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Reader's guide

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This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Reader's guide

The *OECD Science, Technology and Industry Outlook 2012* country profiles present the individual science, technology and innovation (STI) performance of OECD countries and some non-OECD countries, their national context and current major policy issues. Profiles describe national STI priorities and recent STI policy developments in each country on the basis of the responses provided by countries to the *OECD Science, Technology and Industry Outlook* policy questionnaires 2010 and 2012, as well as various additional OECD and non-OECD sources (including the EC-ERAWATCH database).

The *STI Outlook* country profiles are linked to the *STI Outlook* policy profiles which present the main global STI policy trends. They focus on the same issues of policy interest and areas of public policy intervention: national STI strategy and priorities; STI governance and evaluation; the science base (public-sector research); support to business R&D and innovation (direct and indirect financing, targeted programmes, demand-side policies); support to start-ups and entrepreneurship; public-sector innovation; deployment of information and communication technologies (ICT) and scientific infrastructures; clusters; support to knowledge flows and commercialisation (open science, technology transfer, intellectual property rights); globalisation (international STI linkages); and human resources (education, policies and innovation culture). Special attention is paid to emerging fields of technology and green innovation.

A box reports the “hot STI issues” for the country, usually the three or four most topical issues currently discussed in policy making circles as they are seen as sources of risk or opportunities, *e.g.* barriers to innovation, main areas and directions for investment, reform, etc. The issues were identified from countries’ responses to the *OECD STI Outlook* policy questionnaire.

A table with selected key figures presents the country’s economic performance (labour productivity), environmental performance, the size of the research system (gross domestic expenditure on R&D-GERD), the share of GERD that is publicly financed, and changes in these indicators over the past five years.

The first (double) graph reflects each country’s strengths and weaknesses compared to other OECD countries. A standard set of indicators is used to describe national innovation systems and their performance in different areas: science base, business R&D and innovation, entrepreneurship, Internet infrastructure, knowledge flows and commercialisation, and human resources. The dot represents the country’s position compared to the five top and bottom five OECD values and to the median of OECD values. Non-OECD countries are also compared to OECD countries and may therefore appear out of range (*e.g.* lower than the lowest OECD country). Indicators have been normalised (by GDP or population) to take account of the effect of the country’s size and are presented in indices (median = 100) to make them comparable. Methodological notes, data sources, description of the indicators and statistical tables are provided in Annex A and Annex B.

The second graph shows the structural composition of business enterprise expenditure on R&D (BERD) according to various dimensions: main industries of performance, firm size and national affiliation. It reflects the country's industry structure and positioning in terms of innovation.

The third graph presents the country's revealed technological advantage (RTA) as measured by international patent applications (filed under the Patent Cooperation Treaty) in key technology fields (bio- and nano-technology, ICTs and environment-related technologies), and indicates the role played by universities and public research institutions in patenting in these fields.

The fourth graph gives an overview of the country's innovation policy mix, i.e. orientation and funding modes of public research and features of public financial support to business R&D and innovation. It also illustrates how the policy mix may have changed over the past five years.

Where data are not available, substitute charts may be included.

