

Green patents in regions

Innovation in environmentally related technologies contributes to environmental sustainability and green growth. The patenting activity of regions in environmental technology provides a measure of the efforts and pace of innovation. Japan and the United States display the top performing regions in number of patents in new sectors such as environmental technologies, biotechnologies and nanotechnologies. Patenting activity in environmental technologies is more recent than in biotechnologies and has developed at a faster pace in comparison to nanotechnologies, whose level of activity has not increased substantially in the past ten years. Among the top performing regions in environmental patenting are Japanese regions such as Aichi and Tokyo, which have emerged more recently (Figure 5.23).

Definition

A patent is an exclusive right granted for an invention, which is a product or a process with industrial applicability that provides, in general, a new way of doing something or offers a new technical solution to a problem (“inventive step”). A patent provides protection for the invention to the owner of the patent. The protection is granted for a limited period, generally 20 years.

Data refer to overall patent applications to Patent Cooperation Treaty (PCT) applications.

Patent documents report the inventors (where the invention takes place), as well as the applicants (owners), along with their addresses and country of residence. Patent counts are based on the inventor’s region of residence and fractional counts. If two or more inventors are registered on the patent document, the patent is classified as a co-patent.

The OECD project on Environmental Policy and Technological Innovation (EPTI) proposes a classification of environmental technologies. The term “environmental technology” is intended to be a reflection of the public consensus on the utility of certain technological approaches in reducing environmental impacts as compared to available alternatives. Hence, by definition, the notion of which technologies are considered “environmental” evolves over time.

The index of revealed technological advantage is defined as the region’s share (over national value) of patents in a particular technology field divided by the region’s share (over national value) in all patents fields. The index is equal to zero when the region holds no patents in a given sector; is equal to 1 when the region’s share in the sector equals its share in all fields (no specialisation); and above 1 when a positive specialisation of the region is observed within its country.

The index of revealed technological advantage provides an indication of the relative specialisation of a region in patenting activity within selected technological domains. Values of the index higher than one indicate a specialisation of the region. Among the 20 top environmental patenting regions in 2008-10, Aichi (Japan) and Stuttgart (Germany) have the highest specialisation. Saitama and Ibaraki (Japan) and Stockholm (Sweden) increased their specialisation in environmental patenting in the past ten years; in contrast, the Korean regions of Daejeon, Seoul and Gyeonggi-do decreased their specialisation compared to 1995-97 (Figure 5.24).

Environmentally related industries are the result of the aggregation of several domains inventoried by the OECD Environmental Policy and Technological Innovation (EPTI) project. Stuttgart (Germany), Aichi and Satama (Japan), and Yvelines (France) record the majority of their environmental patents in transport impact mitigation, whereas the Noord-Brabant region in the Netherlands has 75% of the environmental applications recorded in energy efficiency in building and lighting (Figure 5.25).

Source

OECD REGPAT Database, www.oecd.org/sti/inno/oecdpatentdatabases.htm.

For classifications of environmental-related technologies: www.oecd.org/env/consumption-innovation/indicator.htm.

See Annex B data sources and country-related metadata.

See Annex C for formulas.

Reference years and territorial level

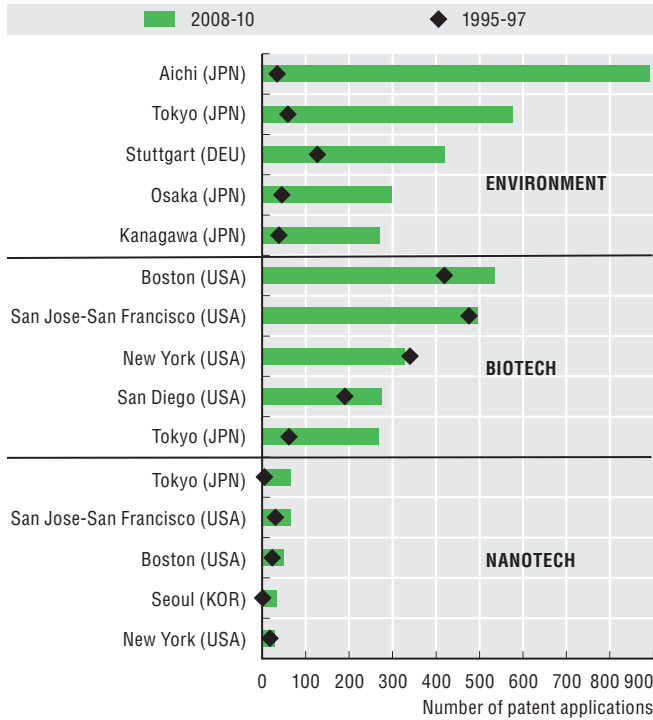
1995-97 and 2008-10 averages; TL3.

Further information

OECD (2009), *Patent Statistics Manual*, OECD Publishing, <http://dx.doi.org/10.1787/9789264056442-en>.

