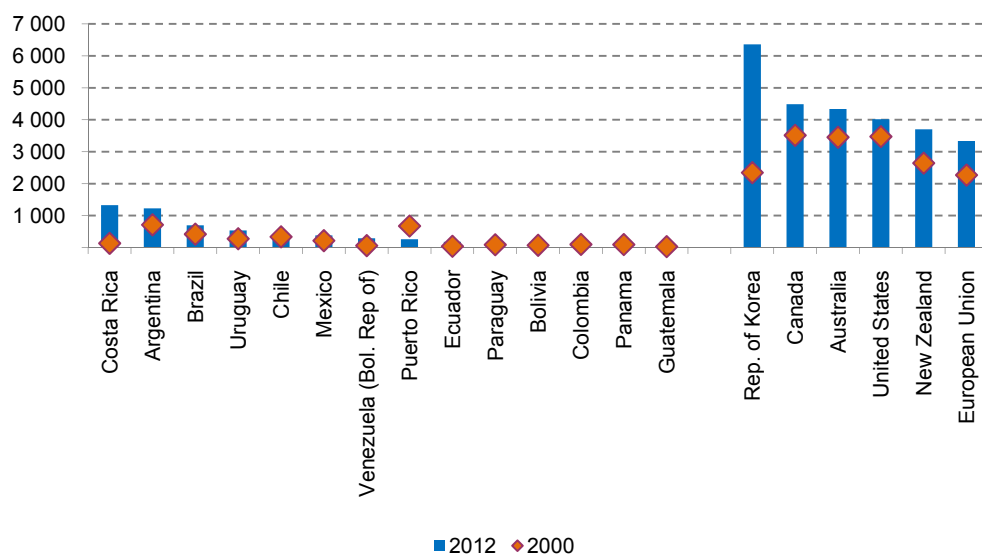
**Figure 9**  
**Selected CELAC countries and Korea: low performers in mathematics, reading and science, 2012**  
*(Percentage of total 15-year old students)*



Source: Economic Commission for Latin America and the Caribbean (ECLAC) based on the OECD PISA 2012 Database.  
 Note: Based on available country data. PISA measures the level of 15 year olds education performance in three key areas Science, Reading and Mathematics.

In addition to the low levels of primary and secondary school education, the region also generates relatively few researchers. Moreover, the most popular fields of graduate studies are social sciences followed by medicine instead of science and technology studies, in contrast to Korea and developed countries (see Figure 10).

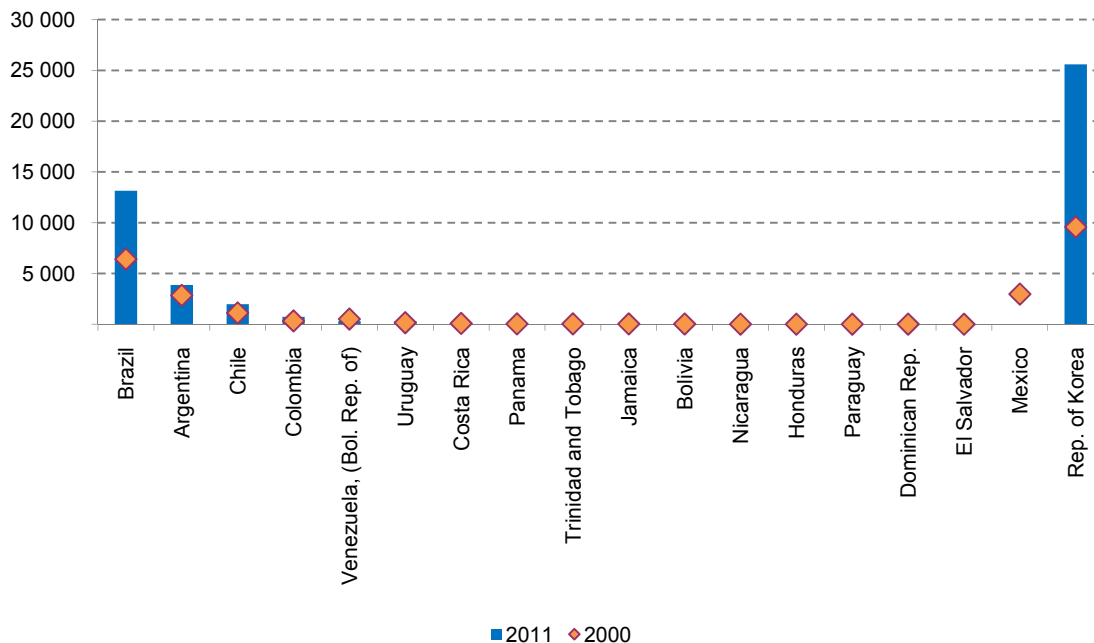
**Figure 10**  
**Selected CELAC and other countries: researchers in R&D, 2000 and 2012**  
*(Per million people)*



Source: Economic Commission for Latin America and the Caribbean (ECLAC) based on World Development Indicators.

The low number of science and technology researchers partly explains the small amount of publications being produced in the CELAC region in this field. Moreover, this number fell between 2000 and 2011, with the exception of Brazil (see figure 11).

**Figure 11**  
**Selected CELAC and Korea: number of scientific and technical journal articles, 2000 and 2011**



Source: Economic Commission for Latin America and the Caribbean (ECLAC) based on World Bank, World Development Indicators.

Note: No data available for 2011 for Mexico.

There is a combination of factors other than those mentioned that attribute to the poor performance in STI education in CELAC countries. Including a mismatch between public sector research and the needs of the private sector and a focus on basic instead of applied research. Most companies within the region also contribute to this situation by adopting existing technology rather than recognizing the importance of conducting their own research and development. Therefore, research centers and universities generate graduates with skills and ideas that are not being absorbed by the private sector, leading to brain drain within the region (Navarro et al., 2016).

Several governments in the CELAC region have increased efforts to prevent brain drain by seeking to attract innovators and highly skilled human capital from key innovative industries. In addition to traditional policy instruments, such as scholarships and the strengthening of technical secondary education, other instruments are being introduced such as encouraging and accommodating returning doctorates from abroad and adopting brain circulation initiatives that attract scientific diaspora. Well-funded initiatives to attract scientific diaspora have been developed in Argentina, Brazil, Colombia, Ecuador, Mexico and Uruguay (Navarro et al., 2016).

In Argentina, the RAICES Program (Network of Argentine researchers and scientists abroad) was created in the mid-2000s to incentivise those scientists that had emigrated abroad due to a lack of opportunities at home to return. Brazil launched a project called 'Science without borders' which seeks to attract science and technology researchers and scientific leaders from abroad and increase the mobility of undergraduate and graduate researchers. The programme was launched in 2011 and is primarily funded by the Brazilian Government as a way to increase the country's competitiveness in science, technology and innovation. The programme offers 101,000 scholarships to study at the world's best universities for high achieving Brazilian students. Chile created 'Start-up Chile' with the aim of attracting worldwide entrepreneurs to start businesses in Chile and enable knowledge dissemination to local entrepreneurs. Other efforts include subsidizing the recruitment of scientists and engineers with advanced degrees as a way to insert researchers into industry. In 2003, Mexico created



the Networks of Talents for Innovation, which developed networks in large North American cities to attract Mexican diaspora to return for business opportunities in innovation in Mexico (Navarro et al., 2016; Horta, 2013; Fernandez Roich, 2013; Arvanitis and Gaillard, 2014).

The majority of countries in the CELAC region have incorporated science, technology and innovation into their national education strategies. Argentina created the National Education Strategic Plan 2012 – 2016, which aims to promote technical education (Federal Education Council, 2012). The Bolivian strategy (2004 – 2015) includes a Programme for Strengthening Technical and Technological Training (FFTT) (Bolivian Ministry of Education, 2003). Costa Rica, as part of its National Development plan 2015 – 2018, seeks to develop skills in the use of ICT in order to innovate teaching and learning processes (Government of Costa Rica, 2014). One of the six objectives of Mexico's National Development plan 2013 – 2018 is to promote science and technology education in order to help transform Mexico into a knowledge society (Government of Mexico, 2013). The objectives of the Dominican Republic's 10-year plan (2008 – 2018) include increasing the level of mathematics while consolidating all dimensions of science and information and communication technology (ICT) at all levels of the education process (Dominican Education Ministry, 2007).

There are several other initiatives in the region. In Argentina, the Worldwide Forum on Engineering Education in Buenos Aires was launched in 2012, followed by the Strategic Plan for Engineering. The initiatives aimed to produce one engineer per 4,000 inhabitants by 2016 and add 2,000 additional engineering scholarships to the existing 12,000 (Fernandez Roich, 2013). In order to promote the importance of engineering in Brazil, a 'Problem Based Learning' (PBL) methodology approach has been adopted in engineering and computer science disciplines. PBL stimulates critical thinking in students and encourages interaction and teamwork (Horta, 2013). Chile in 2009 formed the Associative Research Programme (PIA) to strengthen the country's scientific base so that research findings can benefit other sectors. It also supports a programme for the attraction and insertion of advanced human capital, which inserts researchers into academia and productive sectors as well as attracting foreign scientists and supporting companies to generate R&D. The aim is to strengthen the scientific and technological capacity of academic institutions and research centres as well as explore areas for international collaboration (CONICYT, 2011). As part of Mexico's Special Programme for Science, Technology and Innovation (2014 – 18), funding for Science and Technology was increased in 2014 by 20%. Government initiatives also include increasing the number of research positions and international scholarships that aim to create linkages to the international scientific community. Mexico is also strengthening intellectual property regulation and its Knowledge Transfer Offices in order to promote and commercialise public research (OECD, 2015a).

In Uruguay, researchers are encouraged to find employment as a way to improve skills and create a bridge between the public and private sectors. Moreover, professors are permitted to work in the business sector through reduced workloads at their university or sabbaticals (Thorn and Soo, 2006). In 2007, a program called Basic Computer Educational Connectivity for Online Learning (CEIBAL) was developed to provide access to information and modern learning tools for the countries children, by providing one laptop per child. Over 750,000 students and teachers have benefitted from this arrangement. The project has now been expanded to include 'Ceibal en Ingles', which aims to improve English learning in schools. The project is partnered with the British council, and allows English lessons to be conducted in classrooms via videoconference. In 2015, 76,000 students benefitted from weekly English lessons<sup>2</sup> (Laboratorio Tecnológico del Uruguay, 2007).

In some countries in the region, research centres have been developed or revamped with increased funding to adapt human capital for the needs of industry. Two examples are the National

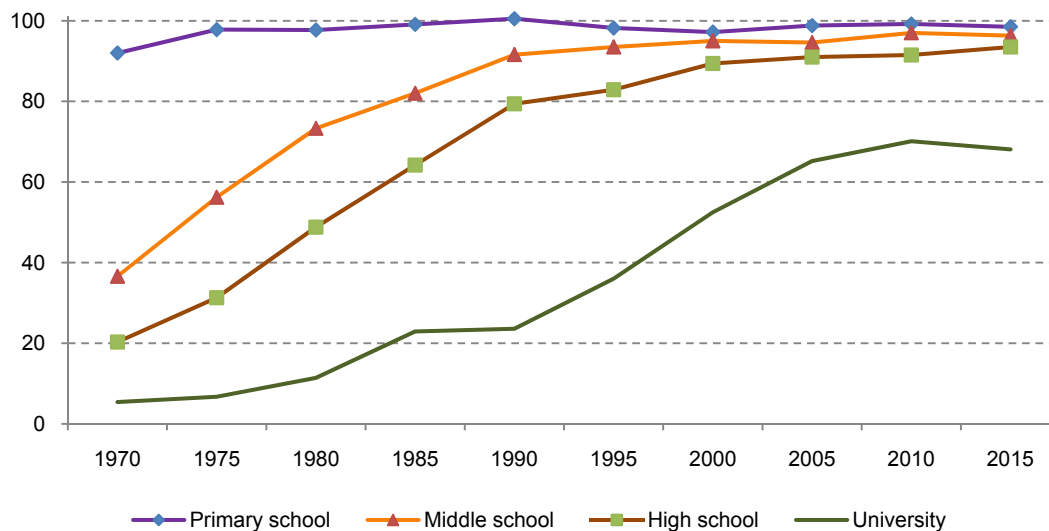
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<sup>2</sup> [http://www.unesco.org/new/en/education/resources/online-materials/single-view/news/technology\\_serving\\_social\\_justice\\_and\\_education\\_in\\_uruguay/#.VyINvKMrKrt](http://www.unesco.org/new/en/education/resources/online-materials/single-view/news/technology_serving_social_justice_and_education_in_uruguay/#.VyINvKMrKrt).

Agricultural Technology Institute (INTA) in Argentina and National Education Center and English and Systems (CENIS) in Colombia (Navarro et al., 2016).

In Korea, the improvement of education and training systems have played a key role in their economic development model over the past five decades. These systems have been continuously adapted to the changing manpower needs of the manufacturing sector during the various phases of the country's development. The focus of the government educational plan has moved from primary to secondary, and finally to tertiary level according to the nation's economic advancement. Korea ensured universal education in primary schools as early as the 1950s, creating a platform for industrialization. In 1970, enrolment rates in secondary schools were below 40 %, since then there has been a sharp rise reaching over 90% in 2004. Higher education has been the last in the upward trend, but enrolment rates in higher education surpassed 60% in 2004 – the highest level among OECD countries. Figure 12 provides a visualization of Korea's progress since 1970.

**Figure 12**  
**Educational Expansion in Korea: enrolment rates as percentage of age population**  
(In percentage)



Source: Economic Commission for Latin America and the Caribbean (ECLAC) based on Ministry of Education, Statistical Yearbook, each year.