Bibliography

General references

- Academic Ranking of World Universities (ARWU) (2011), "Shanghai ranking", www.arwu.org/.
- Colecchia, A. (2007), "R&D Tax Incentives and R&D Statistics: What Next?", internal working document, Economic Analysis and Statistics Division, Directorate for Science, Technology and Industry, OECD, Paris.
- EC (European Commission) (2009), INNO -Policy Trendchart Innovation Policy Progress Reports, <http://proimmo.intrasoft.be/index.cfm?fuseaction=page.display&topicID=261&parentID=52>.
- EC (2010), Erawatch Country Reports 2010, http://erawatch.jrc.ec.europa.eu/erawatch/opencms/information/reports/country_rep/.
- EC (2011), INNO-Policy Trendchart Mini Country Reports, www.proimmo-europe.eu/inno-policy-trendchart/repository/country-specific-trends.
- EC (2011), "Monitoring industrial research: the 2011 EU industrial R&D investment Scoreboard", European Commission, Luxembourg, <http://iri.jrc.es/research/docs/2011/SB2011.pdf>
- IEA (2011), *CO₂ emissions from fuel consumption*, OECD, Paris.
- Flanagan, K., E. Uyarra and M. Laranja (2010), "The policy mix for innovation: rethinking innovation policy in a multi-level, multi-actor context", Munich Personal RePEc Archive (MPRA) No. 23567, July.
- OECD (2009), *OECD Science, Technology and Industry Scoreboard 2009*, OECD, Paris.
- OECD (2010), *OECD Science, Technology and Industry Outlook 2010*, OECD, Paris, www.oecd.org/sti/outlook.
- OECD (2010), "Monitoring innovation and policies: developing indicators for analysing the innovation policy mix", internal working document, Economic Analysis and Statistics Division, Directorate for Science, Technology and Industry, OECD, Paris.
- OECD (2010), *Measuring Innovation: A New Perspective*, OECD, Paris.
- OECD (2010), *SMEs, Entrepreneurship and Innovation*, OECD, Paris.
- OECD (2011), *OECD Science, Technology and Industry Scoreboard 2011*, OECD, Paris, www.oecd.org/sti/scoreboard.
- OECD (2011), *Entrepreneurship at a Glance 2011*, OECD, Paris.
- OECD (2011), *Economic Policy Reforms 2011: Going for Growth*, OECD, Paris.
- OECD (2011), *OECD Communications Outlook 2011*, OECD, Paris.
- OECD (2011), *Education at a Glance 2011*, OECD, Paris.
- OECD (2011), *Towards Green Growth: Monitoring Progress: OECD Indicators*, OECD, Paris.
- OECD (2012), *Economic Policy Reforms 2012: Going for Growth*, OECD, Paris.
- OECD (2012), *OECD Internet Economy Outlook 2012*, OECD, Paris.
- SCImago. (2007), SJR – SCImago Journal and Country Rank, www.scimagojr.com accessed on 22 and 29 February 2012.
- UN (United Nations) (2012), UN e-Government Survey, United Nations, NY, <http://egovernments.wordpress.com>.
- Van Steen, J. (2012), "Modes of public funding of R&D: Towards internationally comparable indicators", *STI Working Paper 2012/4*.

Databases

- Bureau Van Dijk (2011), ORBIS Database, Bureau Van Dijk Electronic Publishing.
- Eurostat (2012), Educational attainment, outcomes and returns of education Database.

IEA, CO₂ Emissions from Fuel Combustion Statistics.
 IMF (2012), World Economic Outlook Database.
 ITU (International Telecommunication Union) (2011), World Telecommunication/ICT Indicators 2011.
 OECD (2009), Programme of International Students Assessment (PISA) Database, www.pisa.oecd.org.
 OECD (2010), Entrepreneurship Financing Database.
 OECD (2011), AFA and FATS Databases.
 OECD (2011), Education Database, www.oecd.org/education/database.
 OECD (2011), Educational Attainment Database.
 OECD (2011), Product Market Regulation Database, www.oecd.org/economy/pmr.
 OECD (2011), Productivity Database, www.oecd.org/statistics/productivity.
 OECD (2011), STructural ANalysis (STAN) Database, www.oecd.org/sti/stan.
 OECD (2012), ANBERD Database, www.oecd.org/sti/anberd.
 OECD (2012), ANSKILL Database.
 OECD (2012), Main Science and Technology Indicators (MSTI) Database, www.oecd.org/sti/msti.
 OECD (2012), Patent Database, www.oecd.org/sti/ipr-statistics.
 OECD (2012), Research and Development Statistics (RDS) Database, www.oecd.org/sti/rds.
 UNESCO Institute for Statistics (UIS) (2012), Education and S&T Databases.
 World Bank (2011), World Development Indicators (WDI) Databank.

