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Contribution by

Peru

**Peru: Science, Technology & Innovation Policy Review
Achievements and Challenges of STI Policies in Peru**

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The views presented here are the contributor's and do not necessarily reflect the views and the position of the United Nations or the United Nations Conference on Trade and Development

PERU: SCIENCE , TECHNOLOGY & INNOVATION POLICY REVIEW

ACHIEVEMENTS AND CHALLENGES OF STI POLICIES IN PERU

Monitoring Group:

Ministry of Production

Ministry of Foreign Affairs

CONCYTEC

Geneva, May 24th 2012



PERU



STRENGTHS

- Annual growth of over 6% over 10 years
- Price stability
- High export growth
- Strong international reserves
- Global integration
- High index of entrepreneurship
- Megadiversity

WEAKNESSES...CHALLENGES

- R&D: one of the lowest in Latin America (0.15%)
- 113th in the global index in innovation (WEF)
- Weak development in education and technical education.
- 10% of university students in Science and Engineering
- Exporter of raw materials

UNCTAD Science, Technology & Innovation Policy Review, Peru

- The final Report of UNCTAD was presented in October 4th, in Iquitos and Arequipa, and October 7th 2011 in Lima
- Was driven by the Monitoring Group comprising the Ministry of Production, the Ministry of Foreign Affairs and the National Council for Science, Technology and Innovation (CONCYTEC).
- We are confident that the report will help us to develop our national capabilities in Science, Technology and Innovation and overcome the weaknesses that limit us to compete.
- We want progress in a global economy based on knowledge and achieve a decentralized and diversified productive development with social inclusion.

Science, Technology and Innovation Policy in Peru

This presentation has taken into account the State Policy of the President of Peru, Ollanta Humala.

- The Multiannual Strategic Programme of the Ministry of Production, PESEM 2012-2016
- The agreements of the National Competitiveness Council and the Competitiveness Agenda, on the strategic axe of innovation.
- The working paper of the Advisory Commission for Science, Technology and Innovation (CSTI), January 2012
- Discussions in the Committee on Science and Technology of the National Parliament, established in this government, and related legislative proposals
- The recommendations of the Science, Technology and Innovation Policy Review, UNCTAD, October 2011

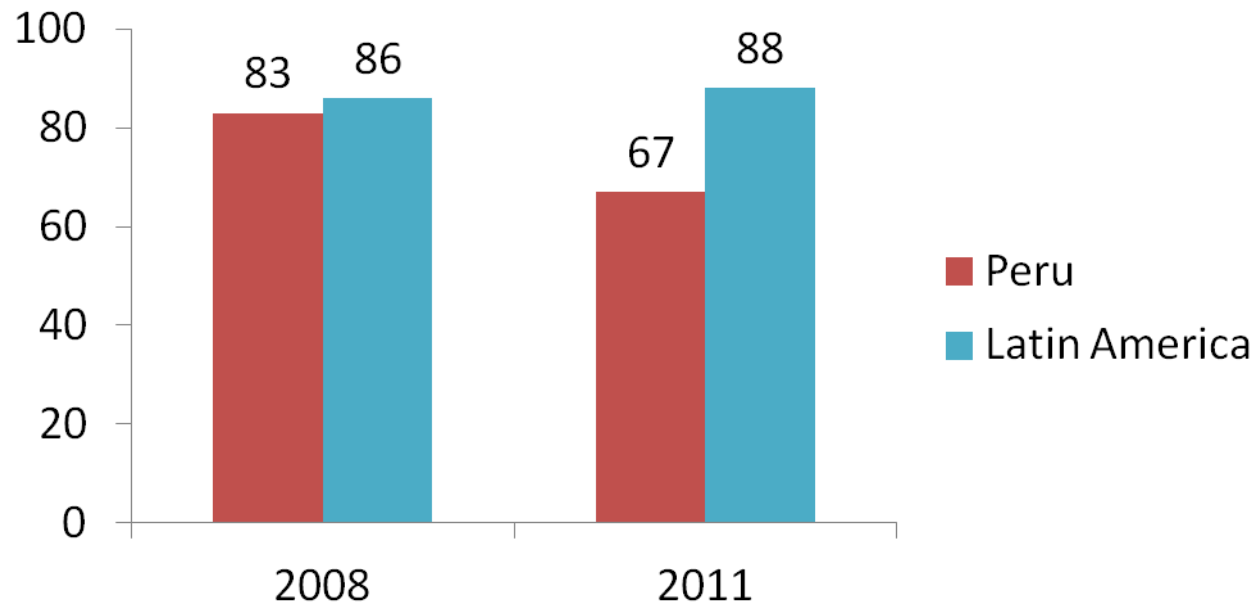
Science, Technology and Innovation Policy in Peru (2)

The Roadmap of President Ollanta Humala, states:

- *“To organize and expand technical assistance, market information, technological innovation, production infrastructure and facilities for business organization”*
- *“To promote the creation of value and production chains exploiting the competitive advantages of the country”*
- *“Educational Revolution that emphasizes on the quality and on the development of science, technology and innovation.”*
- *“Graduate scholarships in countries with more advanced education standards ... studies in applied sciences and capacity building in technology”*

After more than 10 years of economic growth of over 6%, Peru has reached an intermediate level of development