Korea's expenditure on education was 6.7% of its GDP in 2012, which was above the OECD average of 5.3% (OECD, Education as a Glance, 2015). Korea scored highly in various international academic attainment contests. Out of a total of 65 countries, Korea ranked fifth in reading competence, sixth in mathematics and seventh in science according to OECD's PISA 2012 survey. Another distinction of Korea's educational achievements is a low dispersion of students' scores compared to other countries, a desirable aspect of education from a social equity perspective.

From 1999 to 2006, Korea implemented a national human resources development project aimed at providing high-quality human resources for future demand, called Brain Korea 21 (BK21). This project aimed to meet the needs of the private sector for creative and high-quality R&D manpower. It helped to improve the research capability of universities. The universities involved in BK21 changed their administrative systems and improved student selection methods to move toward research-oriented institutions. For example, they enhanced research capability by introducing pay-for-performance based on professors' research achievements, thus creating a favourable environment for research.

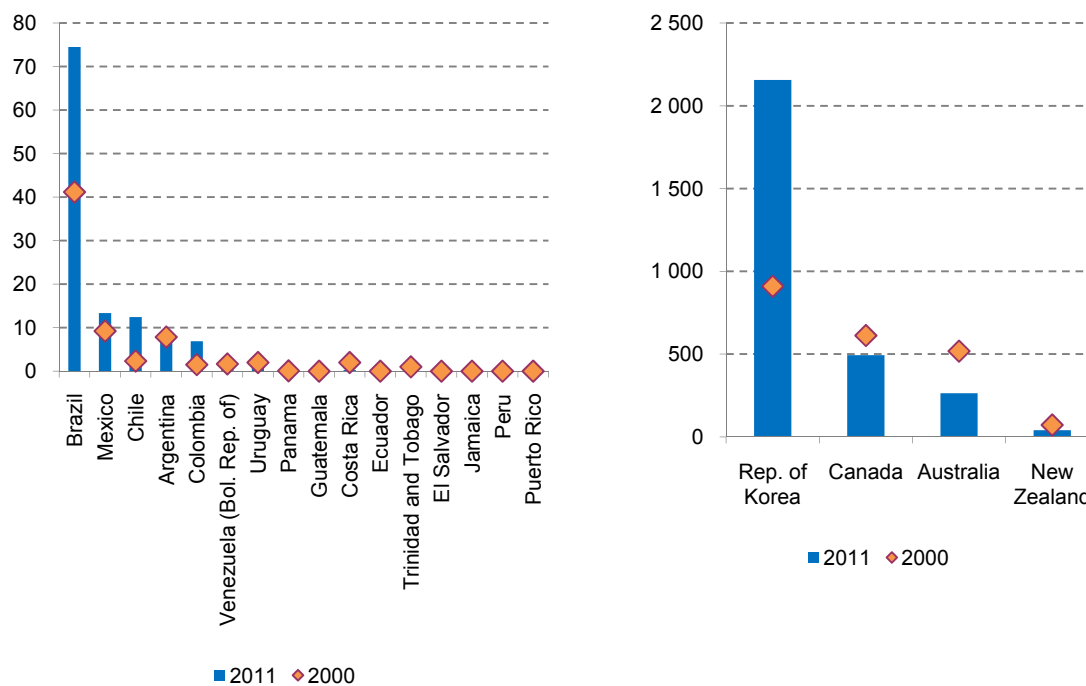
In addition to formal education, Korea has developed a wide array of vocational training and lifelong learning systems. Government initiatives in the early years included support for establishing training institutions such as the Korea Management Association (KMA), Korea Productivity Center (KPC), and Korea Standards Association (KSA). During the 1980s, these institutions began to develop systematic training programs tailored to the needs of Korean firms. Since then, many companies have established their own training departments and training centers with instructors trained by KMA, KPC, and KSA.

Under the auspices of the Ministry of Labour, the Human Resources Development Service of Korea (HRD Korea) runs three kinds of training institutions: 22 vocational schools nationwide, Korea Polytechnic and Korea University of Technology & Education (KUTE). The primary mission of vocation schools under HRD Korea is to raise adolescent/youth who are not advancing to post-secondary education into technicians in key industries. The mission of Korea Polytechnics is to raise mid-skilled workers, including the multi-skilled workers through one to two year programs. KUTE provides four-year courses that provide vocational training teachers with sound theoretical understanding as well as a strong background in practice and skill-formation.

## D. Patents, entrepreneurship, start-ups and funding

The number of Triadic patents registered by the region between 2000 and 2011 suggests that regional entrepreneurship is low compared to Korea and other countries, suggesting few firms compete through innovation. With 75 patents in 2011, Brazil outperformed the second in line (Mexico) by almost 7 times (see figure 13) (ECLAC, 2015b).

**Figure 13**  
Selected CELAC and other countries: triadic patents, 2000 and 2011  
(Number)



Source: Economic Commission for Latin America and the Caribbean (ECLAC) based on data from the Organization for Economic Cooperation and Development (OECD), OECD.Stat.

Since 2012, several CELAC countries (especially Chile, Colombia, Mexico, Panama, Peru and Uruguay) have introduced targeted policies to assist entrepreneurs and start-ups (see table 5). Chile introduced ‘Start-Up Chile’ in 2010, Colombia launched INNPulsa in 2012, Mexico created INADEM and Peru launched ‘Start-up Peru’. These countries are now consolidating their policies as they move away from the experimental stage. This has allowed them to evolve and adapt to the complex needs of global entrepreneurial ecosystems. Some countries are not only implementing traditional financial support instruments such as seed, angel and venture capital but are seeking or implementing crowdfunding mechanisms (OECD, 2015b).

**Table 5**  
**Selected countries in Latin America: targeted policy tools to promote start-ups, 2015**

Category	Tool	Argentina	Brazil	Chile	Colombia	Mexico	Peru
Financing	Seed Capital	In development	Implemented	Implemented	Implemented	Implemented	Implemented
	Crowd-funding			recently created	Recently created	Needs to be created or reformed	recently created
	Angel Investors		Implemented	In development	Recently created	Implemented	
	Venture Capital		Implemented	Implemented	Implemented	In development	Implemented
	Incubators	Implemented	Implemented	Implemented	In development	Implemented	recently created
Business services and entrepreneurial training	Accelerators	In development	Implemented	Implemented		In development	Implemented
	Technology transfer and university spin-offs	In development	Implemented	In development		Implemented	
	Business training	Implemented	Implemented	Implemented	In development	In development	In development
Regulatory framework	Ease of creating or closing down business			In development	In development	In development	In development
	Taxation and special legislation		In development	In development		Recently created	

Source: Economic Commission for Latin America and the Caribbean (ECLAC) based on Organization for Economic Cooperation and Development (OECD), (2013), Start-up Latin America: Promoting innovation in the region, Paris.

Note: Some parts of this table have been updated with information from government websites.

Some countries in the region are also building on traditional support systems by introducing mentoring networks, replacing traditional incubators with new agile incubators, which are less expensive and offer co-working spaces as well as reducing administrative costs. In addition new entrepreneur networking facilities are being developed to assist in the creation of new businesses and support new entrepreneurs in building their business. In 2013, Mexico conducted a National Entrepreneur Week that promoted national innovation activities, which was organized by INADEM and the Ministry of Economy (OECD, 2015b).

In Korea, government support for private R&D includes fiscal incentives, subsidies, policy loans, technology guarantee funds, and venture capital funds. Policy loans have been an important instrument due to their low interest rates being substantially below those charged by the market. Until the 1990s, when business R&D investment was still relatively low, policy loans were provided to all firms regardless of their size. But from the 1990s onwards, when most large firms were able to finance their own R&D expenditure, the access to these funds became limited to SMEs (see table 6). Current innovation financing has three main categories: Policy Loans, Credit Guarantee System and Venture

Business Promotion Fund. Innovation in SMEs is also promoted through the Small Business Innovation Research Program (KOSBIR). Benchmarked on the United States' Small Business Innovation Research (SBIR) program, KOSBIR was introduced in 1998 and unites the efforts of twelve ministries and six public enterprises.

**Table 6**  
**Korea: public loans for innovation by SMEs, 2015**

Stage	Program	Budget (Million of dollars)	Qualification Criteria	Maximum amount (Million of dollars)	Maximum loan period
Start-up period	Start-up support	800	Less than 7 years in operation	2.8	8 years
	Investment support	62	Companies with high growth potential	1.2	5 years
Growth period	Technology Development	185	Companies with patents or good R&D results	1.2	8 years
	Specified industries	632	Over 7 years for facility investment	2.8	8 years
Re-orient period	Business upgrading	122	Companies reorienting to a new business	2.8	8 years
Emergency	Management Stabilization	62	Exporting companies	0.6	5 years
Total		1 862			

Source: Economic Commission for Latin America and the Caribbean (ECLAC) based on data from Korea's Small and Medium Business Administration (SMBA).

Fiscal measures include tax deductions for business R&D investment, tax exemption for expenses for R&D personnel, and tax deduction/exemption of duties levied to imports of R&D equipment. Total amount of R&D tax incentives was worth around US\$ 182 million in 1992, and reached about US\$ 1,848 billion in 2015. In national currency, this represents an increase of over twenty times and an annual average growth rate of 13%.

The Korea Technology and Finance Company (KTFC) is a non-profit credit guarantee institution and is the main government instrument to support venture businesses and SMEs in innovation and knowledge-based areas through all stages of development. KTFC's capital funds have been accumulated through contributions from the government and different financial institutions. Other sources of capital funds include fees for guarantee and technology appraisal, interest income and other operational income.

Korea's venture business has grown steadily because of the business opportunities provided by developments in the IT industry, and the start of the stock market KOSDAQ (Korean Securities Dealers Automated Quotations). Also, the Korean government's policies nurtured venture businesses during the years of restructuring after the financial crisis. In part through government support, the number of venture businesses grew rapidly from 2,042 in 1998 to surpassing 10,000 in 2001, 20,000 in 2010, and finally 30,000 in 2015.

In line with support policies for venture business and start-ups, the current government implemented two new institutions: the Korea New Exchange (KONEX) and the Creative Economy Innovation Centers (CEIC). KONEX was opened in July 2013, as the "third market" after the Korean Stock Exchange (KSE) and KOSDAQ. With looser requirements than KOSDAQ and the listing confined only to small and medium enterprises, KONEX aims to open new growth opportunities for SMEs. The aim of CEICs is to connect large firms to start-up activities. After the first center opened in July 2015 at Incheon Metropolitan City, seventeen Centers have been created in metropolitan cities and provinces. It is a new model of public-private partnership in business creation: the government supports the centers by paying the operational expenses and large firms provide start-ups with managerial knowhow, technological knowledge, and marketing information. In addition, the CEICs connect regional innovation actors in universities and government-funded research institutes and other

actors that play an intermediary role in the regional innovation system. These intermediaries include technoparks, design centers, and management agencies of industrial complexes.

## E. Digital economy

The growth of information and communication technologies (ICT) over the last decade has accelerated innovation and skills development. The advances in ICT have created a digital economy, which promotes knowledge creation, knowledge dissemination, communication, education and innovation. The digital economy is made up of ICT services, hardware and software, broadband networks and end users. ICT networks allow for the diffusion of knowledge and connectivity between governments, firms and societies. The digital economy provides a new platform for creating new value chains that allow the creation, production and consumption of goods and services allowing new ways to add value to existing goods and services. There is a strong correlation between a country's technical infrastructure and human capacity and its distance from the scientific frontier (ECLACECLAC, 2013; ECLAC, 2015).

Over the past decade, the economies and societies of CELAC made great progress in the use and integration of digital technologies, but continue to face important challenges. From 2003 to 2014, the number of Internet users more than doubled reaching 50% of the population in 2014, while there are 700 million mobile phone connections. Several countries in the region are among the most intensive users in the world of social networks. Nevertheless, the CELAC region faces restrictions in infrastructure supply, regulation and service affordability. Moreover, it faces challenges to update existing infrastructure to greater Fiber-optic capacity. In this context, mobile broadband provides high potential for economic development by allowing greater Internet dissemination. Mobile broadband provides wider coverage with greater affordability (ECLACECLAC, 2013; ECLACECLAC, 2015d; Navarro et al., 2016).

The region has progressed at varying levels in terms of digital advancements. The least advanced countries within the region failed to close the Internet penetration gap with more advanced countries in the region during 2006 and 2014. Various CELAC countries have been developing national plans to improve their digital infrastructure since the early 2000s, encouraged by the World Summits on Information society and the Millennium and Sustainable Development Goals. Since then countries have been updating their digital strategies, in some cases to third and fourth generation including Chile, Colombia, Mexico and Uruguay. These agendas aim to improve the role of technology to drive economic growth, sustainable development and social inclusion. Moreover, governments have created financial support instruments such as the provision of grants and loans to incentivize greater ICT development, including strengthening broadband infrastructure and promoting greater access to telecommunication services. A key element of the digital economy is the protection of its users through privacy and personal data protection instruments. In 2014, 67% of Latin American countries had laws in place whereas the percentage is 39% in the Caribbean and 38% in Central America (ECLACECLAC, 2015d).

ICT in the area of education is key in promoting innovation and technical ability in school children. Therefore many countries including Brazil, Chile, Mexico, Guatemala, Costa Rica and Colombia are all working to provide training programmes for educators and other personnel within the education system. The Enlaces programme in Chile is responsible for training 110,000 teachers (over 80% of public school teachers) in ICT skills (ECLAC, 2008). Due to advances in ICT in Brazil, distance learning and online courses help promote science, technology, engineering and mathematics in education in the country (Horta, 2013).