Country references

Country responses to the OECD *Science, Technology and Industry Outlook 2012* policy questionnaire.

Argentina

OECD (2010), *Latin American Economic Outlook 2011: How Middle-Class Is Latin America?*, OECD, Paris.

Australia

DIISR (Department of Innovation, Industry, Science and Research) (2009), *Powering Ideas: An Innovation Agenda for the 21st Century*, Canberra, www.innovation.gov.au/Innovation/Policy/Documents/PoweringIdeas.pdf.
 DIISR (2011), *Australian Innovation System Report 2011*, Canberra, www.innovation.gov.au/Innovation/Policy/Pages/AustralianInnovationSystemReport2011.aspx.
 DIISR (2011), *APS Innovation Action Plan*, Canberra, www.innovation.gov.au/Innovation/PublicSectorInnovation/Documents/APS_Innovation_Action_Plan.pdf.
 DIISR (2011), *Focusing Australia's Publicly Funded Research Review*, Canberra, www.innovation.gov.au/Research/Documents/ReviewAdvicePaper.pdf.
 NBNC Co (National Broadband Network) (2011), *Annual Report 2010-11*, www.nbnco.com.au/assets/documents/nbnco-annual-report-2011.pdf.

Austria

Austria (2011), *Europe 2020, Austrian Reform Programme 2011*, http://ec.europa.eu/europe2020/pdf/nrp/nrp_austria_en.pdf.

Belgium

Belgium (2011), *National Reform Programme Belgium 2011*, http://ec.europa.eu/europe2020/pdf/nrp/nrp_belgium_en.pdf.
 BELSPO (Belgian Science Police Office) (2010), *Belgian report on science, technology and innovation 2010*, Brussels, www.belspo.be/belspo/organisation/Publ/pub_ostc/BRISTI/Bristi_tome1_2010_en.pdf.
 OECD (2011), "R&D and Innovation Policies in Belgium" in "Tour de Table" of Changes in Innovation Policy at National Level in OECD and Observer Countries, Room Document 2, 37th Meeting of the Working Party on Innovation and Technology Policy, 16-17 June 2011, internal document.
 OECD (2011), *OECD Economic Surveys: Belgium 2011*, OECD, Paris.

Brazil

Ministry of Science, Technology and Innovation (2011), *Contribution of Brazil to the discussions of the OECD CSTP Workshop on Innovation for Development*, OECD internal document.
 World Bank (2008), *Knowledge and Innovation for Competitiveness in Brazil*, World Bank, Washington DC.

Canada

Canada's New Government (2007), *Mobilizing Science and Technology to Canada's Advantage*, Ottawa, [www.ic.gc.ca/eic/site/ic1.nsf/vwapj/STsummary.pdf/\\$file/STsummary.pdf](http://www.ic.gc.ca/eic/site/ic1.nsf/vwapj/STsummary.pdf/$file/STsummary.pdf).

Science, Technology and Innovation Council (2011), *State of the Nation 2010 – Canada’s Science, Technology and Innovation System: Imagination to Innovation – Building Canadian Paths to Prosperity*, Ottawa, [www.stic-csti.ca/eic/site/stic-csti.nsf/vwapj/10-059_IC_SotN_Rapport_EN_WEB_INTERACTIVE.pdf/\\$FILE/10-059_IC_SotN_Rapport_EN_WEB_INTERACTIVE.pdf](http://www.stic-csti.ca/eic/site/stic-csti.nsf/vwapj/10-059_IC_SotN_Rapport_EN_WEB_INTERACTIVE.pdf/$FILE/10-059_IC_SotN_Rapport_EN_WEB_INTERACTIVE.pdf).

Chile

OECD (2007), *OECD Reviews of Innovation Policy: Chile*, OECD, Paris, www.oecd.org/innovation/reviews.

China

OECD (2008), *OECD Reviews of Innovation Policy: China*, OECD, Paris, www.oecd.org/innovation/reviews.

