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Ecological Economics
Terms for the New Millennium

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Growth: Monitoring Progress—OECD Indicators. Paris: OECD Publishing.

Greenhouse gases

Trace gases found in the Earth's atmosphere that together comprise less than 0.1 percent of its composition, and which absorb and emit radiant energy within the thermal infrared range, causing the planetary greenhouse effect, global warming, and climate change. Water vapor is also a greenhouse gas, though it will generally stay in the atmosphere for just days, in contrast to the much longer-lasting trace gases that have atmospheric residency times ranging from years to centuries.

Greenhouse gases can be either natural or anthropogenic. The most important greenhouse gases, and the ones of greatest abundance, are water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and the family of fluorocarbons. The emission of each greenhouse gas is rated based on its global warming potential, which accounts for its atmospheric residency time and the strength of its radiative forcing property over a given time period compared to CO_2.

BARRY D. SOLOMON

Further reading

Spash 2002; Goodstein 2007.

See also: Global warming, Global warming potential, Greenhouse gas neutral, Carbon footprint, Carbon stock, Climate, Climate change.

References

Goodstein, E. 2007. Fighting for Love in the Century of Extinction: How Passion and Politics Can Stop Global Warming. Hanover, NH: University Press of New England.

Spash, C. 2002. Greenhouse Economics: Values and Ethics. Abingdon: Routledge.

Greenhouse gas neutral

An action or policy whereby the total quantity of greenhouse gases released into the atmosphere is balanced by the quantity of greenhouse gases removed from the atmosphere. Can refer solely to anthropogenic sources and sinks of greenhouse gases, but may also include natural sources and sinks. Most often used in the context of climate change mitigation, including forestry and land use offsets.

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Further reading

Mathews et al. 2018, Annex 1: Glossary; United Nations Climate Change 2021.

See also: Carbon capture, Carbon sequestration, Greenhouse gases, Climate change, Climate change mitigation, Net carbon, Net zero carbon, Sources, Sinks.

References

Matthews, J.P.R., Masson-Delmotte, V., Zhai, P. et al. 2018. Global Warming of 1.5°C. An IPCC Special Report on the Impacts of Global Warming of 1.5°C Above Pre-Industrial Levels and Related Global Greenhouse Gas Emission Pathways, in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty. Geneva: Intergovernmental Panel on Climate Change.

United Nations Climate Change. 2021. A beginners guide to climate neutrality. https://unfccc.int/blog/a-beginner-s-guide-to-climate-neutrality.

Green industrial policy

Sector-targeted policies that support the growth and development of certain industries and technologies, with the aim of furthering both economic and environmental goals. Several broader but differing definitions exist in the literature. Some are akin to innovation policy for green technology industries (e.g., Rodrik 2014), while others include environmental policies, such as pollution taxes, aimed at a broad range of industries (e.g., Harrison et al. 2017). Other definitions emphasize the aim of structural change to support environmental or sustainable development goals (Hallegatte et al. 2013; Pegels & Lütkenhorst 2014; Altenburg & Assmann 2017).

Neoclassical economists tend to envisage the purpose of green industrial policy to be addressing various market failures. Other

authors are more likely to emphasize the goal of supporting learning and information discovery for both public and private actors (e.g., Lütkenhorst et al. 2014). The latter view brings green industrial policy very close to concepts such as socio-technical sustainability transitions.

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See also: Green trade policy, Market failure, Environmental policy instruments, Pollution taxes, Environmental taxes, Carbon taxes, Sustainability transition, Energy transition.

References

Altenburg, T. & Assmann, C., eds. 2017. Green Industrial Policy: Concept, Policies, Country Experiences. Geneva, Switzerland and Bonn, Germany: UN Environmental Programme and German Development Institute / Deutsches Institut für Entwicklungspolitik.

Hallegatte, S., Fay, M. & Vogt-Schilb, A. 2013. Green industrial policies—when and how. Policy Research Working Papers 26. Washington, DC: World Bank.

Harrison, A., Martin, L.A. & Nataraj, S. 2017. Green industrial policy in emerging markets. Annual Review of Resource Economics 9: 253–74.

Lütkenhorst, W., Altenburg, T., Pegels, A. & Vidican, G. 2014. Green industrial policy: managing transformation under uncertainty. Deutsches Institut für Entwicklungspolitik, Discussion Paper 28/2014. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2509672.

Pegels, A. & Lütkenhorst, W. 2014. Is Germany's energy transition a case of successful green industrial policy? Contrasting wind and solar PV. Energy Policy 74: 522–34.

Rodrik, D. 2014. Green industrial policy. Oxford Review of Economic Policy 30(3): 469–91.

Green innovations

Innovations based on creative solutions to technological or institutional problems, and which are compatible with ecological resource conservation, augmentation, rejuvenation, and rehabilitation. Adverse effects are reduced or eliminated. Energy consumption is reduced, and dissipation of energy through waste is also reduced or eliminated. However, "grassroots innovators" advance greener objectives by using second-hand parts, use of limited natural resources, and try to use wastes more productively. In view of material constraints, the only resource that green grassroots innovators can leverage is their mind or knowledge. Thus, green innovations also tend to be more knowledge-intensive; for instance, a pollution control device in India developed by Virendra Kumar for a diesel engine reduces air pollution and captures carbon that can be used to make black dye used as industrial pigment (Kumar Sinha 2009).

ANIL K. GUPTA

Further reading

Leal-Millán et al. 2017; Carrillo-Hermosilla et al. 2009; Gupta 2010, 2012.

See also: Human capital, Conservation, Energy conservation, Sustainability, Grassroots innovations, Eco-innovation, Eco-design, Frugal innovations, Business innovation, Circular economy.

References

Carrillo-Hermosilla, J., Rio del González, P. & Könnölä, T. 2009. "What is eco-innovation?," pp. 6–27 in Eco-Innovation. London: Palgrave Macmillan.

Gupta, A.K. 2010. "Grassroots green innovations for inclusive, sustainable development," pp. 137–46 in The Innovation for Development Report 2009–2010. A. Lopez-Claros, ed. New York: Palgrave Macmillan.

Gupta, A.K. 2012. Innovations for the poor by the poor. International Journal of Technological Learning, Innovation and Development 5(1–2): 28–39.

Kumar Sinha, V. 2009. Generator accessory for cleaner exhaust. https://nif.org.in/innovation/cleaner_exhaust/7.

Leal-Millán, A., Leal-Rodríguez, A.L. & Albort-Morant, G. 2017. "Green innovation," in Encyclopedia of Creativity, Invention, Innovation and Entrepreneurship. E.G. Carayannis, ed. New York: Springer. https://doi.org/10.1007/978-1-4614-6616-1_200021-1.

Green national accounting

See: Economic ecosystem accounting, System of National Accounts (SNA).

See also: Environmental accounting, Natural resource accounting.