The Korean government has continuously strived to usher the Korean society into the era of a knowledge-based economy. "Informatization" is widely used in Korea, with multiple meanings of the development of ICT and related infrastructure. It also signified the government's role in mobilizing resources to build a highly-advanced information society.

**Table 7**  
**Korea: stages of National Informatization**

	Inception	Growth		Maturity		
	1987 - 1994	1995 - 2000	2001 - 2007		2008 - to date	
Goal	Building basic data bases	Construction of ICT infrastructure and Promotion of internet use			Acceleration of ICT usage	
Measures	Automation	Improvement of network productivity			Innovation of integrated services	
Major Plans		Cyber Korea 21		e-Korea Vision		
e-Government Activities	National Backbone Computing Network	INFR at individual ministries	Administrative INFR at provinces	National e-Gov	Smart e-Gov	Basic Plan for National INFR Basic Plan for Promoting ICT & Convergence Integration of e-Gov with public services
Infrastructure		Super-highway Information Network			Broadband Convergence Network	

Source: Ministry of Science, ICT and Future Planning (MSIP), Annual Report of National Informatization, 2015.

Note: e-Gov and INFR abbreviate e-Government and informatization, respectively.

To promote the digital economy, the Korean government has implemented measures in three areas: constructing ICT infrastructure, building an e-government, and promoting ICT industry. Currently, the government is emphasizing the following areas to sustain the growth of the ICT industry:

- Prioritise new technologies: Software, Internet of Things, Cloud computing, Information security, Next-generation mobile, UHD TV, Smart devices, digital contents, and big data
- Upgrading ICT industries: acceleration of technological innovation, cultivating creative human resources, supporting start-ups
- Expansion of ICT-related investment: Increasing investment in convergent ICT, improving regulatory framework and increasing public procurement
- Strengthening international cooperation: expansion of supportive infrastructure at partner countries and a focused approach to regional needs.

As of June 2004, the number of subscribers to Korea's broadband Internet service reached 36 million, implying that broadband Internet is accessible to 77 percent of households, the highest in the world. Many facilities-based service providers are now operating in the market.

Four key factors account for the country's rapid spread of high-speed broadband Internet. First, broadband Internet services were classified as a value-added service, free of regulation regarding entry and pricing. Second, the installation and access to full service providers of Internet was facilitated by the fact that nearly half of all households live in apartment buildings. Third, the government promoted the installation and use of ICT from the early stages. Fourth, the Voice over Internet Protocol (VoIP) and the interaction between IP telephony and broadband was initially free of charge, which put a downward pressure on flat-rate charges.

## F. Regional and international cooperation

The CELAC countries are increasingly aware that in a highly competitive world, it is important to step up regional cooperation to foster knowledge creation and innovation (De la Mothe and Paquet, 2012). Governments play a key role in promoting innovation and dissemination, providing the environment and infrastructure that enables the flow of knowledge generation and dissemination. The coordination of regional innovation policy instruments has the potential to dramatically increase opportunities to overcome restraints such as market size and scope (Navarro et al., 2016). In addition, the international coordination of science policies, facilitation of STI and innovation capacity building are part of the 2030 Agenda of the Sustainable Development Goals. In particular, Goal 17.6 calls for enhanced regional and

international cooperation (both South-South and North-South) that aims at enhancing knowledge sharing through global technology facilitation mechanisms (Giovannini, Enrico et al., 2015).

In the areas of science, technology and innovation and information and communication technology there are several regional cooperation initiatives as shown in table 8.

**Table 8**  
**Latin America and the Caribbean: Regional and Subregional Cooperation Initiatives, 2016**

Acronym	Full name	Field of work
Convenio Andres Bello	Andrés Bello Agreement on Education, Scientific and Cultural Integration	Andres Bello Convention seeks to build consensus and courses of action in culture, education, science and technology, in order that their benefits contribute to equitable, sustainable and democratic development of member countries.
COSUCTI	The South American Council of Science, Technology and Innovation	The objectives of the council are to promote and strengthen cooperation and scientific, technological and innovation integration
CTCAP	The Commission for the scientific & technological development in Central America and Panama	The commission encourages linkages between member country's National Science and Technology Bodies to generate scientific policy and develop a science, technology and innovation strategic regional plan.
eLAC		eLAC2015 has ensured political commitment to furthering ICT development in the region that ensures universal broadband as well as improvements and advancements in health care services, education, e-government, security and SMEs access to ICT
FONTA-GRO	The Regional Fund for Agriculture Research	Consortium of 15 member countries that finance innovation and research in agriculture.
LACCIR	Latin American and Caribbean Collaborative ICT Research Federation	To provide a platform that enables universities to increase the quality and quantity of research in technology and innovation as well as enabling social and economic development within the region
OCTS	Ibero-American Observatory of Science, Technology and Society	Dedicated to researching and disseminating evidence about the challenges, capabilities and opportunities for science and technology within Latin American countries
ORBA	The Regional Broadband Observatory	Supports regional dialogue and is a source of information to assist regional countries development and monitor public policies for universal broadband
redCLARA	Network of Latin American Cooperation for Advanced Networks	Develop a strong ICT infrastructure among regional countries to facilitate joint projects and facilitate communication among researchers
RICYT	The Network on Science and Technology Indicators	Promote the development of measurement instruments to further international cooperation and assist in decision making processes

Source: Economic Commission for Latin America and the Caribbean (ECLAC) based on websites of regional cooperation initiatives.

Korea has been one of the leading nations in terms of international cooperation with CELAC countries on innovation and skills development. One of its cooperation mechanisms has been the 'Knowledge Sharing Program' (KSP) implemented by the Korean Ministry of Strategy and Finance (MOSF) since 2004. On the basis of its own learning experience from advanced countries, this program has aimed to share its knowledge and development know-how with developing economies. The KSP programs comprise of high-level policy consultations customized to the needs of partner countries. KSPs also include training opportunities, in-depth analysis and policy proposals (<http://www.ksp.go.kr/ksp/ksp.jsp>). Table 9 below shows all the KSP projects that Korea has undertaken with countries in the region in the area of STI.



**Table 9**  
**CELAC countries: Korean Knowledge Sharing Programs in the area of Science, Technology and Innovation, 2004 to 2016**

Country	Year	Project Name
Belize	2014	Formulation of a National STI Strategy and Action Plan and Establishment of a Belize-Korea Science, Technology and Innovation (STI) Institute
Brazil	2013	Promoting Agricultural Innovation for Smallholder Farmers in Brazil
	2012	Establishment of Science and Technology Parks in Colombia 2. Promotion of Local Economic Development
Colombia	2014	Attraction of Investments for Industries and IT-based Productivity Enhancement for SMEs
	2015	Upgrading the International Competitiveness of Colombian Enterprises: Focusing on R&D and Export Capacities
	2013	KSP for the Design and establishment of a National Multi-Sectorial Competitiveness Strategy.
Costa Rica	2014	Strengthening institutions and support mechanisms to foster innovation
	2015	Development of Human Resources in Science and Technology
Ecuador	2012	Ecuador's Production Matrix Transformation (Yachay - City of Knowledge)
	2014	Policy Consultation on National R&D Policy and Ecosystem for Three Strategic Industries: Plastic, Chemical & Pharmaceutical and Textile Industry
El Salvador	2015	Implementation Plan for Innovation Ecosystem and National Competitiveness Program for SMEs
	2014	Policy advice to enhance the capacity of the public sector and the economy
Guatemala	2015	2015/16 Knowledge Sharing Program with Guatemala
	2011	Honduras National ICT Master Plan
Honduras	2012	Feasibility Study for the Implementation of the National ICT Master Plan
	2013	Strategies on strengthening the national competitiveness of Honduras: Focus on strengthening competitiveness of SMEs development and e-government
	2012	Promotion of Mechanical Parts Industry, and Technical Manpower Development and Promotion of Industry-Academy Cooperation in Hidalgo of Mexico
Mexico	2013	Policy Consultation to Strengthen Economic Capabilities of four States
	2014	Enhancing Innovation Capacities for Sustainable Development
	2015	Enhancing Innovation Capacities for Sustainable Development
Nicaragua	2015	2015/16 Knowledge Sharing Program with Nicaragua
Peru	2010	Linking with the New Era of Development: CEPLAN of Peru and the Integrated Information System
	2013	Policy Recommendations for Capacity Building of Peru's Knowledge Economy

Source: Economic Commission for Latin America and the Caribbean (ECLAC) based on website of the KSP program.

### III. SME development and internationalization policies

Although CELAC countries have made some progress in terms of social indicators over the last decade there remains a large structural heterogeneity resulting from low education and low wage levels. One aspect of this heterogeneity plasma is the low productivity of SMEs in Latin America, where productivity of SMEs is only 13 % of that of large companies. The number of SME workers that have completed tertiary education stands at only 17 % and their wage levels are 34 % less than those of large companies. In Korea, these structural parameters are substantially better since the relative productivity of SMEs is much higher. Moreover, there level of education is much higher and relative wages paid by SMEs is better (Table 10). The comparatively low productivity performance of SMEs in Latin America makes it particularly hard for them to internationalize.

**Table 10**  
**SMEs and large firms in Latin America, European Union and Korea:**  
**productivity, education and wage**  
*(Percentage)*

Firm size	Firm productivity <i>(Percentage of large firms)</i>			Educational attainment <i>(Percentage of workers with completed tertiary education)</i>			Wage levels <i>(Percentage of large firm wages)</i>		
	Latin America (2011-2015 6 countries)	European Union (2015)	Korea (2015)	Latin America (16 countries, 2014)	European Union (2011)	Republic of Korea (2012)	Latin America (15 countries, 2014)	European Union (2015)	Korea (2010)
SMEs	12.8	68.2	29.6	17	35	35	34.7	74	43.8
Large firms	100	100	100	44.9	35	n.a.	100	100	100

Source: Economic Commission for Latin America and the Caribbean (ECLAC) based on data from ECLAC, ILO, EU, OECD, Economic Census and the Federation of Korean SMEs and national employment surveys.

#### A. Direct and indirect participation of SMEs in exports

The CELAC region has witnessed stagnation in the number of exporting firms over the last few years. From 2002 to 2008, the number of exporting firms increased. However, when the financial crisis hit in 2009 the number fell (see table 8). Post crisis has seen a slow recovery in the number of exporting

firms, amounting to a total of around 115 thousand in 2014, according to customs data for 15 countries. Due to the heterogeneous nature of the region, overall statistics hide the diverging trends between countries. For example in Ecuador, Costa Rica and Peru, the number of export firms grew above the regional average. In comparison the number of exporting firms in Argentina and Paraguay stagnated more than in the rest of the region.

A standardized definition of an export SME is required before international comparisons can be made. An export SME is defined as a firm with a value of exports below 1,000 times the per capita income level of the country at purchasing power parity multiplied by the exports to sales ratio (see Box 1 for more details). Although SMEs represent the largest number of exporting firms in Latin America, their value share of exports is low. Between 2008 and 2014 the number of export SMEs grew slightly less than that of all exporters. Moreover, their share of the total number of firms fell and their contribution to the total value of exports diminished. In 2014, export SMEs accounted for 89% of the total number of export firms, but only 6% of the total value of exports.

**Box 1**  
**The definition of size limits of SMEs in CELAC and Korea**

In most countries, governments define SMEs as firms employing a maximum number of workers and/or a turnover limit. A comparison of these definitions between 19 CELAC countries shows that these size limits are different (Urmeneta et al., 2016). They depend in part on per capita income levels, as a proxy of labour productivity, and sector. In the CELAC region, the average maximum number of employees of SMEs was 160 with an average maximum sales limit of USD 6.3 million in 2015. The largest differences are between the smaller countries in Central America and Mexico, with labour force limits ranging from 50 workers to 500 workers, and turnover limits varying from US\$ 400,000 to US\$ 20 million. Whereas, in the Korea, labour force limits are 300 workers and a turnover limit of US\$ 82 million.

As different official size definitions among countries limit international comparability of official SME statistics, several analysts propose more standardized criteria. The adoption of a fixed number of workers or a sales limit is not recommended, as these indicators fail to account for differences in labour productivity across countries. Therefore one frequently adopted SME size limit is sales below 1,000 times the per capita income level (as a proxy for labour productivity) at purchasing power parity. However, in many countries data on firm sales are not available. Instead, data on exports is used as a proxy for firm size. In this case, the mathematical equivalent limit for SME firms is the value of exports inferior to 1,000 times the per capita income level at purchasing power parity multiplied by the exports to sales ratio. As the sales variable is not available, national income is used as a proxy.

Source: Roberto Urmeneta in collaboration with Alicia Frohmann, Nanno Mulder and Ximena Olmos (2016), *Dinámica de las empresas exportadoras en América Latina: El aporte de las Pymes*, ECLAC, Santiago.

In 2013, the numbers of export firms in Korea reached 88 thousand of which 93% were SMEs (as suggested by the Korean size definition of SMEs). Although the participation of export SMEs total value of exports are much higher than their counterparts in Latin America, their share also fell from 2009 (21.1%) to 2013 (17.2%), but recovered slightly afterwards. This drop is explained in part by the rapidly increasing exports of IT products and automobiles, which are predominantly produced by large firms such as Samsung Electronics and Hyundai Automotives. Two thirds of SME exports are concentrated in three industries: chemicals, electricity and electronics, and machinery (Mah, 2016).