OECD (2011), *OECD Regions at a Glance 2011*, OECD, Paris.

Czech Republic

Czech Republic (2011), *Investing into European Competitiveness: Contribution of the Czech Republic to Europe 2020 Strategy – National Reform Programme of the Czech Republic 2011*, http://ec.europa.eu/europe2020/pdf/nrp/nrp_czech_en.pdf.

Denmark

Danish Government (2011), *Denmark’s National Reform Programme 2011*, http://ec.europa.eu/europe2020/pdf/nrp/nrp_denmark_en.pdf.

Danish Government (2011), *A Denmark that Stands Together*, http://stm.dk/multimedia/Regeringsgrundlag_uk_2011.pdf.

OECD (2012), *OECD Economic Surveys: Denmark 2012*, OECD, Paris.

Egypt

Badr, H. (2012), “Egypt sets a new course for its scientific efforts” in *SciDev.Net*, www.scidev.net/en/science-and-innovation-policy/science-in-the-islamic-world/news/egypt-sets-a-new-course-for-its-scientific-efforts-1.html, accessed 5 May 2012.

Dickson, D. and B. Osama (2012), “Egypt: from revolutionary spirit to scientific progress” in *SciDev.Net*, www.scidev.net/en/science-and-innovation-policy/science-in-the-islamic-world/editorials/egypt-from-revolutionary-spirit-to-scientific-progress-1.html, accessed 5 May 2012.

OECD (2006), “International Migrant Remittances and their Role in Development”, in OECD, *International Migration Outlook 2006*, OECD, Paris, pp. 139-161.

OECD (2010), *Competitiveness and Private Sector Development: Egypt 2010: Business Climate Development Strategy*, OECD, Paris.

OECD/World Bank (2010), *Reviews of National Policies for Education: Higher Education in Egypt 2010*, OECD, Paris.

World Bank (2012), “Remittance flows in 2011- an Update” in *World Bank, Migration and Development Brief*, 23 April.

Estonia

EC (2012), *Peer-Review of the Estonian Research and Innovation System – Steady Progress Towards Knowledge Society*, Tallinn, www.mkm.ee/public/ERAC_EE_Peer-Review_Report_2012.pdf.

Finland

OECD (2011), “Innovation Policy in Finland – New directions” in “*Tour de Table*” of *Changes in Innovation Policy at National Level in OECD and Observer Countries*, Room Document 2, 37th Meeting of the Working Party on Innovation and Technology Policy, 16-17 June 2011, internal document.

Research and Innovation Council of Finland (2011), *Research and Innovation Policy Guidelines for 2011-2015*, Kopijyvä, www.tem.fi/files/30413/Research_and_Innovation_Policy_Guidelines_for_2011_2015.pdf

Germany

BMBF (Federal Ministry of Education and Research) (2010), *Ideas. Innovation. Prosperity: High-Tech Strategy 2020 for Germany*, Bonn, www.bmbf.de/pub/hts_2020_en.pdf.

Germany (2011), *National Reform Programme*, Berlin, http://ec.europa.eu/europe2020/pdf/nrp/nrp_germany_en.pdf.

Greece

Hellenic Republic Ministry of Finance (2011), *Hellenic National Reform Programme 2011-2014*, Athens, http://ec.europa.eu/europe2020/pdf/nrp/nrp_greece_en.pdf.

Hungary

Government of the Republic of Hungary (2011), *National Reform Programme of Hungary – Based on the Széll Kálmán Plan*, http://ec.europa.eu/europe2020/pdf/nrp/nrp_hungary_en.pdf.

OECD (2008), *OECD Reviews of Innovation Policy: Hungary*, OECD, Paris, www.oecd.org/innovation/reviews.

Iceland

OECD (2011), *Revised or new national plans for science, technology and innovation policy in OECD countries and selected non-member economies*, OECD internal document.

India

Battelle/R&D Magazine (2011), *2012 Global R&D funding forecast*, December, R&D Magazine, www.battelle.org/aboutus/rd/2012.pdf.