**WEF Global Competitiveness Index
Peru and Latin America, 2008 y 2011**



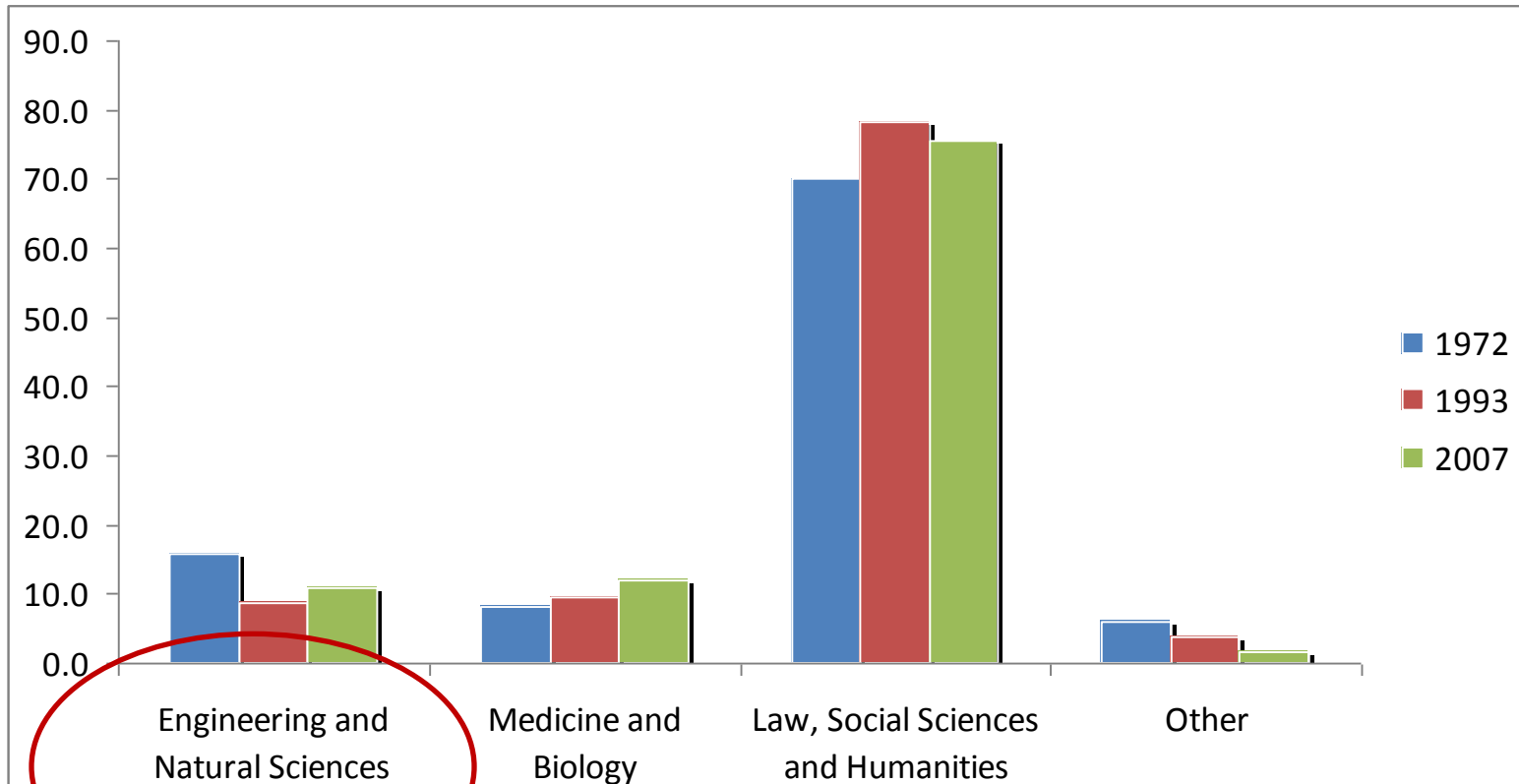
Peru in the Global Index in Innovation

INNOVATION PILLAR	Brazil	Chile	Colombia	Mexico	Argentina	Peru
General	44	46	57	63	78	113
Enabling environment						
Competition	132	23	128	103	141	59
Quality of math and science education	127	87	83	126	113	135
Quality of education system	115	124	72	107	86	128
ICT use	63	56	78	73	55	82
Gov't procurement of advanced tech products	52	47	45	75	127	98
Intellectual property protection	84	63	86	85	128	122
Venture capital availability	52	34	49	78	129	38
Investment						
Company spending on R&D	30	60	76	79	72	118
Quality of scientific research institutions	42	51	69	54	41	109
University-industry collaboration in R&D	38	44	43	45	48	103
Availability of scientists and engineers	91	29	77	86	75	102
Performance						
Capacity for innovation	31	66	59	76	77	99
Utility patents per million population	60	53	76	58	55	83

Source: The Global Competitiveness Report 2011-2012.

Challenge 1: Lack of skilled human resources

Percentage of total professionals



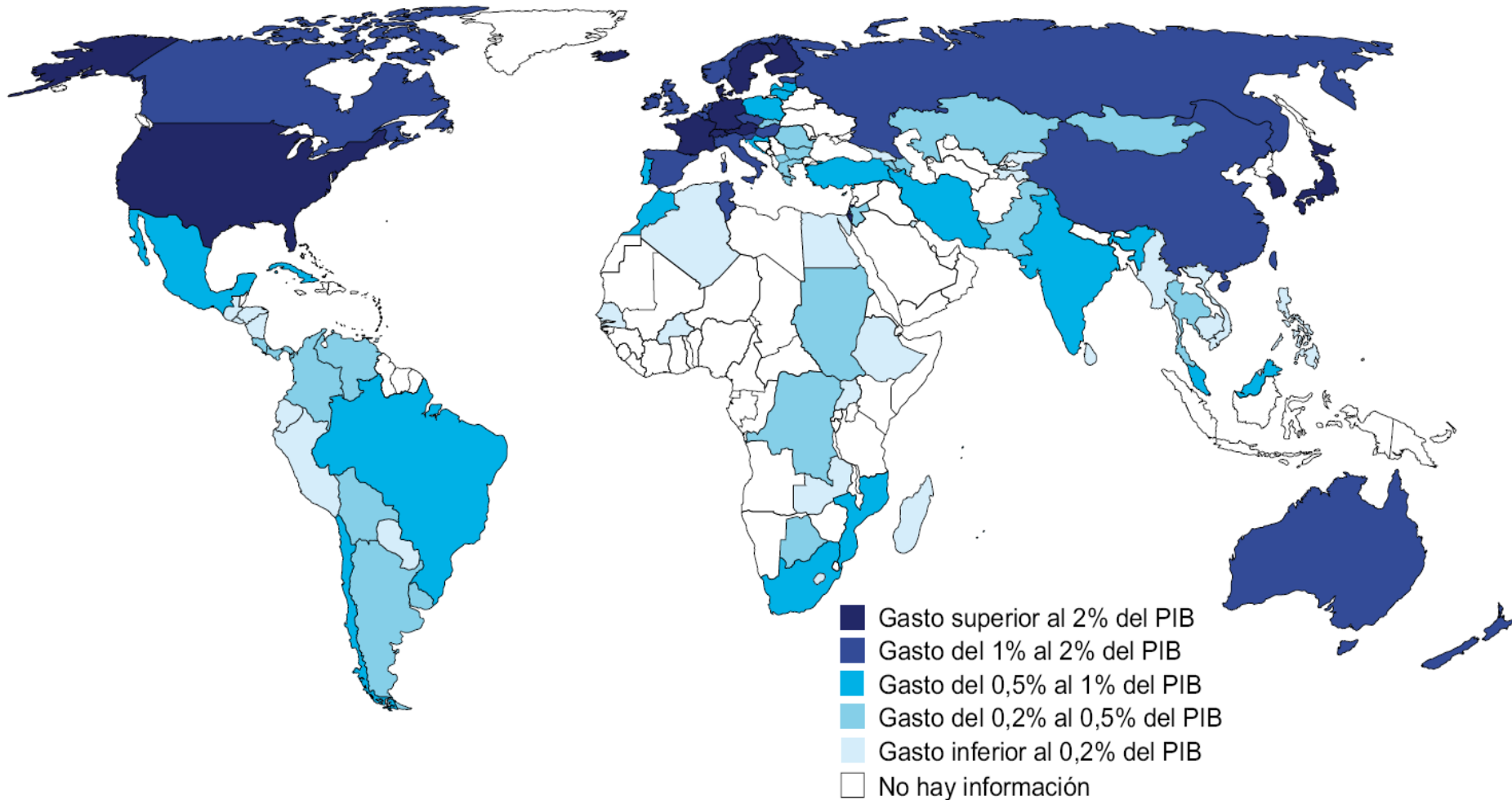
Peru has 1.090 researchers: (Argentina: 36.000 / Brazil: 135.000)

Source: CEPLAN 2009 (INEI Census 1972, 1993, 2007)