**Table 11**  
**Fifteen CELAC countries and Korea: number of export firms**  
**and export SMEs, 2002 to 2014**  
*(Number, index and percentage)*

	2008	2009	2010	2011	2012	2013	2014
<b>Latin America:</b>							
Total firms (thousands) (1)	1 193	1 153	1 154	1 171	116	1 154	1 148
Index total 2002=100	1 161	1 122	1 123	1 139	1 128	1 123	1 117
Total SMEs (thousands) (2)	1 074	1 032	1 028	1 043	1 032	1 027	1 022
Index SMEs 2002=100	1 182	1 133	113	1 141	1 127	1 119	1 113
Export SMEs share of total number of export firms (percentage)	90	89.5	89.1	89.1	89.0	89	89
Export SMEs share of total exports value (percentage)	6.5	6.8	6.6	6.1	6.3	6.2	6.1
<b>Republic of Korea:</b>							
Total SMEs (thousands) (3)		77.4			86.2	87.9	
Export SMEs share of total number of export firms (percentage)					93.5	93.4	
Export SMEs share of total exports value (percentage)		21.1	21.1		18.8	17.2	18

Sources: Latin America: Roberto Urmeneta in collaboration with Alicia Frohmann, Nanno Mulder and Ximena Olmos (2016), *Dinámica de las empresas exportadoras en América Latina: El aporte de las Pymes*, ECLAC, Santiago. Korea: Official data from Small and Medium Business Administration (SMBA) and Bank of Korea.

Notes: (1) The fifteen countries are Argentina, Bolivia (Plurinational State of), Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, México, Nicaragua, Paraguay, Peru and Uruguay. (2) SMEs are firms with a value of exports below 1,000 times the per capita income level of the country at purchasing power parity multiplied by the exports to sales ratio. Sales are proxied by national income; (3) in Korea SMEs are defined as firms with less than 300 employees.

In the CELAC region and Korea, the share of SMEs in the value of exports increases significantly if indirect exports of these firms are also considered. Indirect exports comprise of products sold by SMEs to exporting firms, which use these products as intermediate inputs. For example Korean SMEs make up about 30% of finished automobiles export value, therefore their components are counted as indirect exports (Lee, 2010). In Korea, the share of SMEs' indirect exports via large firms reached 12% of total exports in 2012 (KITA, 2013). Partial data for Chile and Costa Rica suggest 11% of SMEs are indirect exporters (Urmeneta, 2016).

Korea has a number of strengths in regards to direct and indirect SME exporters when compared to the CELAC region. First, their statistical knowledge of direct and indirect export SMEs is much more advanced. Second, Korea has a much higher number of export firms per one million population than the CELAC region. Third, there is a higher representation of SMEs in the total number of exporting firms and in the total export value.

## **B. SME internationalization policies and responsible agencies**

SME internationalization policies are any public (and private) initiatives designed to encourage firms up to a certain size to increase/develop direct or indirect exports. These policies target companies directly through support services, financial and non-financial assistance, and help to integrate SMEs into producer networks or value chains. Indirect support includes interventions that improve the environment for SME development such as the simplification of tax regimes or the introduction of differentiated labour regulations.

The motivations behind such policies are based on two key points. First, challenges hamper the performance of export firms and their contribution to economic growth and employment creation.

Examples of failures include a lack of information, low and expensive access to finance, and lack of access to support services such as training or consulting. Second, SME exporters contribute more to inclusive economic development through job creation, improved efficiency, labour productivity and innovation.

Many CELAC countries have multiple institutions that promote direct and indirect SME exporters. These include export promotion organizations, development banks, Ministries of Economy and Trade. Often these institutions are underfunded and lack coordination with other agencies. As a consequence, these support instruments contribute only marginally to the increase in the number of export SMEs and their exports (ECLAC-OCDE, 2012; Urmeneta, 2016).

Korea also had many agencies promoting direct and indirect SME exports up until 2008. Due to the complexity of support systems that often meant SMEs were unable to recognize the functions of each agency. The government simplified the roles of the agencies in 2008. The promotion of SMEs abroad became the responsibility of the Korea Trade and Investment Promotion Agency (KOTRA), while the Small and Medium Business Corporation (SBC) was given the task to promote SMEs at home. However, in 2013 the government changed again its export promotion policies by authorizing multiple agencies to implement similar trade promotion programs (Jeon, 2013).

### **C. Information on SME promotion in overseas markets**

In many countries, export promotion agencies are key to promoting SME sales abroad. Most of these were created in the 1990s and 2000s as part of the outward-oriented growth strategy of their host countries (see table 9). Most agencies are public, while others also include private participation. These agencies promote sales abroad using instruments that are not considered export subsidies according to the 1994 Uruguay Round. In addition to SME exports, various agencies in Central America also promote foreign direct investment and sometimes tourism. There are few examples in the region of agencies promoting exports of multiple countries. One is the Caribbean Export Development Agency created in 1996, which represents all 15 CARICOM countries.

Export promotion agencies in CELAC countries have proportionally less resources than Korea. For example, the average budget of agencies in a sample of 17 CELAC countries equalled 0.08% of the value of exports, compared to 0.49% in the case of Korea. In addition, various countries (Brazil, Chile, Colombia, Costa Rica, Honduras and Panama) budgets fell in proportionate terms between 2010 and 2015. Small budgets and underdeveloped institutional frameworks are reflected in part by the small number of overseas offices of the agencies, with the exception of Chile, Colombia, Ecuador, Mexico and Peru.

In the case of Korea, the government has strengthened support for SMEs' to penetrate foreign markets. KOTRA promotes SMEs abroad and provides them with information on overseas markets. In addition, the Korea International Trade Association (KITA) provides translation and interpretation services to exporting firms and provides low rent offices to SMEs. KOTRA and KITA strongly focus their efforts on assisting SME exporters to participate in foreign trade expos and trade fairs. Other governmental mechanisms include the provision of consulting and marketing firms abroad that provide a private network of services that assist SMEs in penetrating foreign markets. KOTRA also provides an Export Incubator Program, which assists new exporting firms through 276 offices in 12 countries.

**Table 12**  
**Selected CELAC countries and Korea: summary statistics**  
**of export promotion agencies, 2015**

Country	Name (established in)	Staff (number)	Offices abroad 2010	Offices abroad 2015	Number of offices in home country	Budget (as percentage of total exports), 2014-2015
Argentina	EXPORTAR (1993)	104	0	0	3	0.001
Bolivia (Plur. State of)	PROBOLIVIA (1998)	49	0	0	1	0.092
Brazil	APEX (2003)	290	6	9	1	0.066
Chile	PROCHILE (1974)	410	54	53	16	0.039
Colombia	PROCOLOMBIA (1992- 2015)	472	15	26	8	0.120
Costa Rica	PROCOMER (1996)	24	10	10	13	0.128
Dominican Rep.	CEI-RD (2003)	136	0	1	1	0.054
Ecuador	PROECUADOR (2010)	264	27	31	6	0.083
El Salvador	PROESA (2004)	77	2	13	1	0.166
Guatemala	DACE (2000)	41	0	2	1	0.072
Honduras	FIDE (1984)	S/I	0	1	1	0.010
Jamaica	JAMPRO (1990)	78	2	2	2	0.381
Mexico	PROMÉXICO (2007)	381	28	48	29	0.035
Nicaragua	PRONICARAGUA, CEI (2002)	49	1	1	3	0.050
Panama	PROINVEX (1998)	38	0	0	1	0.016
Paraguay	REDIEX (2004)	40	1	4	1	0.046
Peru	PROMPERÚ (2007)	380	19	36	7	0.197
Uruguay	Uruguay XXI (1996)	40	0	0	1	0.022
Republic of Korea	KOTRA (1962)	685		125	8	0.490

Source: Economic Commission for Latin America and the Caribbean (ECLAC) on the basis of websites and annual reports of export promotion agencies.

## D. Trade finance

As many SMEs in Korea and the CELAC region have weak financial positions, present high risks and handle small operations, they face bottlenecks in accessing trade finance. Many SMEs cannot access financial instruments at all, while those that can face higher interest rates and more unfavorable terms compared to larger companies (Gordon and Suominen, 2014). In this context, public financial institutions play an important role in providing finance to SMEs in segments where the private sector is largely absent.

A survey conducted among members of the Latin American Association of Development Financing Institutions (ALIDE) in 14 CELAC countries showed that only 5% of the loan portfolios of these institutions were for foreign trade. In total, 23 institutions offered 111 trade finance programs in 2011 (Pérez et al, 2014). More than half (55%) of these financing programs are traditional pre or post-export, followed by import finance (18%) and down payment or discount invoices (11%). The majority of these institutions offer only general instruments. However, those specialized in international trade also have more specialized types of finance, such as factoring, forfeiting and leasing.

Almost one fifth of financial programs are directed exclusively at SMEs while instruments cover a very small share of export SMEs. Four fifths of institutions supply financial support directly as a first-tier bank, while the remaining part channel their resources to other banks. Two fifths of programs offer credit up to one year, while about one fifth offer credit for more than one year and the rest do not define a repayment term. Very few programs are directed exclusively towards the promotion of intraregional trade, which is the main export destination of SMEs. Compared to private banks, they are often more flexible in the evaluation of risk and repayment terms and offer more favourable interest rates and other conditions (see table 13).

**Table 13**  
**Selected CELAC countries: trade finance instruments of Development**  
**Financing Institutions, 2011**  
*(Number)*

	For all firms	Only for large firms	Only for SMEs
Exchange rate risk	0	1	1
Down payment or discount invoices	12	0	0
International factoring	4	0	0
Import financing	14	1	4
Financing of foreign importer	2	0	0
<b>Forfeiting</b>	1	1	0
Guarantees and insurance	3	1	2
Leasing	2	0	0
Pre and post export financing	41	5	11
Sharing	1	0	0
<b>Total</b>	80	9	18

Source: Economic Commission for Latin America and the Caribbean (ECLAC) on the basis of Pérez, E., C. Vera, A. Díaz and S.Vera (2014), *El financiamiento del comercio internacional y el rol de la banca de desarrollo en América Latina*, ECLAC, Financing for Development N251. Santiago, Chile.

In Korea, the government has implemented a wide range of financial support instruments for export SMEs. The EXIM Bank provides loans and guarantees to support trade-related firms, which in 2014 financed 13% of total exports. One-third of its credits are allocated to SMEs. The Korea Credit Guarantee Fund (KCGF) guarantees repayment of SMEs' export related borrowing from banks. The Korea Trade Insurance Corporation (K-sure) insured almost one third of total exports in 2014. K-sure introduced the 'regional headquarters system' in order to closely assist SMEs at their actual sites of business. Between 2010 and 2014 the ratio of SMEs as a percentage of total trade insurance rose from 10% to 20% respectively. The benefits granted by K-sure to SMEs include reduced insurance fees and free information to start-up exports.

## E. Policies to improve SMEs export capacities

Multiple policies in CELAC countries aim to help improve labour and management skills of entrepreneurs and workers in export SMEs. The lack of these skills explains their low productivity and high failure rate. More than one third of all export SMEs stop exporting after one year. Underdeveloped labour skills also contribute to underinvestment in technology and innovation. The most successful policies are those based on diagnosing the needs of SMEs and those with simple and transparent selection processes. Moreover, labour-training programs should be accompanied with monitoring mechanisms that capture results, incentivize participation, and provide initiatives to improve financial access to SMEs.

In many countries in the region, export promotion agencies are the main institutions providing training and coaching that help SMEs to market their products and services abroad, often in collaboration and with financial support from other government institutions. An inventory of training activities by these agencies in 20 CELAC countries shows these cover a wide range of topics such as certification, customs documentation, distribution channels, marketing, product innovation and trade finance (Urmeneta, 2016). The duration of these activities varies from half a day to one year. Some courses are delivered face-to-face, while others are conducted over the Internet as part of distance learning. In addition to capital cities, courses are frequently provided in other parts of the country. Some good practices in countries like Chile, Colombia, Costa Rica, Mexico and Peru, suggest training should be differentiated according to the maturity of the export firm i.e. from the non-exporter to the

highly experienced. Another successful tool is the provision of programs that promote learning among entrepreneurs, which are taught by mentors and coaches with proven experience in developing international trade. It is important that SMEs co-finance training activities to ensure their commitment.

Notwithstanding the progress by CELAC governments in the provision of export capacity building of SMEs, they continue to face several challenges. First, the coverage of these programs in terms of actual or potential export SMEs is low in part because of their small training budgets and limited presence in different parts of their national territory. Second, there is a shortage of experienced trainers with sufficient technical and practical experience to teach SMEs. Third, there are few industry-specific training programs. These challenges can be explained in part by the fact that many training programs have only recently been created.

In Korea, KOTRA and KITA are the main training institutes fostering SMEs' export capacities. KOTRA offers multiple training programs by industries and trains foreign market experts. The main beneficiaries are SMEs whose production activities are based on new growth engines, basic manufacturing sectors, and technology-intensive firms. KITA provides trade practice training programs and Cyber Trade Campus education trade practices.

## **F. Promoting indirect SME exports through clusters and business linkage programs**

In CELAC countries, scant evidence suggests a low presence of SMEs in supplier networks of large export companies. In addition to selling directly abroad, SMEs can also export indirectly as a supplier to an export firm within the country. This type of indirect export has numerous advantages over direct exports for SMEs, as it provides a way to enter foreign markets without the potential complexities and risks of direct exporting, such as the collection of overseas payments.<sup>3</sup> Moreover, SMEs may benefit from linkages with large firms in terms of access to finance technology transfers and management assistance. Anecdotal evidence from Brazil, Chile, Costa Rica and Mexico suggest that the presence of SMEs in these networks is low (Rosales, Inoue and Mulder, 2015). This is mostly because the intermediate products produced by SMEs do not comply with the standards required by multinational companies due to their low performance and productivity.