Department of Science and Technology (2012), www.dst.gov.in, accessed 11 May 2012.

IEA (2007), *World Energy Outlook 2007: China and India insights*, OECD/IEA, Paris.

National Innovation Council (2012), www.innovationcouncil.gov.in, accessed 11 May 2012.

Public Information Infrastructure and Innovations Adviser to the Prime Minister, <http://iii.gov.in>, accessed 11 May 2012.

Ramasami T. (2011), *The Changing Indian STI Landscape*, Secretary of the Department of Science and Technology, Government of India, Canberra, Australia, November 2011.

Indonesia

IEA (2008), *Energy Policy Review of Indonesia*, OECD/IEA, Paris.

NSF (National Science Foundation) (2012), *Science and Engineering Indicators 2012*, National Science Foundation, Washington.

OECD (2010), *OECD Investment Policy Reviews: Indonesia*, OECD, Paris.

OECD (2012), *OECD Reviews of Innovation Policy: South East Asia*, OECD, Paris, forthcoming.

Ireland

Ireland (2011), *National Reform Programme for Ireland under the Europe 2020 Strategy*, http://ec.europa.eu/europe2020/pdf/nrp/nrp_ireland_en.pdf.

Japan

CSTP (Council for Science and Technology Policy) (2010), *Japan's Science and Technology Basic Policy Report*, www8.cao.go.jp/cstp/english/basic/4th-BasicPolicy.pdf.

Japan Cabinet (2010), *New Growth Strategy: Blueprint for Revitalizing Japan*, www.meti.go.jp/english/policy/economy/growth/report20100618.pdf.

METI (Ministry of Economy, Trade and Industry) (2010), *Overview of the "Inward Investment Promotion Program"*, www.meti.go.jp/english/policy/economy/inward_investment/full_report.pdf.

OECD (2011), *OECD Economic Surveys: Japan*, OECD, Paris.

OECD (2011), *OECD Factbook 2011-2012*, OECD, Paris.

Swiss Re Sigma (2012), *Natural catastrophes and man-made disasters in 2011: historic losses surface from record earthquakes and floods*, Swiss Re Sigma No. 2/2012, media.swissre.com/documents/sigma2_2012_en.pdf.

Korea

OECD (2009), *OECD Reviews of Innovation Policy: Korea*, OECD, Paris, www.oecd.org/innovation/reviews.

OECD (2011), "Korea's Top 10 Science and Technology Tasks in 2011" in "Tour de Table" of Changes in Innovation Policy at National Level in OECD and Observer Countries, Room Document 2, 37th Meeting of the Working Party on Innovation and Technology Policy, 16-17 June 2011, internal document.

Luxembourg

Luxembourg (2011), *Luxembourg 2020 – National Reform Program for the Grand Duchy of Luxembourg under the Europe 2020 Strategy*, Luxembourg, http://ec.europa.eu/europe2020/pdf/nrp/nrp_luxembourg_en.pdf.

Le Fonds Belval website (2012), www.fonds-belval.lu/1280.php, accessed on 22 March 2012.

OECD (2007), *OECD Reviews of Innovation Policy: Luxembourg*, OECD, Paris, www.oecd.org/innovation/reviews.

Mexico

OECD (2009), *OECD Reviews of Innovation Policy: Mexico*, OECD, Paris, www.oecd.org/innovation/reviews.

Netherlands

Ministry of Economic Affairs, Agriculture and Innovation (2011), *National Reform Programme 2011 – The Netherlands*, The Hague, http://ec.europa.eu/europe2020/pdf/nrp/nrp_netherlands_en.pdf.

Ministry of Economic Affairs, Agriculture and Innovation (2011), *To The Top – Towards a new Enterprise Policy*, www.government.nl/files/documents-and-publications/parliamentary-documents/2011/02/04/to-the-top-towards-a-new-enterprise-policy/to-the-top-towards-a-new-enterprise-policy.pdf.