Challenge 2: Lack of investment in R&D

MAPA DEL GASTO EN INVESTIGACION Y DESARROLLO

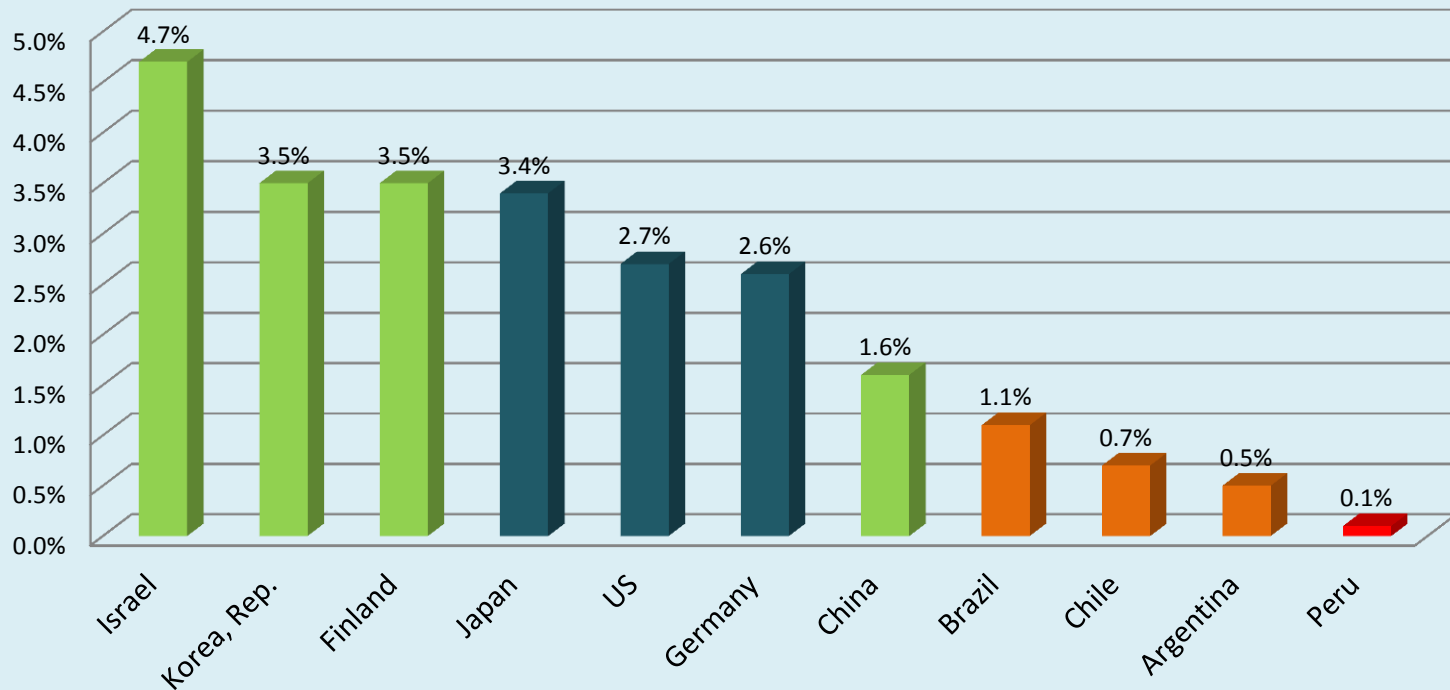
(2006 o último año disponible)



Source: CEPAL.

Challenge 2 (2): Lack of investment in R&D

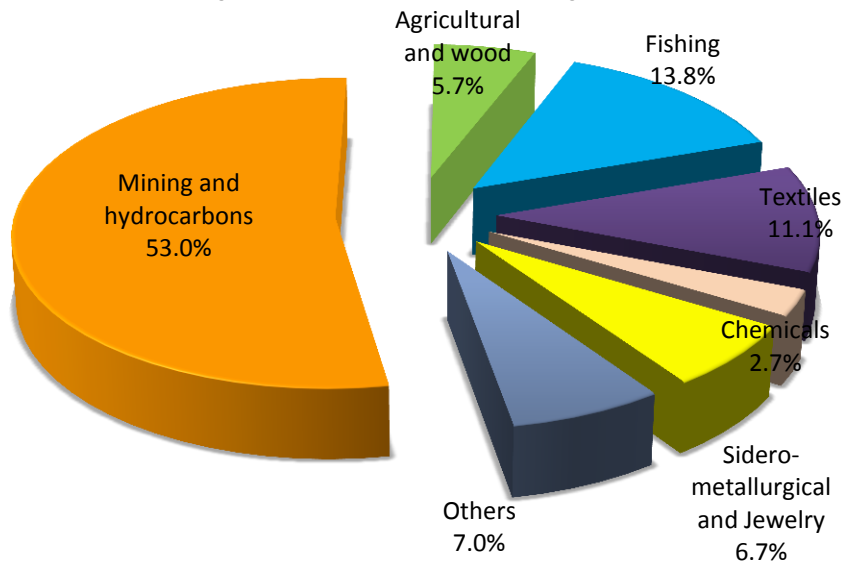
Investment in R&D as a percentage of GDP
(latest figures from selected countries)