In addition to general initiatives that support SME productivity, several countries in the region provide specific supplier development and/or business linkages programs. These programs provide specialized technical support to SMEs to upgrade their products and services to ensure their compliance with standards of multinational companies. The cost of these programs is often shared between the multinational companies, the SMEs and supporting agencies. Examples of these programs include the Supplier Development Program of CORFO in Chile, the Productive Development Program of PROCOMER in Costa Rica and Supplier Development Programs (SDPs) by the Ministry of Economy in El Salvador. Other SDPs are implemented by SEBRAE in Brazil and UNDP in Colombia and Mexico.

The impact of these programs in CELAC countries has been small for multiple reasons. These include small budgets, low number of participating SMEs and multinational companies, lack of focus on specific industries, and difficulties to provide SMEs with structured, hands-on business developmental support.

In Korea, the government encourages SMEs' participation in GVCs through different mechanisms. First, EXIM Bank lends to Korean firms in the form of overseas investment financing. In 2014, it provided around US\$1.4 billion in financial support to SMEs participating in overseas ventures or projects to become suppliers to large companies or government agencies. Second, the government

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<sup>3</sup> Another type of indirect export is selling products abroad through intermediaries, which is a common practice in agriculture.



promoted industrial complexes in order to develop industrialization and export-led growth. Various types of industrial complexes have been established since the 1990s to promote high-tech industries. Since the 2000s, the government established innovative clusters, where collaboration among academia, research institutes and firms is encouraged along with knowledge sharing. Industrial clusters promote SMEs' partnerships with large firms by encouraging them to network. There are several large-scale sector-specific clusters in Korea. Clusters can raise the productivity level of SMEs through the utilization of knowledge and technology gained from academia-research-enterprise cooperation systems. SMEs can expect advanced technology transfers from large firms and research institutes operating in the same cluster.

The government also promotes business linkages through specific programs. It supports SMEs when they enter the foreign market by utilizing large companies' foreign infrastructure, such as office space and distribution networks. In addition, when a large company participates in a foreign trade expo together with SMEs, it supports each company's rent and interpretation costs. In combination with large firms, KOTRA supports SMEs' investment abroad through, for example market research.

## G. Regional and international cooperation

Some intraregional and international cooperation initiatives among countries promote the exchange of good practices and provide advice to individual members on SME internationalization policies:

- One example is the Ibero-American Network of Export Promotion Organizations ([www.redibero.org](http://www.redibero.org)), which was created in Madrid in 1999. Through four meetings per year, the network aims to deepen the relations of member organizations, promote discussion about technical issues that are of common interest, and exchange good practices and tools for trade promotion. Currently the Network has 30 organizations from CELAC countries, Spain and Portugal.
- Another example is the International Trade Center (ITC) ([www.intracen.org](http://www.intracen.org)) of UNCTAD and the World Trade Organization, whose main goal is to promote SME exports from developing countries. This is achieved by providing different types of technical assistance to export promotion organizations in these countries.

At the sub-regional level, one initiative is the Regional Center for the Promotion of SMEs in Central America (CENPROMYPE). This Center is part of the Central American Economic Integration System (SIECA). It intends to coordinate SME internationalization policies among the 7 Central American countries. Moreover, it has invested in improving export SME statistics.

Some donor regions and countries have implemented large multinational programs to promote the productivity and internationalization of SMEs in the region. For example, AL-INVEST is a permanent program of the European Union, which fosters these goals through cooperation with organizations representing SMEs such as chambers of commerce, export promotion agencies and sector organizations. Other countries with activities in this area are the German development cooperation through the GIZ and the Spanish development cooperation through the AECID.

Korea has concentrated its cooperation on sharing its development experiences regarding SME development and internationalization with developing countries through its Korean Development Institute (KDI) and KOICA. The KDI runs Knowledge Sharing Programs, which are comprehensive policy consultations tailored to the needs of partner countries encompassing in-depth analysis, policy consultation, and training opportunities. Up to 2015, there have been about 20 KSP projects in this area. For instance, the government implemented a series of KSP projects targeting export capacity building for the Dominican Republic including advice for the creation of an Export Development Bank of the Dominican Republic. For its part, KOICA runs the Development Experience Exchange Partnership (DEEP) program. It comprises of policy consultations and establishes master plans with respect to selected development partners in light of the development experience of Korea. KOICA maintains various short-term training programs to support capacity building and education for graduate students coming from developing countries.

## **IV. Conclusions and proposals for bilateral cooperation**

### **A. Conclusions**

Over the last decade, the region has progressed little to increase the level of investment in R&D. In 2013, Brazil was the only country to dedicate more than 1% of its GDP to R&D. Moreover, most R&D investment is funded by the public sector. This contrasts with more advanced countries like Korea, where the business sector is the largest contributor. In part this is because the private sector in the region lacks strong financial incentives to invest in R&D. Moreover, only a small share of public R&D focuses on applied research carried out in collaboration with the private sector oriented towards business applications.

Innovation in the region is also hampered by the lack of skilled workers. Although it has increased spending on education and its coverage of different age groups over the last decade, the quality continues to lack behind that of advanced countries. Moreover, progress in tertiary science and technology education is slow, as illustrated by the fact that the total number of engineering and technology PhD students in the region amounted to only 2,477 out of a total of 21,923 PhD graduates (data from the Ibero-American Network for Science and Technology Indicators)-. The lack of researchers and the persistent mismatch between human capital development and the demands of businesses are continuing to impede the region's advancement towards a knowledge based/innovative economy.

Although several countries in the region are currently seeking to improve their NIS structures, many institutions are insufficiently coordinated, resulting in an overlap of responsibilities and projects. Sometimes this causes unintended competition and inefficient use of funds. Innovation systems also suffer from poor planning and limited capacity to implement and assess innovation policies. In many cases, there are few government feedback mechanisms that provide advice on what policies are working and what amendments need to be made. There is also insufficient research on future demands of the private sector to ensure that education systems adapt to meet these requirements. CELAC members need to further develop and strengthen their NIS so that they facilitate the development, implementation and monitoring of STI policies.

In the area of internationalization of SMEs, a comparison between CELAC and Korea shows that SMEs in the former participate much less in the value of exports. Moreover, their participation

fell over the last decade predominantly due to persistent issues regarding low labour productivity levels. This hinders the ability of SMEs to access credit, obtain certifications, diversify risks, increase their production scale, improve the quality of their products and to export.

Different policy initiatives would help SMEs in the region to raise their direct and indirect participation in exports. In doing so, they would increase their contribution to the diversification of the national export basket and create employment in the export sector. For this purpose, efforts should be made to reduce the high level of SME rotation and increase the number of export products and markets. Most SMEs export to the region and take little advantage of fast growing markets, in particular in Asia. However, available public budgets and instruments in the region are limited in assisting SMEs to overcome the multiple obstacles required to internationalise. Although most countries in the region have institutions, programs and instruments to support direct and indirect exports of SMEs, their size is often small and they suffer from frequent changes over time. Moreover, these policies are frequently not embedded in broader macro and micro policy frameworks to improve the overall productivity of SMEs.

## **B. Proposals for bilateral cooperation**

Both CELAC members and Korea expressed their respective priorities regarding the future of bilateral cooperation at an Academic Seminar entitled “Exploring strategies for economic cooperation between the Republic of Korea and Latin America and the Caribbean”, held on 11 April 2016 at ECLAC headquarters in Santiago. Korea’s priorities were presented in section 1C. From the CELAC perspective, there is a desire for external cooperation to benefit in particular island states and landlocked countries. In addition, cooperation should prioritize areas that contribute to the achievement of the Sustainable Development Goals. In the particular case of cooperation with Korea, CELAC has a special interest to raise the value added of products and services exported by the region and to advance the region’s integration into global value chains. Another goal is to promote productive development in agriculture and mining chains, electronics industry and tourism, among others, to improve the quality of bilateral trade. The following recommendations in developing greater economic cooperation, based on analysis made for this project and the discussions during the seminar, seek to meet the aims and objectives from both CELAC and Korea.

### **1. Innovation and skills strategies**

- National Innovation System governance structures (A)

Many governments in CELAC countries face challenges with the design, coordination, implementation and evaluation of STI policies. Korea could assist CELAC member countries to:

- Design mid- and long-term STI plans and NIS, together with monitoring and evaluation mechanisms;
- Develop Knowledge Management Systems (KMS) to share data and improve coordination between institutions in charge of STI;
- Promote STI in high value added industries through:
  - A database of on-going technology research in the region, which could help firms to create research partnerships and avoid duplicating research efforts;
  - Development of specialized R&D centers in key export sectors such as agriculture, mining, electronics, motor vehicles and tourism, as has been achieved in coffee and corn;

- Support the creation of innovation clusters and technological parks, including financial incentives to attract high-tech MNEs and SME suppliers to these locations.

- Funding mechanisms (B)

In the context of very low R&D investment by the business sector in the CELAC region, Korea can assist governments to implement collaborative measures to incentivize investment through:

- A regional fund that promotes STI in priority areas with competitive tender processes.
- Assistance to improve seed, angel, and venture funding, tax incentives, subsidies and grants, as well as enhance evaluation instruments to ensure the best innovative projects are pursued and supported.

- Skills development (C)

Considering the low level of science and technology skills in the region, Korea could give support and provide insights on:

- Cognitive skills development at different levels of schooling in the areas of Science, Technology, Engineering, Arts, and Mathematics (STEAM);
- Vocational high schools and high-calibre engineering graduate schools;
- National or regional institutes to coordinate research and training, which act as knowledge hubs for universities and the private sector. These could forge entrepreneurial and business skills to transform ideas into marketable products or services;
- Worker training programs to meet the skills demands of the private sector following the Korean examples of the Human Resource Development Service and Advanced Technical and Vocational Education and Training system (TVET).

- Patents, entrepreneurship, start-ups and funding (D)

In the context of low levels of entrepreneurship in the region, Korea could provide assistance to:

- Create public-private support programs for industrial technologies;
- Build entrepreneurship schools that teach business and entrepreneurial skills to those that develop high potential marketable projects;
- Develop local innovation centers that enable young entrepreneurs to develop their technical abilities and encourage them to pursue a technical career;
- Promote knowledge sharing, personnel exchanges and advice for the development of local small and medium business administrations (SMBAs) in the CELAC region.

- Digital economy (E)

Based on its creative economy strategies, Korea could advise the CELAC region on how to promote their digital economy.

- Regional and international cooperation (F)

With Korean support, STI cooperation among countries can be promoted through different organizations:

- In the case of RICYT:

- Create a regional Observatory to facilitate exchanges of best practices between different member countries on the design, coordination, implementation and evaluation of NISs;

- Develop short and long term regional STI strategies;
- In the case of subregional integration schemes like the Andean Community, Caribbean Community, Central American Common Market, MERCOSUR and Pacific Alliance:
  - Design strategies to promote STI in subregional production networks in high value-added sectors such as oil, metals and gas, renewable energy, ICT, shipbuilding, tourism, and business services.
- In the case of the South American Council of Science and Technology and Commission for the scientific & technological development in Central America and Panama (CTCAP):
  - Promote regional innovation centers to promote frontier areas of STI, including nanotechnology, mechatronics and electronics.
  - Create Internet platforms (similar to the Latin American and Caribbean Collaborative ICT Research Federation, LACCIR) to provide details of R&D projects to encourage joint projects.
- In the case of the Andres Bello Agreement (CAB) and Union of Latin American and Caribbean Universities (UDUAL):
  - Encourage regional universities to conduct free courses on basic STI;
  - Promote exchanges between Korean and regional universities through scholarships and internships for masters and PhDs in science and technology;
  - Develop on-line technology-sharing network that encourages professors and students to participate in joint projects;
  - Develop closer relationships between Korean and regional universities that promote knowledge sharing and possible opportunities for joint research;
  - In the case of redClara and ORBA (Broadband Observatory):
  - Help to enhance the regional ICT infrastructure to facilitate joint projects and improve communication among researchers.
- In the case of the Regional Fund for Agricultural Technology (FONTAGRO) and similar organizations:
  - Increase the research portfolio in priority areas of the private sector and government;
  - Develop consortiums in other key industries.
- In the case of ECLAC:
  - Promote STI and labour skills policies as key elements to increase competitiveness, sustainability and regional development through intergovernmental meetings with representatives from the ministries of STI, Finance and Economy;
  - Document best practices of NISs and promote sub-regional dialogues on the development of NIS.