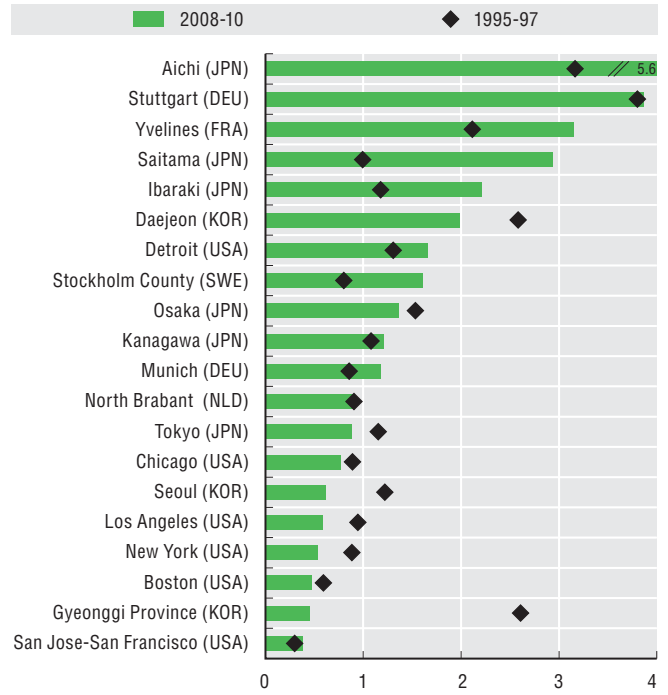
Interactive graphs and maps: <http://rag.oecd.org>.

5.23. Patents in environmental, biotech, and nanotech of the top five patenting TL3 regions, average 2008-10 and 1995-97



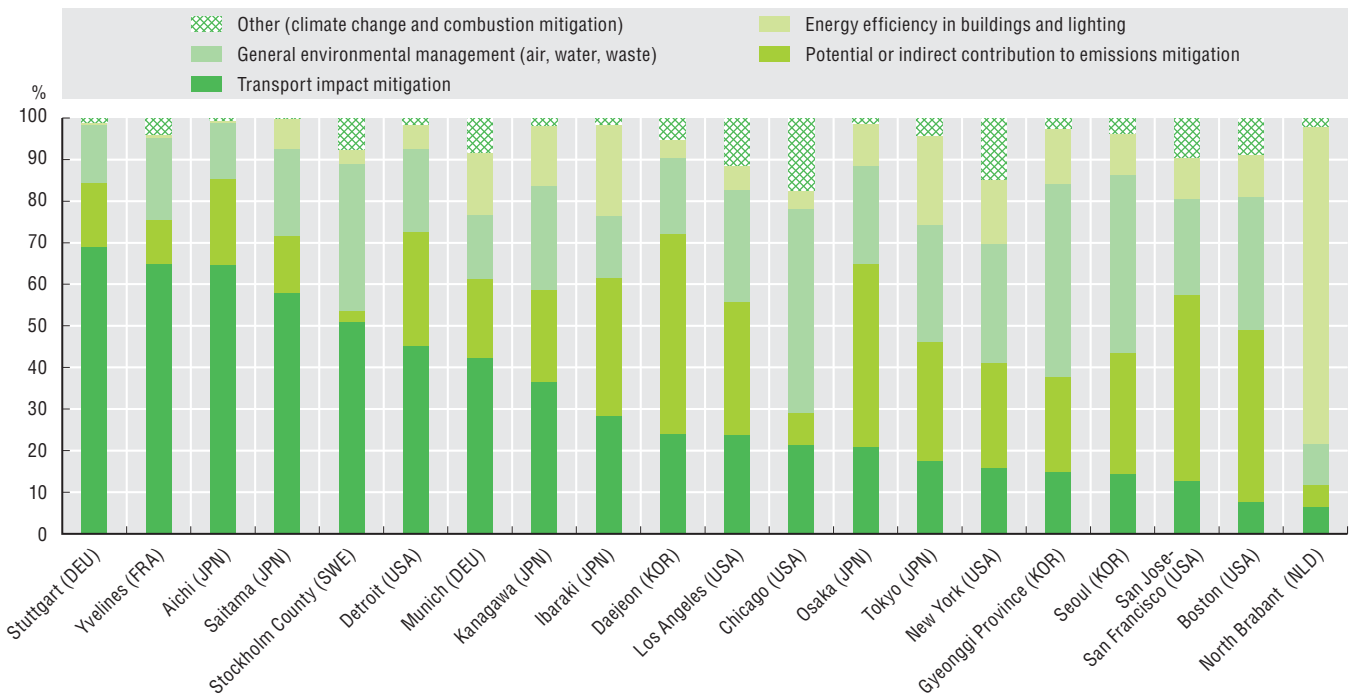
StatLink <http://dx.doi.org/10.1787/888932915128>

5.24. Environmental Revealed Technology Advantage index in the top 20 environment patenting TL3 regions, 2008-10 and 1995-97

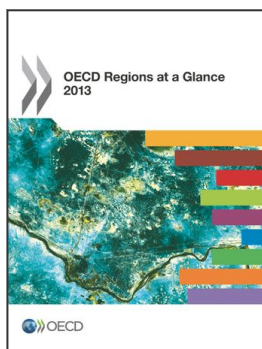


StatLink <http://dx.doi.org/10.1787/888932915147>

5.25. Patents in environmental related industries in the top 20 environment patenting TL3 regions, share by type of technology, average 2008-10



StatLink <http://dx.doi.org/10.1787/888932915166>



From:
OECD Regions at a Glance 2013

Access the complete publication at:
https://doi.org/10.1787/reg_glance-2013-en

Please cite this chapter as:

OECD (2013), "Green patents in regions", in *OECD Regions at a Glance 2013*, OECD Publishing, Paris.

DOI: https://doi.org/10.1787/reg_glance-2013-46-en

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