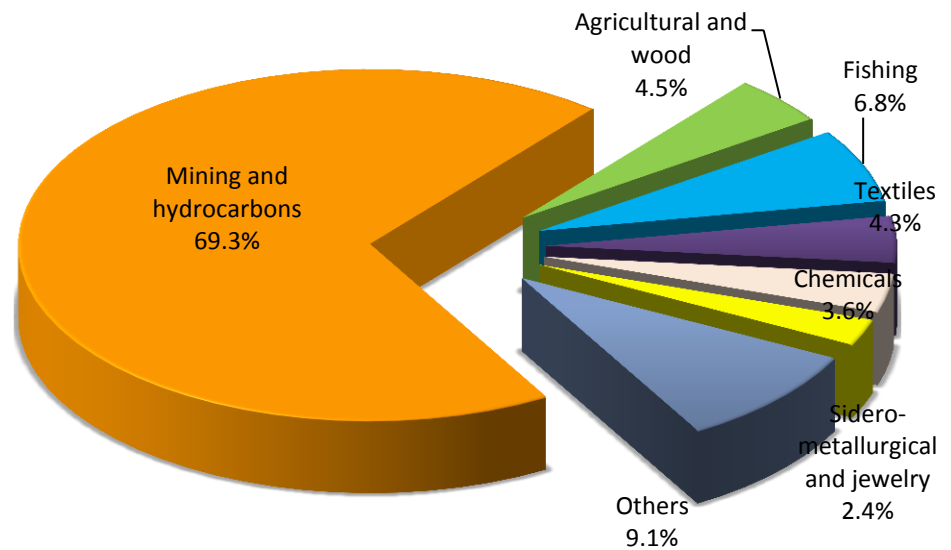
Source: UNESCO and RICYT

Challenge 3: Exporter of raw materials

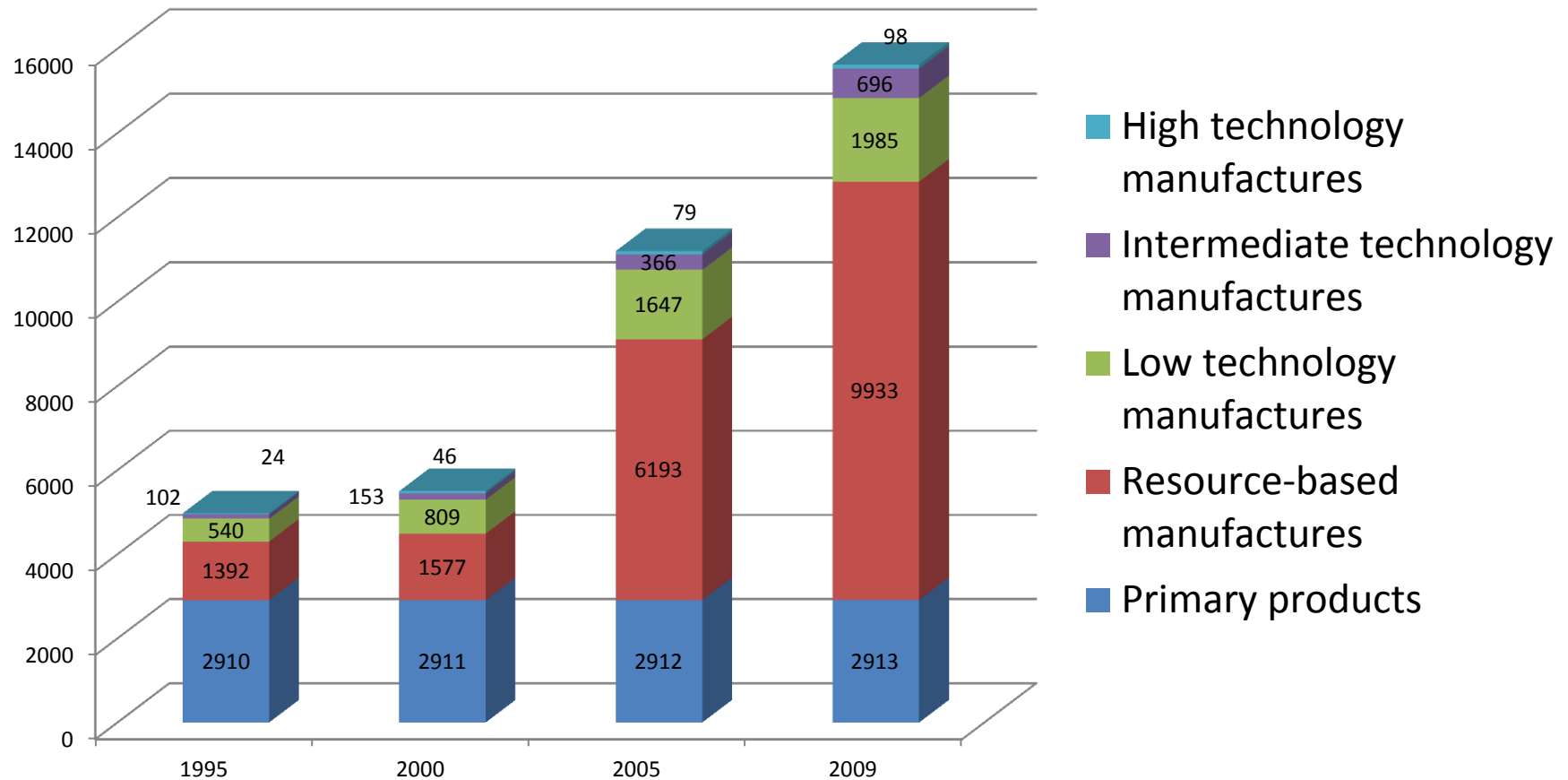
**Export structure: Peru, 1990
(USD 3,280 billion)**



**Export structure: Peru, 2011
(USD 46,270 billion)**



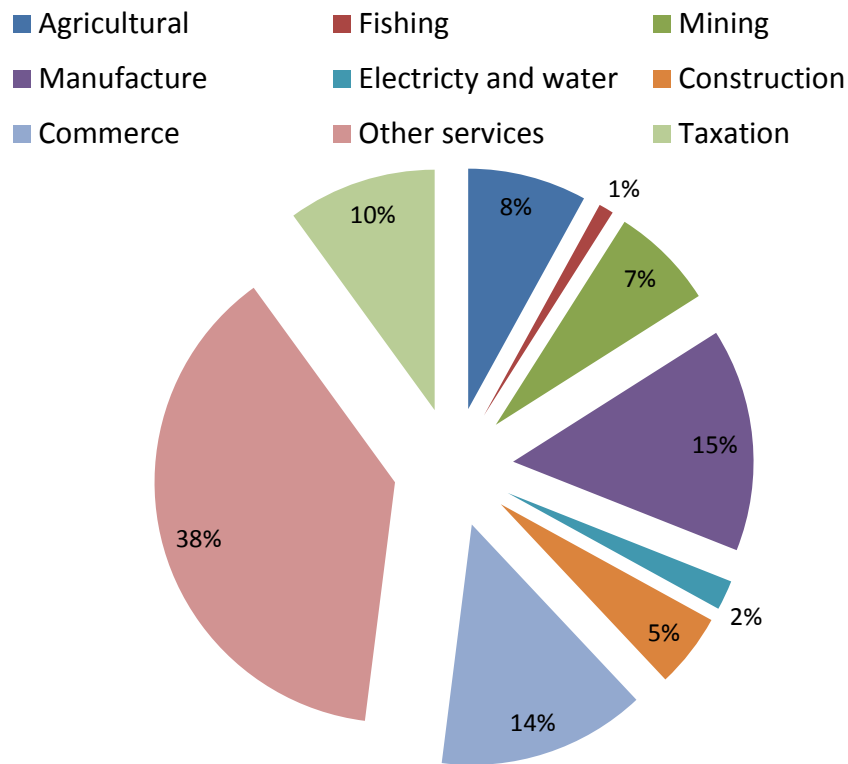
Challenge 3 (2): Evolution of exports of goods, by technological intensity (by Lall classification of products, in millions of dollars), Peru, 1995-2009



Source: UNCTAD. Science, Technology & Innovation Policy Review, Peru - 2011

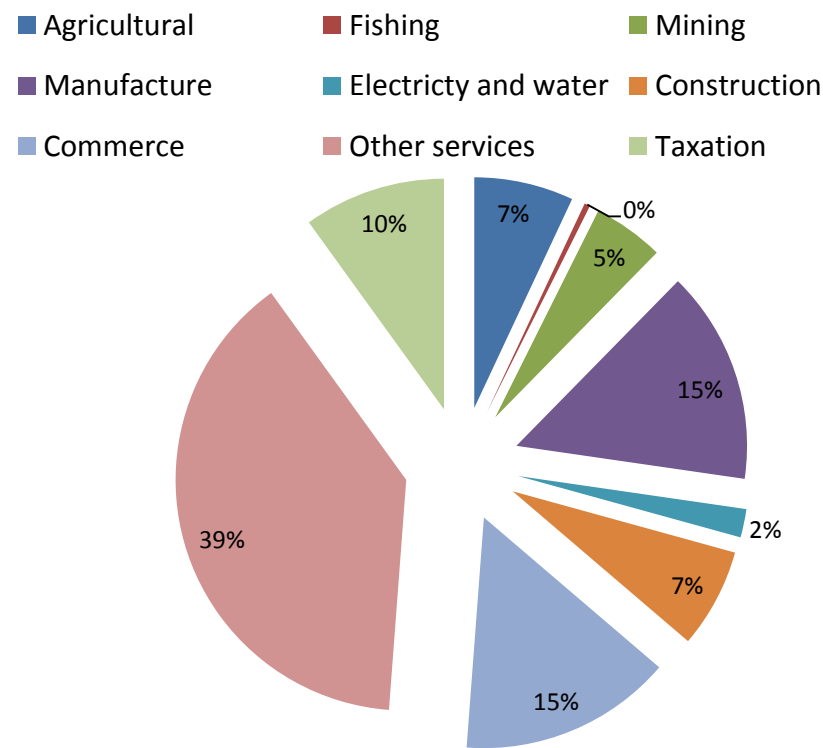
Challenge 4: Production structure with little value added