## **2. SME Internationalization**

- Data and research on the direct and indirect participation of SMEs in exports (A)

As little is known about direct and indirect exports of SMEs, Korea could help to:

- Improve export firm-level databases to identify exports, total revenues and number of employees through a better collaboration between institutions in charge of customs, tax and social security statistics.
- Build exporter directories by sub-regions in CELAC.
- Implement comparative studies between CELAC countries and Korea on issues such as:
  - Concentration, rotation, intensive and extensive margins of export SMEs;
  - Indirect participation of SMEs in exports through domestic sales to firms that sell abroad;
  - Potential exporters of non-traditional products and services.
- SME internationalization policies and responsible agencies (B)

In a context of insufficient coordination among public agencies involved in SME internationalization in many countries in the region, Korea could:

- Improve the institutional setup of agencies that promote exports and attract FDI;
- Promote collaboration among small countries to establish joint export and FDI promotion agencies;
- Contribute to the implementation of programs that increase the use of free trade agreements by SMEs.
- Assist in improving local small and business administrations.
- Information on SME promotion in overseas markets (C)

Korea could assist export promotion agencies in the improvement of the following measures:

- The Export Incubator Program providing offices and consulting to newly exporting SMEs;
- Multi-country offices in destinations markets;
- Participation of SMEs in foreign trade expos and trade fairs;
- Support SMEs accompanying large firms in entering foreign markets;
- Information for SMEs on procurement of foreign governments and international organizations such as bidding information and preparation of documents.
- Help develop electronic platforms such as e-commerce to facilitate SMEs in niche markets to export abroad and assist in outsourcing processes such as accounting, legal advice and IP protection.
- Trade finance (D)

To increase export-related finance opportunities for SMEs, Korea could assist in the improvement of:

- Export credit agencies that provide export finance to SMEs at preferential interest rates;
- Guarantees for the (partial) repayment of SMEs' export-related loans from commercial banks;
- Mechanisms to finance export innovation of SMEs;
- Export insurance mechanisms with preferential insurance fees for SMEs.
- Policies to improve SMEs export capacities, quality and sustainability (E)

To improve specialized human resources related to export SMEs, Korea could assist in:

- Establishing an agency that coordinates SME internationalization policies, following the examples of Korea's Small & Medium Business Corporation (SBC), and Korea Small Business Institute (KOSBI);
  - Setting up schemes to train foreign market experts by industries;
  - Training experts to strengthen industrial clusters through networks of SMEs, academia and large firms;
  - Train specialized staff to teach SMEs how to measure their environmental footprint.
  - Design tools to train trainers in other sustainability areas, which may provide niche markets for SMEs.
- Promoting indirect SME exports through clusters and business linkage programs (F)

To raise the level of SMEs participation in supplier networks of multinational firms, Korea could provide support to:

- Organize meetings with foreign investors, business associations, and local SMEs to promote networks;
  - Develop business linkage programs between SME suppliers and large firms;
  - Design programs that encourage large companies to increase their purchases from domestic SMEs;
  - Implement programs for SME suppliers to become suppliers to Korean companies in the region;
  - Establish special export zones to host foreign firms and SMEs, including the selection of the appropriate location, tax and non-tax incentives, and facilities related to transport, communication and housing.
- International, regional and sub-regional cooperation initiatives (G)

To increase plurilateral coordination mechanisms in the region, Korea could assist with:

- Broadening the Ibero network of trade promotion agencies to training activities;
- Creating other CELAC knowledge sharing networks;
- Empowering regional organizations to invest more in capacity building and coordination activities;
- Coordinate with other bilateral cooperation mechanisms and multilateral cooperation agencies, such as the IDB and World Bank to avoid duplication and seek synergies between respective programs.
- Pursue cooperation initiatives as mentioned under items (A) to (F).

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## List of Acronyms

CARICOM	Caribbean Community and Common Market
CELAC	Community of Latin American and Caribbean States
CENIS	Centro Educativo Nacional de Inglés y Sistemas (Colombia)
CENPROMYPE	Regional Center for the Promotion of SMEs in Central America
CNCyT	National Science and Technology Council (Colombia)
CNIC	Chile's National Innovation Council for Competitiveness
Colciencias	Colombian Institute for the Development of Science
CONACYT	Consejo Nacional de Ciencia y Tecnología (National Council on Science and Technology) (Mexico)
CORFO	Production Development Corporation (Chile)
DEEP	Development Experience Exchange Partnership (Korea)
ECLAC	Economic Commission of Latin America and the Caribbean
EDCF	Economic Development Cooperation Fund
EPZ	Export Promotion Zone
EximBank	Export-Import Bank of Korea
FDI	Foreign Direct Investment
FINEP	Financiadora de Estudos e Projetos (Financier of Studies and Projects) (Brazil)
FTA	Free Trade Agreement
IDB	Inter-American Development Bank
IICA	Inter-American Institute for Cooperation on Agriculture
INADEM	Instituto Nacional Del Emprendedor (Mexico)
INTA	Instituto Nacional de Tecnología Agropecuaria, (Argentina)
ISTK	Korea Research Council of Industrial Science and Technology
ITC	International Trade Center
KCGF	Korea Credit Guarantee Fund
KDI	Korea Development Institute
KEIT	Korea Institute for Advancement of Technology
KETEP	Korea Institute of Energy Technology Evaluation and Planning
KIAT	Korea Evaluation Institute of Industrial Technology
KIST	Korea Institute of Science and Technology
KISTEP	Korea Institute of S&T Evaluation & Planning
KITA	Korea International Trade Association
KOICA	Korea International Cooperation Agency
KONEX	Korea New Exchange
KOTRA	Korea Trade and Investment Promotion Agency
K-sure	Korea Trade Insurance Corporation
FONTAGRO	Regional Fund for Agriculture Research
FONTAR	Fondo Tecnológico Argentino
KRCF	Korea Research Council of Fundamental Science and Technology
KSP	Knowledge Sharing Program
MISIP	Ministry of Science, ICT & Future Planning (Korea)
MNE	Multinational Enterprise
MOE	Ministry of Education (Korea)
MOSF	Ministry of Strategy & Finance (Korea)
NIS	National Innovation System
NRF	National Research Foundation (Korea)

NSTC	National Science and Technology Council (Korea)
ODA	Official Development Assistance
OECD	The Organization for Economic Co-operation and Development
ORBA	Observatorio Regional de Banda Ancha (Regional Broadband Observatory)
RICYT	La Red de Indicadores de Ciencia y Tecnología Iberoamericana e Interamericana (The Network for Science and Technology Indicators – Ibero-American and Inter-American)
SBC	Small and Medium Business Corporation
SDG	Sustainable Development Goal
SDP	Supplier Development Program
SIECA	Center is part of the Central American Economic Integration System
SMBA	Small and Medium Business Administration
SME	Small and Medium-sized Enterprise
TVET	Advanced Technical and Vocational Education and Training system
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
WIPO	World Intellectual Property Organization

## **Annexes**

## Annex 1

### Summary of Academic Seminar

The Republic of Korea, the Community of Latin American and Caribbean States (CELAC) and the Economic Commission for Latin America and the Caribbean (ECLAC) organised an academic seminar entitled “Exploring strategies for economic cooperation between the Republic of Korea and Latin America and the Caribbean” on 11 April 2016 at the headquarters of ECLAC in Santiago, Chile. The seminar brought together experts and policy makers from 12 CELAC countries and Korea who are involved in policies related to science, technology and innovation, and the internationalisation of small and medium enterprises (SMEs). The seminar had two objectives. First share knowledge about i) policies on the two mentioned themes in the CELAC countries and Korea ii) the experiences of CELAC countries in regards to cooperation programs with Korea in the aforementioned areas. Second, generate ideas for the development of future bilateral cooperation in these areas.

This report provides a synthesis of the presentations and debates from the seminar. It contains five parts corresponding to the inauguration, three sessions, and round table. Annex 1 provides the programme and Annex 2 the names of the participants.

The material and multimedia (presentations, audio and video) from the seminar can be accessed via this link [http://conferencias.ECLAC.org/seminario\\_corea2016/index.htm](http://conferencias.ECLAC.org/seminario_corea2016/index.htm).

#### I. Inauguration

The seminar was inaugurated by Alicia Bárcena (Executive Secretary of ECLAC), Ji-eun Yu (Ambassador of the Republic of Korea to Chile) and César Dargam (Deputy Foreign Affairs Minister



of the Dominican Republic, which holds the Pro Tempore Chair of CELAC). Alicia Bárcena explained the successful economic development of Korea and the many lessons for Latin America and the Caribbean (LAC). Korea’s development was largely the result of pragmatism in the design and implementation of public policies. The importance of intensifying cooperation between Korea and the CELAC on the themes of the seminar was emphasised as being key to sustainable development in the region. For his part, Ji-eun Yu trusted this event would generate

concrete proposals to further strengthen ties between Korea and CELAC countries, as well as promote development of the region. César Dargam pointed out how this event supports a transition in CELAC’s agenda from political issues to themes related to economic and social development, environment and cooperation. As an extra-regional partner, Korea can assist the region in the design of this new agenda. Bilateral cooperation and exchanging experiences will help the region to better meet the challenges faced in the key themes of this seminar.

## II. Bilateral relations between the Republic of Korea and Latin America and the Caribbean

In the first session, Byung Jun Kim (Director of the Latin America and the Caribbean Division of the Ministry of Foreign Affairs, Korea), Won-Ho Kim (Professor at Hankuk University of Foreign Studies, Korea) and César Dargam presented their visions about bilateral relations between Korea and LAC. **Byung Jun Kim** gave an overview of the Korean cooperation with the region. Currently the government seeks to strengthen economic relations with LAC in three ways: increasing bilateral trade in sectors with high value added, creating a common market with free movement of goods, people and capital, and sharing the Korean development experience with LAC. An action plan with three pillars



supports these three objectives: deepening economic cooperation in industries with high value added, building physical and institutional infrastructure, and constructing a cooperative partnership for development. The current cooperation of Korea with LAC is channelled through four programs: Korea International Cooperation Agency (KOICA), Development Experience Exchange Partnership (DEEP), Knowledge Sharing Program (KSP) and the Economic Development Co-operation Fund (EDCF). The topics of current cooperation are very diverse, including science, technology and

innovation, education, e-government, infrastructure, development models, planning, SMEs, public health, public safety and information technology.

**Won-Ho Kim** presented the economic relations between Korea and LAC within the context of Korea's global trade and investment strategy since the sixties. After the Asian crisis in 1998, policy changed from a purely multilateral approach to an emphasis on signing bilateral free trade agreements (FTAs). Korea chose Chile as the first country to sign an FTA, which entered into force in 2004. Then it signed an FTA with Peru in 2011, Colombia in 2013 and with other countries in different parts of the world. Since 2015, negotiations are ongoing with Central America and Ecuador. There are difficulties in the negotiations with MERCOSUR (which have not yet started) and Mexico. In 2015, there was another shift in trade policy towards greater participation in mega-trade agreements, particularly the Regional Comprehensive Economic Partnership (RCEP).

**César Dargam** described the development agenda of CELAC and its collaboration with external partners. Since its foundation in 2011, the CELAC represents a framework for dialogue and political cooperation in various areas defined during annual presidential summits. To the extent possible, the CELAC seeks the convergence between sub-regional initiatives, partly through projects with partners outside the region. Such regional initiatives are developed in parallel to direct bilateral relations with Korea. External cooperation should benefit in particular islands and landlocked countries. In addition, cooperation should emphasize areas that contribute to the achievement of the Sustainable Development Goals. For the CELAC, priorities in economic cooperation with Korea are to increase the value added incorporated in products and services exported by the region and raise the participation of the region in global value chains. In particular, there is ample space for the region's upgrading in value chains linked to agriculture, mining, transport vehicles, electronics, and tourism, among others. This can be done in part through the improvement of the quality of bilateral trade with Korea. Assistance would also be welcome on the sustainable development of SMEs. Moreover, it is important to think about mechanisms to focus these efforts through meetings of experts and roadmaps with clear goals.

The three previous presentations were commented on by Jhon Fonseca (Deputy Minister of Foreign Trade, Costa Rica) and Herman Beck (Head of the Department for Asia, ProChile). **Jhon Fonseca** emphasised three key issues of cooperation between Korea and CELAC. First, Korea could support data management as a tool in decision making in international trade and regional integration. Examples include partial and general equilibrium models for estimating the impacts of free trade



agreements and defining support for the affected sectors. The second area is trade facilitation, such as the application of information technology in customs. This measure would reduce business costs and increase tax revenue. A third issue is cooperation between private companies, government and academia through public-private partnerships. **Herman Beck** focused on the Chilean experience of its FTA with Korea since 2004, which was the first FTA with an Asian country. In 2015, the Korean market represented 6.5% of total exports.

Between 2003 and 2015, Chilean exports to this market increased four times, reaching US\$ 4,132 million. In the same period, the number of Chilean companies that exported to the Korean market grew from 288 to 631 and the number of products from 179 to 330. In addition, Korean investment in Chile, concentrated in mining, reached US\$ 230 million.

### III. Innovation and skills policies

This session was inaugurated by **Yongsuk Jang** (Senior Research Fellow, Science and Technology Policy Institute (STEPI), Korea) with a description of the Korean development strategy based on science, technology and innovation (STII) and its implications for LAC. Korea's STI policies were implemented in three stages: institutional development, technological convergence ("catch-up") and leadership in STI. These policies were closely linked to industrial and trade policies. Key factors that contributed to its success were a critical mass in the form of a significant public budget, the concentration of R&D expenditure in the private sector, strategic planning, emphasis on the development of human capital in science and technology (S&T) intensive industries, institutional leaders such as the Ministry of S&T and autonomous research institutes supported by the government, universities specializing in S&T, regional development with a focus on S&T and innovative regional clusters. Since 2013, Korea has been promoting a "creative economy" through the provision of support to start-ups and SMEs in sectors such as biotechnology, nanotechnology and information technology. A continued effort over several decades has contributed to the growth in the number of scientific papers and patents and also explains Korea's current position as one of the 8 most competitive countries in science and technology in the world, according to the World Competitiveness Centre (IMD). The author also presented a cooperation project between STEPI and the Colombian government, which aims to create three specialized local STI parks. He also suggested possible future bilateral cooperation activities, such as visits and training programs for government officials, internships and scholarships for students, visits of Korean experts to LAC for studies, and promotion of institutional development and implementation of S&T projects.

Based on a review of the main challenges that countries face in the CELAC region in regards to innovation policies and skills development, **Andrew Berry** (consultant, ECLAC) presented four proposals for cooperation with Korea. First, in a context where most countries have an underdeveloped National Innovation System (NIS), Korea could support the creation of a regional observatory. It could document the NIS in each country, facilitate exchanges between experts and promote dialogue and cooperation. Second, given the lack of specialized human resources in STI, Korea could support the creation and strengthening of advanced technical and professional education systems, clusters that

promote public – private S&T cooperation, and incentives to promote S&T careers. Third, in order to stimulate entrepreneurship and improve access to finance for business innovation, Korea could create a knowledge sharing platform that advises governments. Fourth, to strengthen weak regional cooperation on STI, Korea could help extend initiatives such as the Regional Fund for Agriculture Technology (FONTAGRO) to other key sectors and promote bilateral joint business ventures.