OECD (2011), “The Netherlands” in “*Tour de Table*” of *Changes in Innovation Policy at National Level in OECD and Observer Countries*, Room Document 2, 37th Meeting of the Working Party on Innovation and Technology Policy, 16-17 June 2011, internal document.

New Zealand

Green Growth Advisory Group (2011), *Greening New Zealand’s Growth – Report of the Green Growth Advisory Group*, Wellington, www.med.govt.nz/sectors-industries/environment/pdf-docs-library/Greening%20New%20Zealands%20Growth.pdf.

MSI (New Zealand’s Ministry of Science and Innovation) (2011), *Statement of Intent 2011-2014*, www.msi.govt.nz/assets/SOI.pdf.

OECD (2007), *OECD Reviews of Innovation Policy: New Zealand*, OECD, Paris, www.oecd.org/innovation/reviews.

OECD (2008), *OECD Reviews of Tertiary Education: New Zealand*, OECD, Paris.

Norway

OECD (2008), *OECD Reviews of Innovation Policy: Norway*, OECD, Paris, www.oecd.org/innovation/reviews.

Poland

Republic of Poland (2011), *National Reform Program – Europe 2020*, http://ec.europa.eu/europe2020/pdf/nrp/nrp_poland_en.pdf.

OECD (2007), *Policy Mix for Innovation in Poland – Key Issues and Recommendations*, Warsaw, www.oecd.org/poland/44960775.pdf.

Portugal

Portugal (2011), *Portugal 2020/National Reform Programme*, http://ec.europa.eu/europe2020/pdf/nrp/nrp_portugal_en.pdf.

Russian Federation

OECD (2011), *OECD Reviews of Innovation Policy: Russian Federation*, OECD, Paris, www.oecd.org/innovation/reviews.

Slovak Republic

Slovak Republic (2011), *Minerva 2.0 – Slovakia to the First League*, www.vedomostna-ekonomika.gov.sk/data/files/8241.pdf.

Slovak Republic (2011), *National Reform Programme of the Slovak Republic for 2011-2014*, http://ec.europa.eu/europe2020/pdf/nrp/nrp_slovakia_en.pdf.

Slovak Republic (2011), *The Update of the Long-Term Plan of State Science and Technology Policy by 2015 (Phoenix Strategy)*, unpublished document.

Slovenia

OECD (2012), *OECD Reviews of Innovation Policy: Slovenia*, OECD, Paris, www.oecd.org/innovation/reviews.

South Africa

OECD (2007), *OECD Reviews of Innovation Policy: South Africa*, OECD, Paris, www.oecd.org/innovation/reviews.

de Mello, L. (ed.) (2010), *Growth and Sustainability in Brazil, China, India, Indonesia and South Africa*, OECD, Paris.

Switzerland

OECD (2006), *OECD Reviews of Innovation Policy: Switzerland*, OECD, Paris, www.oecd.org/innovation/reviews.

Turkey

Coordination Council for the Intellectual and Industrial Property Rights website, www.tpe.gov.tr/portal/default2.jsp?sayfa=703&haber=505.

EURAXESS TURKEY website: <http://euraxess.tubitak.gov.tr>.

OECD (2010), *OECD Economic Surveys: Turkey*, OECD, Paris.

Republic of Turkey Ministry of Industry and Trade (2010), *Turkish Industrial Strategy Document 2011-2014 (Towards EU Membership)*, www.sanayi.gov.tr/Files/Documents/TurkiyeSanayiStratejisiIngilizce.pdf.

Turkey (2012), *Energy Efficiency Strategical Document 2012-2023*, www.eie.gov.tr/duyurular/EV/EV-Strateji_Belgesi/Energy_Efficiency_Strategical_Document_2012.pdf.

United States

Kahin, B and C. Hill (2010), “United States: The Need for Continuity”, *Issues in Science and Technology*, Spring, www.issues.org/26.3/kahin.html, accessed 7 March 2012.