2005



1994 % constant Soles

2011

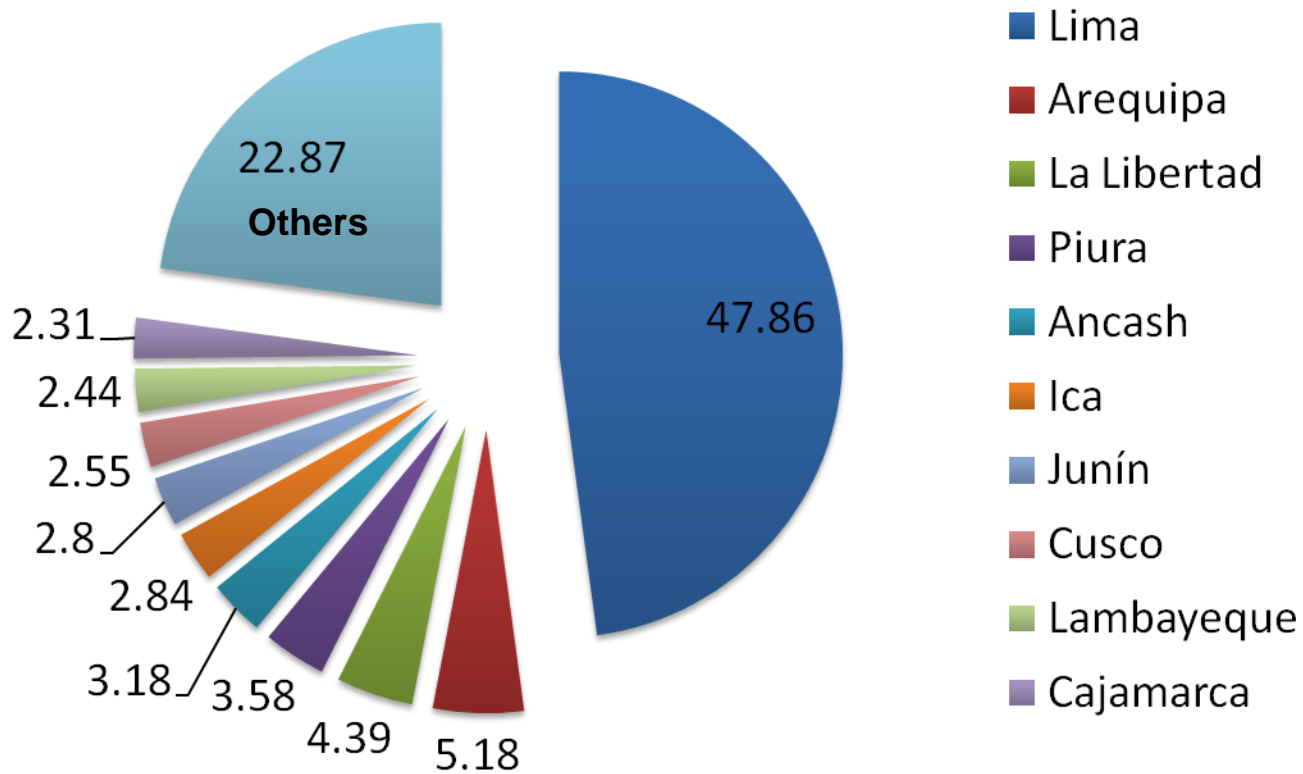


% 1994 constant Soles

Source: INEI, BCR

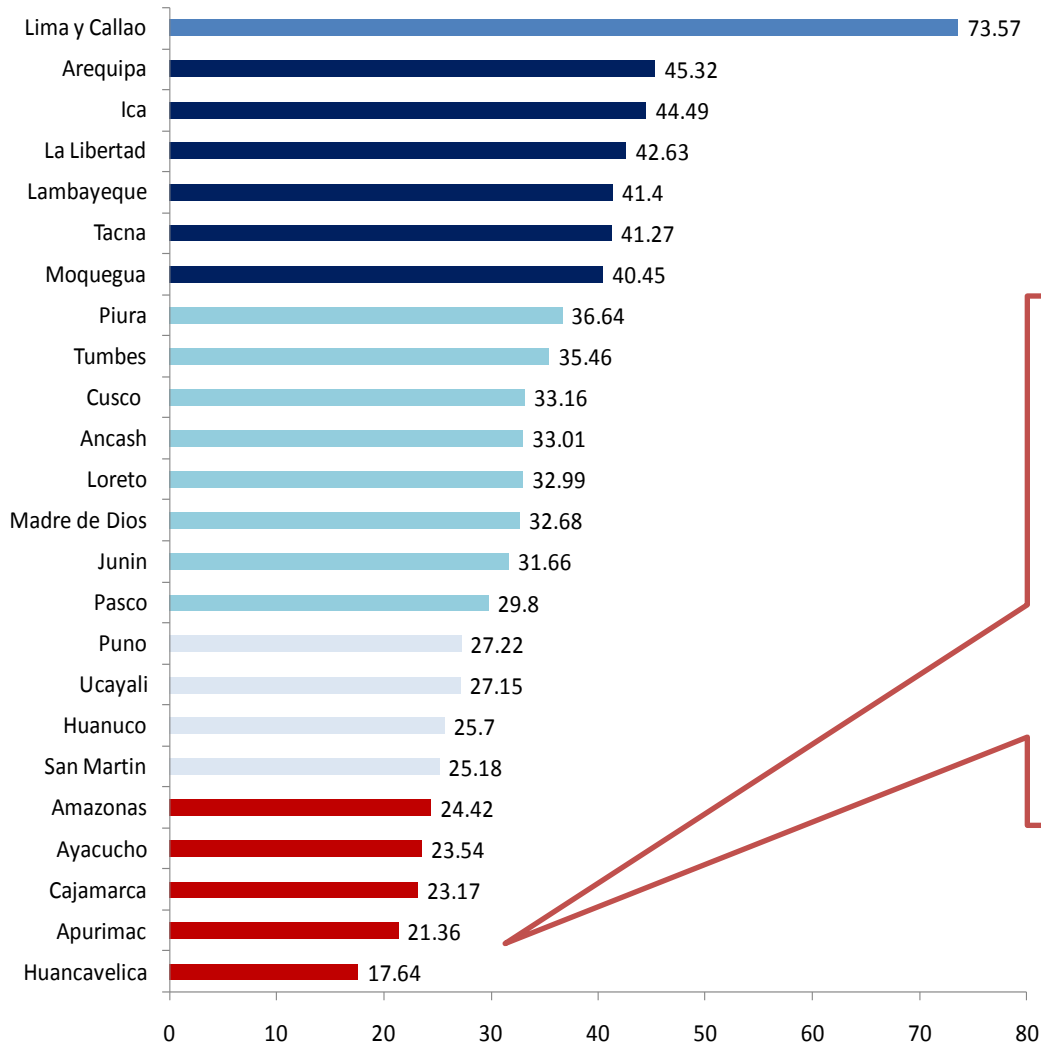
Challenge 5 : Productive network highly concentrated in Lima