Afterwards, there were presentations on three countries' experiences in bilateral cooperation with Korea. The first example was Colombia, presented by **Camilo García** (Advisor, Directorate of Technological Development and Innovation, COLCIENCIAS). Between 2012 and 2015, the cooperation focused on improving export promotion instruments, strengthening a business promotion bank (BANCOLDEX), and upgrading the National STI plan and policies around intellectual property. Recently, the bilateral cooperation has focused on the promotion of science and technology parks. The second example was Costa Rica presented by **Velia Govaere** (Executive Director, Council for the Promotion of Competitiveness, CPC). Between 2013 and 2016 Korea supported the design and implementation of strategies focused on education, STI and production networks. Cooperation facilitated the partnership between public and private actors. The third example was the Dominican Republic explained by **Maricell Silvestre Rodríguez** (Trade and Investment Policies Manager, Export and Investment Center of the Dominican Republic, CEI-RD). Korea supported the transformation from the National Bank for Housing Development and Production (BNV) to the National Bank of Exports (BANDEX), offering specialized financial products to exporters.

The session ended with some comments. First, **Gonzalo Rivas** (Chairman of the National Innovation Council for Development (CNIC), Chile) thanked the support of Korea's STEPI for the revision of the NIS and for supporting an international meeting on national councils for competitiveness and innovation in Chile, which will have its second version in Seoul. Korea could support countries in the region in the following ways. First, implement knowledge management systems to improve the exchange of information between entities in charge of STI policies and labor skills. Second, strengthen vocational training institutions. Third, improve the commercialisation of research and development outcomes. Fourth, improve databases that better characterise SMEs and focus policies on them. Fifth, create new financing mechanisms for the internationalization of SMEs.



Sixth, strengthen systems working on quality issues in the region, including metrology institutions. Finally, strengthen scientific cooperation to overcome global challenges such as natural disasters and water management.

should be strengthened. Moreover, it would be useful to support the implementation of a regional system of STI indicators and support programs promoting STI. Korea could help in the creation of a regional fund to promote STI and the implementation of a regional observatory that would register patents and share best practices for attracting human capital and preventing brain drain.

Second, **Guadalupe Martínez** (Executive Secretary, Council for Science and Technology (CONICYT), Nicaragua) stressed the importance of policies to improve labor skills, incorporate more value added in exported goods and services and foster entrepreneurship and innovation. For these purposes, links between universities and business

Third, **Claudia Guerrero** (Director of International Cooperation, National Secretariat for Science, Technology and Innovation (SENACYT), Panama) emphasised the importance of a short-and long-term vision for the construction of development strategies based on knowledge, partly through think tanks as shown by the Korean experience. Governments should define STI as an engine of development and a priority for the state. ECLAC could help to develop a Latin American perspective on this issue. There is also a need to strengthen the governance of NIS systems by engaging in dialogue with sub-regional bodies such as the Committee for the Scientific and Technological Development of



Central America and Panama (CTCAP). In addition, emphasis should be placed on strengthening management indicators to assess the results of innovation policies.

Fourth, **Gisella Orjeda** (President, National Council for Science, Technological and Technological Innovation (CONCYTEC), Peru) called for the need to increase the awareness of policymakers in the Ministries of Economy and Finance on the importance of STI, who decide on the budget for this area. In LAC countries there is a lack of knowledge about how to organize a NIS, unlike, for example, Korea. In this context, it would be useful to organize a meeting with Ministers of Economy and Finance, facilitated by ECLAC, on the importance of STI in driving development. The Korean experience provides a model in this context.

Some comments from the audience insisted on the need to nurture a culture that values STI in the region, which has been achieved in Korea. In turn, it is urgent to generate more concrete results from STI policies to convince policy makers to dedicate more resources to this area. STI policies are not only necessary to improve competitiveness but also essential to achieve development and ensure the future of humanity. The media could contribute to the promotion of STI. ECLAC has helped to train mid-level public officials, but there is still a need to educate more high ranking policy makers. Korea provides lessons in this area.

#### **IV. Policies for the internationalization of small and medium-sized enterprises in the Republic of Korea and Latin America and the Caribbean**

Jai Sheen Mah (Professor, Ewha Womans University, Korea) began this session with a presentation on policies to support the internationalization of SMEs in Korea. Such policies were introduced in the eighties, but intensified from 2013 onwards with the promotion of the creative economy. SMEs employed 87% of the workforce and accounted for 30% of direct and indirect exports in 2014. A single institution (SMBA) coordinates overall development programs for SMEs, but there are several institutions responsible for their internationalization. These include the Korea Trade and Investment Promotion Agency (KOTRA), the Korea International Trade Association (KITA), the Korea Technology Finance Corporation (KIBO) Korea Trade Insurance Corporation (K-sure) and EXIM Bank. These agencies provide financial support, promote knowledge and information about foreign markets, provide translators, train people for exporting, give entrepreneurs training, and support innovation and technology for sales in foreign markets (such as e-commerce). In turn, several instruments support the inclusion of SMEs in global or regional value chains, for example legal support for foreign direct investment of SMEs, special financing for SMEs accompanying large companies in their internationalization process, SME support by retired managers, and linkages promotion with larger companies through clusters. There are also proactive policies for the internationalization of SMEs that facilitate e-commerce, tax exemptions and tax refund policies. Possible areas of bilateral cooperation include knowledge transfer, strengthening credit systems and insurance for exporting SMEs, the development of human resources, the creation and strengthening of export promotion agencies and investment and the participation of SMEs in value chains.

Roberto Urmeneta (Consultant, ECLAC) reviewed policies for promoting the internationalization of SMEs in CELAC countries. Challenges for SMEs trying to export to foreign markets are higher in the region than in Korea and the European Union, given the lower levels of productivity and education. Data from 15 CELAC countries show that the number of exporting companies and SMEs grew between 2002 and 2008, but subsequently stagnated. In these countries, SMEs account for 6% of the value of exports, compared with 18% in Korea in 2014. Many policies promoting the internationalization of SMEs in the region lack a long-term vision that allows the accumulation of experience. Political cycles often change the orientation of policies. In addition, many programs overlap, have low coverage in terms of SMEs and are poorly coordinated. In this regional context, four areas of cooperation with Korea are proposed. First, Korea could assist countries with methodologies to complement the data on exporting companies from customs with other administrative records to identify total sales and employment of these companies. Cross referencing this data would allow better identification of SMEs and thus better targeting of policies. Second,

Korea could help to improve the institutional framework that supports exporting SMEs. Third, it can provide advice on how to boost the participation of SMEs in global value chains. Fourth, it could propose instruments to stimulate innovation and training for SMEs, together with easier access to finance and insurance. Finally, it is recommended to integrate trade policy with industrial policy.

Three experiences of Korean cooperation in the region were presented. The first one in Ecuador between 2012 and 2014 was explained by Fausto Perez (ex-consultant in charge of KSP). The aim was to promote the development of petrochemicals, biotechnology, science and technology, human resource development and banking. It is recommended that cooperation with Korea in the region supports the formation of clusters for SMEs to generate business networks with universities. Oscar Sandoval Torres (Director of Outreach, Jocotitlán Institute of Technology, Mexico) explained the experience in the State of Mexico where Korea supported the installation of Academic-Industry Cooperation Centers at four universities. So far these Centers have generated few projects with private companies, due to the low participation of authorities that define policies and the low level of interest from Mexican and Korean firms. The third experience from the south of Peru was presented by Enrique Aldave García del Barrio (Senior Consultant, Interlinks consulting group – Peru), where Korea recommended improving the competitiveness of SMEs in three industries (alpaca, coffee and automotive parts). The project had little impact due to the low participation of the public and private sectors, insufficient commitment to implement recommendations, insufficient public and private co-financing to ensure a greater commitment of partners, lack of clear objectives, insufficient marketable proposals, lack of assessments of opportunities and risks of the intervention, lack of mechanisms to sustain the intervention once the technical assistance had concluded and lack of a monitoring committee with technical capacity and political will to manage the implementation stage.

Following the presentations four comments were made. The first was made by Helson Braga (President of the Brazilian Association of Export Processing Zones, ABRAZPE). He emphasized the contribution of free economic zones to the internationalization of SMEs in Korea, which sell many different types of intermediate goods and services to export firms located in these regional spaces. In 2012, the Brazilian Ministry of Finance and Korea Development Institute (KDI) conducted a comparative study between the export processing zones in Brazil and the free zones in Korea. Some recommendations of this study are currently being incorporated into law revisions for these zones in Brazil. To improve business linkages between SMEs and manufacturing and services firms in export processing zones in LAC, Korea could cooperate more with CELAC governments on this topic.

The second comment was from Rafael Sabat (International Deputy Director, ProChile), who concentrated on the experience of Chilean SMEs exporting to Asia. China, Japan and Korea are increasingly important markets for Chilean SMEs. They export not only goods but also services. ProChile offices in these countries have been important in supporting Chilean SMEs to meet the requirements of these markets.

Olga Lucía Pérez (Director of Cooperation, ProColombia) discussed Colombia's experience with Korean support for the promotion of exports and foreign direct investment. In Colombia, there are few exporting companies and even less exporting SMEs. Out of 67,500 companies in Colombia only 1,290 were exporting SMEs. A major goal of ProColombia is the diversification of the export basket and destination markets, as well as a better exploitation of the opportunities provided by trade agreements. ProColombia aims to generate 1,000 new exporters in 4 years. Korean technical assistance is highly valued in improving the quality of instruments offered for the internationalization of SMEs.

A fourth comment was made by **Mariana Ferreira** (Trade Intelligence Manager, Uruguay XXI), who suggested four areas of future cooperation with Korea. First, it could advise on methodologies to better measure exporting SMEs, especially those that sell services abroad and those that export indirectly through sales to other export firms. Second, Korea could provide business intelligence for Asian markets in which small countries like Uruguay cannot afford representative offices. Third, advice on setting up supplier development programs to promote sales of SMEs to multinational firms, whose presence in Uruguay has increased rapidly in recent years. Fourth, Korea can support regional cooperation. Currently Uruguay chairs the Latin American Network of Organizations



for the Promotion of Foreign Trade (Redibero). Recently it wrote a proposal in the area of regional public goods to advise export promotion agencies in three areas: a regional strategy for attracting foreign direct investment, the development of specific tools to promote exports of high value added goods and the improvement of evaluation methods to measure the impact of implemented programs and policies.

This session ended with some suggestions from the audience. Instead of submitting a long list of requests for cooperation to the Korean government, the CELAC proposal should focus on accumulated experiences. It is also important to invite the private sector and academia to participate in the bilateral dialogue, since the issues discussed refer to the society at large and not just the government. In addition, the main beneficiaries of the programs are businesses, while universities are those that think and innovate. It was also stressed that access to finance is essential to pay for certifications (such as ISO 9000) in supplier development programs that promote the inclusion of SMEs in global value chains. In addition, emphasis was given to the importance of considering social and environmental impacts of trade promotion through specialized models, as well as the prospects of international demand. Finally, the importance of strategic planning was highlighted, which partly explains the success of Korea to decide what to produce, where to invest, with whom to sign FTA, etc. This is one of the weaknesses of the region.

## V. Define cooperation modalities between the Republic of Korea and Latin America and the Caribbean

The seminar ended with a round table of six participants aimed at defining modalities of cooperation between the two sides. João Alberto De Negri (Researcher at the Institute of Applied Economic Research, IPEA, Brazil) laid out the main challenges in the field of innovation in Brazil: the insufficient visible benefits of public investment in STI, low private investment in innovation and weak links with universities, slow development of venture capital, and obstacles for innovative entrepreneurship. To address these challenges, the government introduced in recent years some new instruments: Science without Borders and

PRONATEC train human resources in STI, Plan Innova Company supports business innovation, and FINEP 30-days facilitate access to funding for innovation. In addition, the National Programme Knowledge Platform was created, where private, public and academic actors exchange knowledge in six sectors: agriculture, energy, advanced manufacturing, Amazon wood, health and ICT. Cooperation with Korea could help reduce gaps in terms of ICT with advanced countries in key industries: aircrafts "green", bio drugs, radioisotopes, satellites, vaccines, Sirius (synchrotron light) health equipment, 2G ethanol (bio kerosene), nano-materials and advanced manufacturing.

Andrea Ordóñez (Director of trade intelligence and investment, ProEcuador) explained Ecuador's collaboration with Korea in the area of export promotion. Since 2011, headquarters of ProECUADOR and their office in Korea have worked with several agencies (KOICA, KOIMA and

KOTRA) on studies, technical assistance, meetings and trade missions. Currently, the collaboration focuses policies to promote exports and attract foreign direct investment. Future bilateral cooperation could focus on the development of instruments to support companies that do not yet export or have stopped exporting. Also, advice is welcomed on how to support sales of SMEs in niche markets, such as exports of handicrafts through electronic platforms (e-commerce). Another idea is to create innovation clusters with new entrepreneurs and experts to exchange experiences and transfer knowledge. It is also important to improve access to finance for specific purposes such as working capital, certification and trade promotion.

Milton Sandoval (Technical Project Manager, National Secretariat of Science and Technology (SENACYT), Guatemala) made several suggestions for cooperation with Korea. It could assist the region in the development of specialized international R&D centers, following existing examples for coffee and corn. These centers can be in traditional sectors or advanced ones such as electronics, mechatronics and nanotechnology. Other areas for cooperation include NSIs, human resources in high level technological science, digital agenda, e-government, inclusive innovation with vulnerable sectors such as MSMEs, and long term projections and planning in STI. Another issue is promoting an STI culture to increase political support on this issue. Principles for bilateral cooperation are differentiated co-financing, the need for cooperation to adjust to national policy priorities in the host country, and the necessity to improve governance. It is also important to channel cooperation through groups of countries such as SIECA. The selection mechanisms for cooperation could be open invitations, mutually agreed terms of reference, duly registration of participants, and the strengthening of research networks. In 2015, the "National Plan for Science, Technology and Innovation 2015-2032" was approved in Guatemala. It includes five programs: R&D excellence, human resources, promotion of STI, digital agenda and innovation. This plan was generated through a participatory process involving academic, private and public actors.

Carlos Salgado (Executive Director of National Promotion of ProMéxico) explained the Korean support his organization received to improve the SMEs in the metalwork industry in the state of Chihuahua in two phases. In 2013, Korea advised on the design of laboratories, prototyping and flexible manufacturing. In 2014, joint work was done on the development of academic profiles with capabilities in mold and die for this industry. Currently a new proposal is being developed for the automotive sector. SMEs who participate in these projects also receive support from ProMéxico to generate links with buyers and promote their exports.

Vladimir Hernández (Export Development Manager, CEI-RD, Dominican Republic) suggested possible future areas of cooperation. First, develop technical assistance to measure SMEs' indirect exports through sales to traditional exporters. Second, improve access to credit for SMEs to finance outsourcing such as accounting and legal advice. More generally, it would be interesting to know the instruments and incentives offered by the government to the export sector, such as KOTRA, during Korea's development process. One could organize a seminar with Korean experts on these issues. To share costs and information about specific markets, it was suggested to develop specialized plurinational agencies like those of the Pacific Alliance in Turkey. Third, develop a regional program with ECLAC on export innovation, whereby the tools of export promotion agencies are improved to support SMEs in implementing certifications, adapt products for international demand and optimize distribution channels. He also mentioned the importance of co-financing by entrepreneurs in technical assistance programs.

Finally, Byung Jun Kim (Director of the Latin America and the Caribbean) thanked countries for their suggestions that will help Korea improve future cooperation with LAC. He reiterated that cooperation should be formed by projects that are mutually beneficial. It was emphasized that bilateral cooperation could continue, but that plurinational forms of cooperation with CELAC should also be developed. As CELAC has no secretariat, an institution like ECLAC or a member country could be selected to coordinate cooperation with Korea. The importance of co-financing projects to ensure better cooperation was also mentioned. Another criterion for selecting projects is their potential contribution to self-sustained growth in geographic areas where the cooperation is concentrated.

## Annex 2

### Agenda of Academic Seminar

#### EXPLORING STRATEGIES FOR ECONOMIC COOPERATION BETWEEN THE REPUBLIC OF KOREA AND LATIN AMERICA AND THE CARIBBEAN

Santiago, 11<sup>th</sup> April 2016

**Raúl Prebisch conference room,  
ECLAC headquarters**

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|---|--|
| 8.30 - 9.00 a.m.  | Registration of participants   |
| 9.00 - 9.30 a.m.  | <p>Opening remarks</p> <ul style="list-style-type: none"> <li>• Alicia Bárcena, Executive Secretary of the Economic Commission for Latin America and the Caribbean (ECLAC)</li> <li>• Ji-eun Yu, Ambassador of the Republic of Korea to Chile</li> <li>• César Dargam, Vice Minister of Foreign Affairs of the Dominican Republic, in his capacity as Pro Tempore Chair of the Community of Latin American and Caribbean States (CELAC)</li> </ul> |
| <b>Session 1. Bilateral relations between the Republic of Korea and Latin America and the Caribbean</b>                 |  |
| Moderator: Sebastián Herreros, Economic Affairs Officer of the Division of International Trade and Integration of ECLAC |  |
| 9.30 - 9.50 a.m.  | <p>Cooperation policies of the Republic of Korea with Latin America and the Caribbean</p> <ul style="list-style-type: none"> <li>• Byung Jun Kim, Director of the Latin American and Caribbean Cooperation Division of the Ministry of Foreign Affairs of the Republic of Korea</li> </ul>   |
| 9.50 - 10.10 a.m.   | <p>Latin America and the Caribbean in the global trade and integration strategy of the Republic of Korea</p> <ul style="list-style-type: none"> <li>• Won-Ho Kim, Professor at the Hankuk University of Foreign Studies of the Republic of Korea</li> </ul>  |
| 10.10 - 10.30 a.m.  | <p>The ECLAC vision of the regional development agenda</p> <ul style="list-style-type: none"> <li>• César Dargam, Vice Minister of Foreign Affairs of the Dominican Republic, in his capacity as Pro Tempore Chair of CELAC</li> </ul>   |
| 10.30 - 10.45 a.m.  | <p>Discussion</p> <ul style="list-style-type: none"> <li>• Jhon Fonseca, Vice Minister of Foreign Trade of Costa Rica</li> <li>• Herman Beck, Chief of the Asia-Pacific Department of ProChile</li> </ul>  |
| 10.45 - 11.00 a.m.  | Coffee Break   |

## Session 2. Innovation and skills policies

Moderator: Sebastián Rovira, Economic Affairs Officer of the Division of Production, Productivity and Management of ECLAC

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|--------------------|--|
| 11.00 - 11.30 a.m. | <p>Korean science, technology and innovation strategies: policy implications for Latin America and the Caribbean</p> <ul style="list-style-type: none"> <li>• Yongsuk Jang, Senior Research Fellow at the Science and Technology Policy Institute (STEPI) of the Republic of Korea</li> </ul>  |
| 11.30 - 11.50 a.m. | <p>Innovation and skills policies in selected CELAC countries</p> <ul style="list-style-type: none"> <li>• Andrew Berry, Consultant of ECLAC</li> </ul>  |
| 11.50- 12.00 noon  | <p>The Colombian experience of bilateral cooperation with the Republic of Korea</p> <ul style="list-style-type: none"> <li>• Camilo García, Adviser of the Directorate of Technological Development and Innovation of the Administrative Department of Science, Technology and Innovation (Colciencias) of Colombia</li> </ul>   |
| Noon - 12.10 p.m.  | <p>The Costa Rican experience of bilateral cooperation with the Republic of Korea</p> <ul style="list-style-type: none"> <li>• Velia Govaere, Executive Director of the Council for the Promotion of Competitiveness (CPC) of Costa Rica</li> </ul>  |
| 12.10 - 12.20 p.m. | <p>The Dominican Republic experience of bilateral cooperation with the Republic of Korea</p> <ul style="list-style-type: none"> <li>• Maricell Silvestre Rodríguez, Trade and Investment Policies Manager of the Export and Investment Centre of the Dominican Republic (CEI-RD)</li> </ul>  |
| 12.20 a 12.40 p.m. | <p>Comments</p> <ul style="list-style-type: none"> <li>• Gonzalo Rivas, President of the National Council of Innovation for Development (CNID) of Chile</li> <li>• Guadalupe Martínez, Executive Secretary of Nicaraguan Council for Science and Technology (CONICYT)</li> <li>• Claudia Guerrero, Director of International Cooperation of the National Secretariat of Science, Technology and Innovation (SENACYT) of Panama</li> <li>• Gisella Orjeda, President of the National Council for Science and Technological Innovation (CONCYTEC) of Peru</li> </ul> |
| 12.40 - 13.00 p.m. | Discussion   |
| 13.00 - 14.30 p.m. | Lunch  |

### **Session 3. Policies for the internationalization of small and medium-sized enterprises in the Republic of Korea and Latin America and the Caribbean**

Moderador: Nanno Mulder, Chief of the International Trade Unit of the Division of International Trade and Integration of ECLAC

- 14.30 - 14.50 p.m. Policies for the development and internationalization of small and medium-sized enterprises in the Republic of Korea
- Jai Sheen Mah, Professor at Ewha Womans University of the Republic of Korea
- 14.50 - 15.10 p.m. Policies for the internationalization of small and medium-sized enterprises in selected CELAC countries
- Roberto Urmeneta, Consultant of ECLAC
- 15.10 - 15.20 p.m. The Ecuadorian experience of bilateral cooperation with the Republic of Korea
- Fausto Pérez, ex consultant of KSP
- 15.20 - 15.30 p.m. The Mexican experience of bilateral cooperation with the Republic of Korea
- Óscar Sandoval Torres, Director of Outreach of the Jocotitlán Institute of Technology of Mexico
- 15.30 - 15.40 p.m. The Peruvian experience of bilateral cooperation with the Republic of Korea
- Enrique Aldave García del Barrio, Senior Consultant of Interlinks Consulting Group of Peru
- 15.40 - 16.05 p.m. Comments
- Helson Braga, President of the Brazilian Association of Export Processing Zones (ABRAZPE)
  - Rafael Sabat, International Deputy Director of ProChile
  - Olga Lucía Pérez, Director of Cooperation of PROCOLOMBIA
  - Mariana Ferreira, Manager of the Trade Intelligence Department of Uruguay XXI
- 16.05 - 16.30 p.m. Discussion
- 16.30 a 16.45 p.m. Coffee Break

### **Round table: Defining cooperation modalities between the Republic of Korea and Latin America and the Caribbean**

Moderator: Keiji Inoue, Deputy Director of the Division of International Trade and Integration of ECLAC

- 16.45 - 17.45 p.m. Government officials of the countries of CELAC and the Republic of Korea

- João De Negri, Researcher of the Institute of Applied Economic Research (IPEA) of Brazil
- Andrea Ordóñez, Director of Trade Intelligence and Investment of the Export and Investment Promotion Institute of Ecuador (ProEcuador)
- Milton Sandoval, Technical Director of Projects of the National Secretariat of Science and Technology (SENACYT) of Guatemala
- Carlos Salgado, Executive Director of National Promotion of ProMéxico
- Vladimir Hernández, Export Development Manager of the Export and Investment Centre of the Dominican Republic (CEI-RD)
- Byung Jun Kim, Director of the Latin American and Caribbean Cooperation Division of the Ministry of Foreign Affairs of the Republic of Korea.

17.45 - 18.00 p.m.

Closing remarks

- Keiji Inoue, Division of International Trade and Integration of ECLAC



### Annex 3 List of participants

Name	Position	Institution	Country
Alicia Bárcena	Executive Secretary	ECLAC, United Nations	United Nations
Ji-eun Yu	Ambassador	Republic of Korea in Chile	Republic of Korea
César Dargam	Vice Minister of Foreign Affairs	President Pro Tempore Chair of CELAC	Dominican Republic
Sebastián Herreros	Economic Affairs Officer DCII	ECLAC, United Nations	United Nations
Byung Jun Kim	Director	Latin American and Caribbean Cooperation Division of the Ministry of Foreign Affairs of the Republic of Korea	Republic of Korea
Won-Ho Kim	Professor	Hankuk University of Foreign Studies	Republic of Korea
Jhon Fonseca	Vice Minister	Minister of Foreign Trade of Costa Rica	Costa Rica
Herman Beck	Chief	Asia-Pacific Department of ProChile	Chile
Sebastián Rovira	Economic Affairs Officer DDPE	ECLAC, United Nations	United Nations
Yongsuk Jang	Senior Research Fellow	Science and Technology Policy Institute (STEPI)	Republic of Korea
Andrew Berry	Consultant DCII	ECLAC, United Nations	United Nations
Camilo García Duque	Adviser	Directorate of Technological Development and Innovation of the Administrative Department of Science, Technology and Innovation (Colciencias)	Colombia
Velía Govaere	Executive Director	Council for the Promotion of Competitiveness	Costa Rica
Maricell Silvestre Rodríguez	Trade and Investment Policies Manager	Export and Investment Centre	Dominican Republic
Gonzalo Rivas	President	National Council of Innovation for Development (CNID)	Chile
Guadalupe Martínez	Executive Secretary	Nicaraguan Council for Science and Technology (CONICYT)	Nicaragua
Claudia Guerrero	Director of International Cooperation	National Secretariat of Science, Technology and Innovation (SENACYT)	Panama
Gisella Orjeda	President	National Council for Science and Technological Innovation (CONCYTEC)	Peru
Nanno Mulder	Chief of the International Trade Unit DCII	ECLAC, United Nations	United Nations
Jai Sheen Mah	Professor	Ewha Womans University of the Republic of Korea	Republic of Korea

<b>Name</b>	<b>Position</b>	<b>Institution</b>	<b>Country</b>
Roberto Urmeneta	Consultant DCII	ECLAC, United Nations	United Nations
Fausto Pérez	Ex-Consultant	KSP	Ecuador
Óscar Sandoval Torres	Director of Outreach	Jocotitlán Institute of Technology of Mexico	Mexico
Enrique Aldave García del Barrio	Senior Consultant	Interlinks Consulting	Peru
Helson Braga	President	Brazilian Association of Export Processing Zones (ABRAZPE)	Brazil
Rafael Sabat	International Deputy Director	ProChile	Chile
Olga Lucía Pérez	Director of Cooperation	ProColombia	Colombia
Mariana Ferreira	Manager of the Trade Intelligence Department	Uruguay XXI	Uruguay
Keiji Inoue	Deputy Director DCII	ECLAC, United Nations	United Nations
João Alberto De Negri	Researcher	Institute of Applied Economic Research (IPEA)	Brazil
Andrea Ordóñez	Director of Trade Intelligence and Investment	Export and Investment Promotion Institute (ProEcuador)	Ecuador
Milton Sandoval	Technical Director of projects	National Secretariat of Science and Technology (SENACYT)	Guatemala
Carlos Salgado	Executive Director of National Promotion	ProMéxico	Mexico
Vladimir Hernández	Export Development Manager	Export and Investment Centre	Dominican Republic



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