% of Contribution to GDP 2010



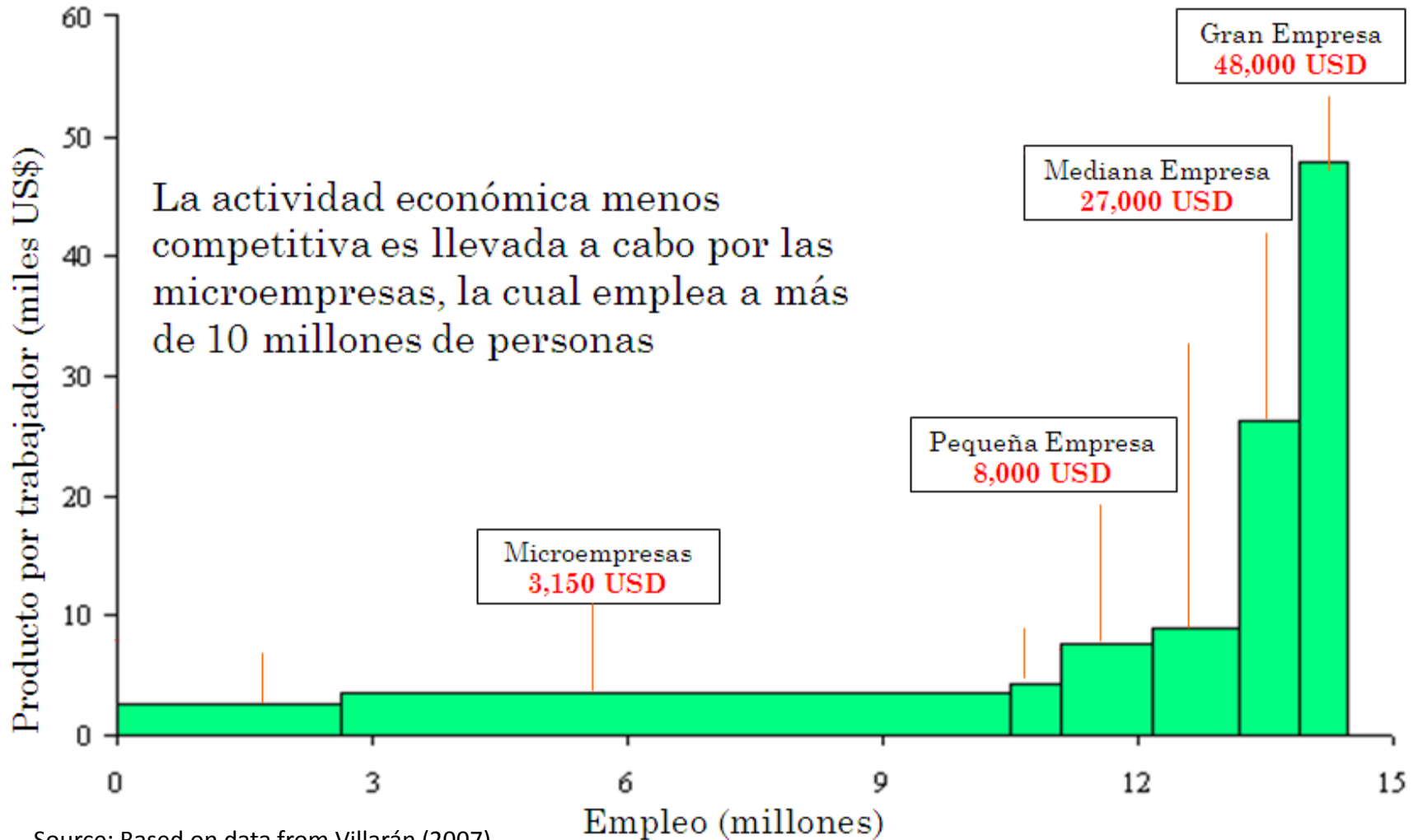
Challenge 6 : Gaps in competitiveness between regions associated with poverty

Regional Competitiveness Index 2010

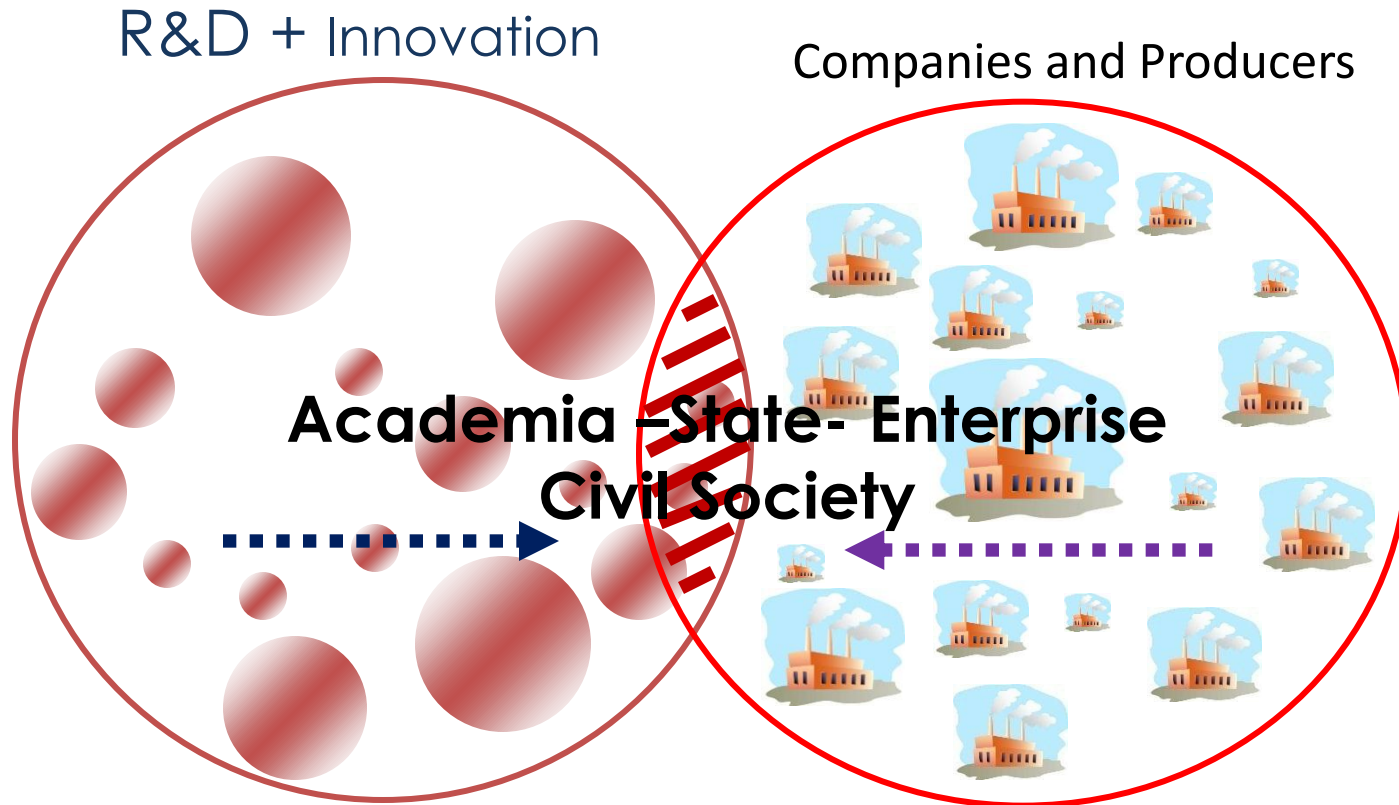


The poorest region (over 50% of poverty) is also the least competitive

Challenge 7: Low productivity of businesses and large gaps



Challenge 8 : A new institutional framework that facilitates companies access to knowledge and technology, with **multisectoral support**



UNCTAD proposes to establish an institutional and organizational structure, human and financial capable of leading the development of science, technology and innovation in Peru.

Why it is necessary the State participation in promoting STI?

- The challenges and its relationship with science, technology and innovation lead us to act as a State in alliance with industry and academia to promote and facilitate innovation, quality, entrepreneurship, investment and partnership as well as a sustainable and inclusive development.
- We recognize innovation as a public good that requires a State policy and that has a high social return of the investment.
- The state's role is to promote and facilitate the work of entrepreneurs in priority sectors and strategic technologies with emphasis on decentralization and overcoming gaps in competitiveness.

Recent major initiatives

**Technological Innovation Centers
(CITES)**

INCAGRO – Innovation Fund and agricultural technology (40 US million - World Bank)

Canon funds for research in public universities

FONDECYT-CONCYTEC

**FIDECOM – Competitiveness and
Innovation Fund**
(65 million US dollars)

FINCYT 1 – Science & technology program (36 million) - PCM,
FINCYT 2 (100 Million)

Instruments to promote innovation :



Technological Innovation Centers - CITEs

The CITEs are instruments of technological support and diffusion for industrial development and generation of value added.

Promoting technological innovation in enterprises

Improving quality and productivity in the production chains and regions where they operate.

They are the bridge between knowledge and production

They are the companies' strategic partner

REDE DE CITES

Centros de Innovación Tecnológica

Piura: CITE Agroindustrial

Cajamarca: CITE Mining and Environment

Lima:
 CITE Wood: Furniture
 CITEccal: Leather-Footware
 CITE Metalworking
 CITE Logistics GS1
 CITE Software
 CITE Marketing

Arequipa:
 CITE Clothing
 CITE Agrondustrual
 CITE Textile Industry camelids IPAC
 CITE Agrifood Majes

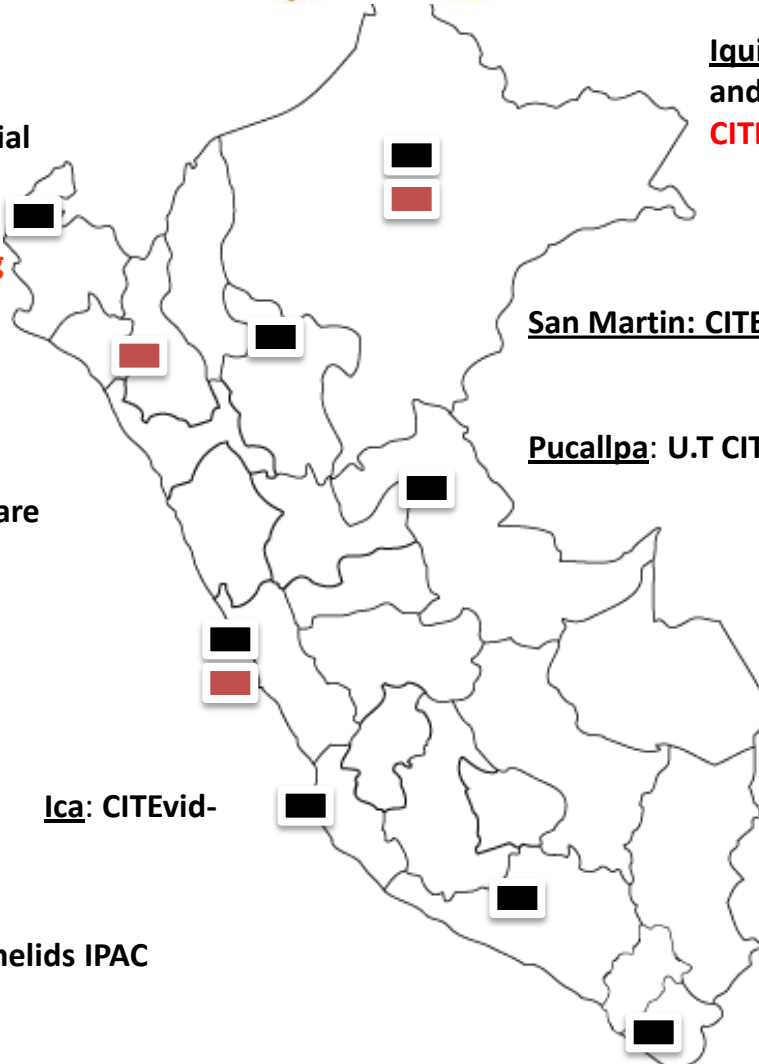
Ica: CITEvid-



Tacna: CITE Agroindustrial

Iquitos: CITE Tropical fruits and medicinal plants
 CITE Wood

San Martin: CITE Cocoa

Pucallpa: U.T CITE Timber



 **15 operating**
 **3 to be opened, in the implementation process**

UNCTAD had recommended “to promote a:

NATIONAL SURVEY OF INNOVATION, a systematic collection of STI indicators and capacity building to collect and analyze that information”.

With support from the IDB and the Ministry of Production, in coordination with CONCYTEC and the INEI, we are launching before July, a **national pilot survey of industrial innovation**, with the advice of an international advisor, training staff of the three aforementioned institutions and sensitizing the private sector.

Space for upgrading the productive infrastructure



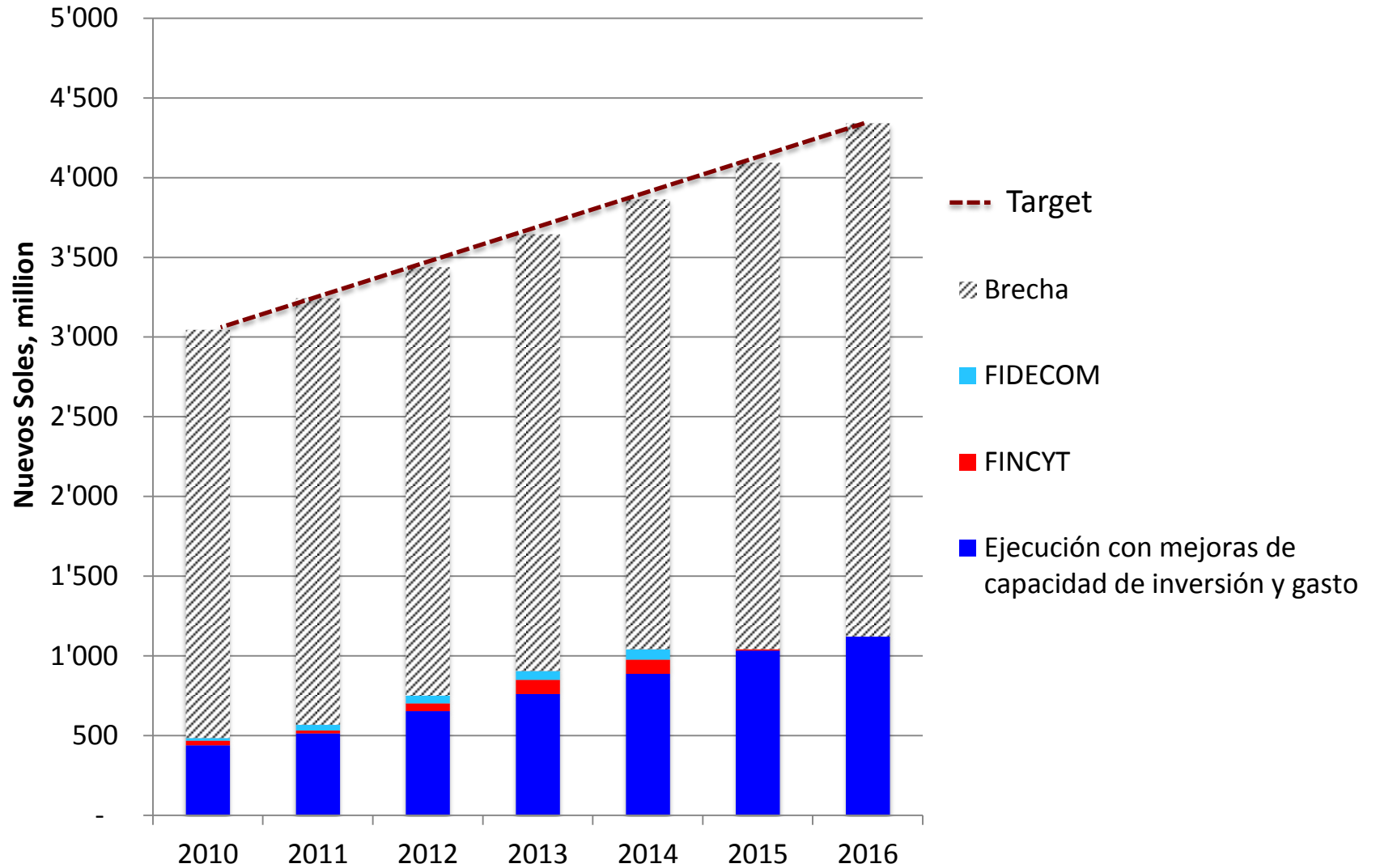
- **Tecno-Ecological Industrial Parks Law**
 - **Science and Technology Parks Law**
- 6 S&T Parks initiatives across the country:
- Arequipa: Initial Investment – S/. 25 millions – 10 ha (ICTs-Renewable energy)
 - UPCH (Lima) - 108 ha in construction (biotechnology)
 - Trujillo / Lambayeque - announcement of S&T Parks
 - Science and Technology Park-La Molina (agribusiness)
 - ATEM (metalwork, electrical industries)
 - ECOPARQUE Loreto (timber, tropical fruits)

Investment in R&D and Innovation

UNCTAD had recommended: "To increase progressively and permanently the funding for STI activities, in order to reach the investment levels of the leading countries in the region in the medium term ." And,

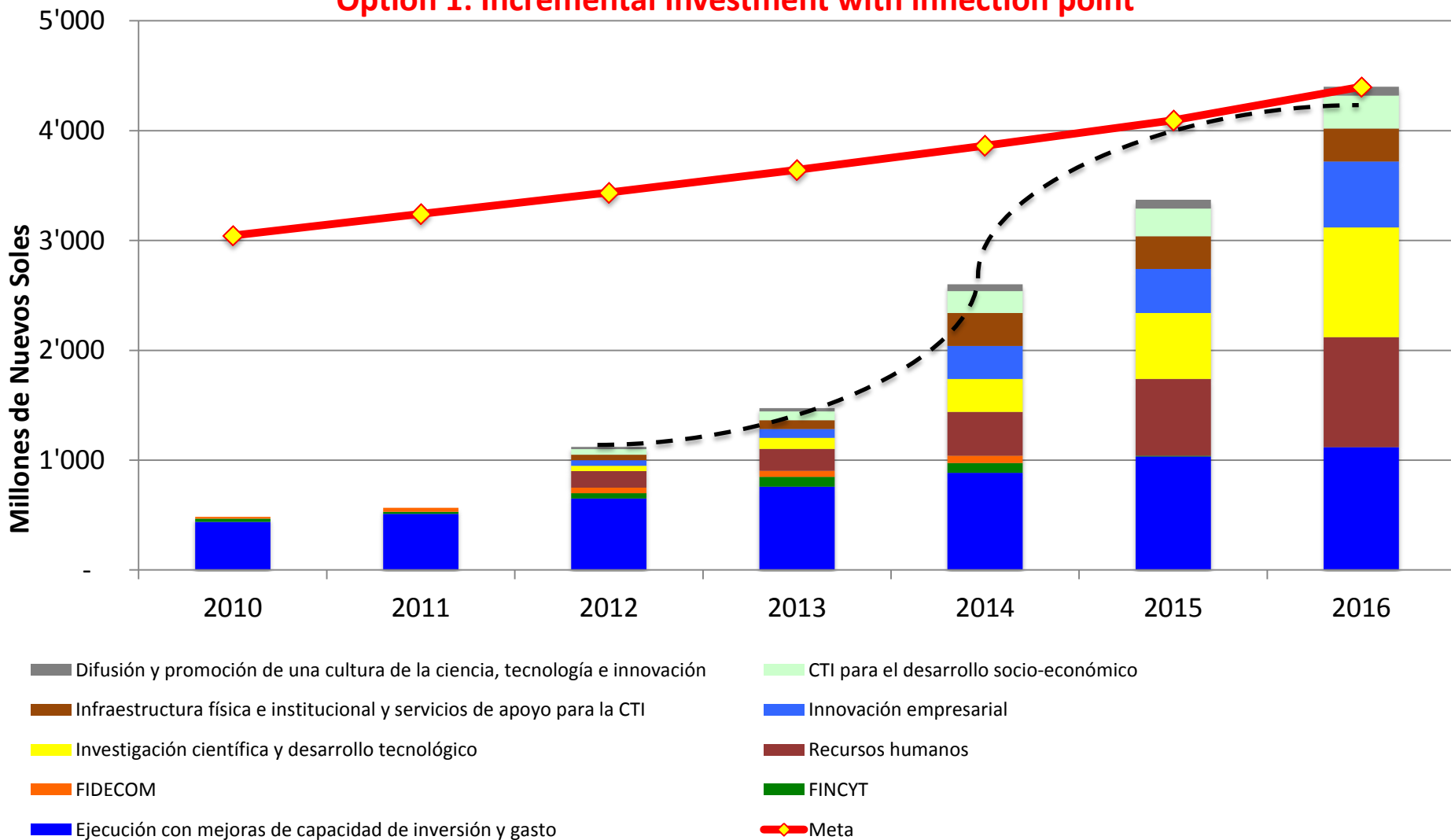
"Relaxing the conditions for using funds from the mining Canon, so that they can be used in research, innovation and capacity building in the area of STI with a broader target and according to the particular needs of regional research groups "

Available resources and gaps



Instruments to bridge the gaps

Option 1: Incremental Investment with inflection point



Proposed actions and instruments

1. Training and mobilization of human resources in science, technology and innovation
2. Support for scientific research and technological development
3. Investment in STI for socio-economic development and social inclusion
4. Promoting entrepreneurial innovation to improve the quality and competitiveness (CITES and other instruments of technological extension)
5. Investment in physical and institutional infrastructure and support services for STI.
6. Support for cooperation programs in science, technology and innovation
7. Dissemination of science, technology and innovation.

Framework for STI Policy Reviews-UNCTAD

1. Follow-up of the Review and implementation of some recommendations, identifying sources of funding.
 - a) Intellectual property: strengthening the Unity of Support for Innovation. INDECOPI through this Unit promotes the sustainable use of IP systems related to STI by local innovators.
 - b) Inclusiveness in connectivity: supporting the creation of a computing platform in the “Cloud” of the Peruvian State for advancing the knowledge and use of ICT tools in enterprises, especially SMEs.
 - c) university-industry collaboration in R&D + i: successful stories.
2. Assessment in the mid-term (2016) the level of implemented recommendations, their impact and, eventually, the need for additional measures.

Thank you

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