GRACE Data v2.0 Codebook
(January 2023)

Governing the Anthropocene – Environmental Policy and Outcomes in a
Comparative Perspective (GRACE)

The Governing the Anthropocene (GRACE) project, a longitudinal and
comparative study on environmental governance has created a dataset of national
policy responses for environmental management and protection in 37 countries[1]
for the period 1970-2022. It is an extension of the data originally collected in the
The ENVIPOLCON (Environmental Governance in Europe: The impact of
International Institutions and Trade on Policy Convergence) project.[2] Funding for
the GRACE data set was provided by grants from the Swedish Research Council
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Coding procedure

The GRACE data set was originally intended to provide a measure of the extent of
state involvement in addressing environmental problems, but can be used for
other more generic purposes as well. The rational for the GRACE data is to base
coding on a set of pre-defined environmental policy problems and then search
for national-level policy responses addressing those problems.

Policy problems were selected on the principle of having roughly the same
degree of problem pressure in all countries in the sample. This "portfolio"
approach was used in order to maximize comparability between national policy
portfolios. A total of 24 policy problems were identified and included in the data

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[1] Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, China, Denmark,
Finland, France, Germany, Greece, Hungary, India, Ireland, Israel, Italy, Japan, Rep. of
Korea, Mexico, Netherlands, New Zealand, Norway, Philippines, Poland, Portugal,
Romania, Russian Federation, Slovak Republic, South Africa, Spain, Sweden, Switzerland,
United Kingdom, United States of America.
2 The ENVIPOLCON project recorded the presence of and changes in environmental
policy outputs (e.g. limit values, product standards, process standards, policy
instruments) for a total of 9 environmental policy areas from 1970-2000 in 24
countries. See Holzinger, Katharina, Christoph Knill, and Bas Arts. (2008)*Environmental
Policy Convergence in Europe. The Impact of International Institutions and Trade.*
Cambridge: Cambridge University Press for a full account of the ENVIPOLCON data.

set. In addition, three environmental institutional reforms were also recorded in the data set. Data was collected for the period 1970-2022.

In a first step, a team of coders with native-language competence searched national legal repositories, international legal guides, and other forms of grey literature for documentation of if and when a country has implemented a policy in the GRACE policy selection. In a second step, this documentation was wetted collectively to determine if the collected evidence was sufficient for determining that a policy implementation has taken place. A policy is defined as a legally binding regulation that has been enacted by the highest law-making body in a given country. Policies are applicable to the entire national jurisdiction. Government reports, statements of intent, policy programs, campaigns, discussion papers, and private forms of regulation are not considered to be policies. Dates refer to when the policy came into force. All policies were coded as either absent (= 0) or implemented (=1) for a given country-year.

Citation

When using this dataset, please use the following citation:

> Duit, Andreas, Sommerer, Thomas and Lim, Sijeong (2023) "The GRACE v.2.0 Data Set" Department of Political Science, Stockholm University.

Policies

Policy in place index
Variable name: pip
Variable description: Cumulative number of policies in place

Sulphur content in gas oil
Variable name: sgasoil
Variable description: The variable records the first introduction of policies aimed at limiting sulphur content in gas oil. Limit values for the sulphur content of gas oil are usually given as a percentage of sulphur by weight (wt) e.g. 0.5% or 0.3%. Gas oil (i.e. light fuel oil also known as heating gas oil) is used for household heating. As sources like residential furnaces tend to be concentrated in urban areas, limitation on the sulphur content of gasoil aims at improving urban (local) air quality.

Lead content in passenger car gasoline
Variable name: pbpetrol

Variable description: Historically, lead was added to fuels to improve engine performance. The variable records if and when regulation for lead content in passenger car gasoline is introduced, typically in the form of limit values.

Passenger car exhaust emissions
Variable name: cars

Variable description: The variable records if and when regulation for exhaust from passenger cars is first introduced. Passenger cars are defined as vehicles with at least four wheels, carrying not more than six (/eight) occupants or with a maximum mass ≤ 2.5t (/<3.5t). Policies included: technical requirements for new cars (and/or cars already in use), standards for certain pollutants, standards for the composition of motor fuels, subsidies or tax reductions for 'cleaner' cars, information campaigns, monitoring and/or periodical testing, etc.

Airborne emissions from large combustion plants
Variable name: plants

Variable description: The variable records the first introduction of policies aimed at mitigating air emissions from large combustion plants (facilities with a capacity greater than 50 MW (Megawatt)). Policies aiming to reduce airborne emissions such as nitrogen oxide (NO), nitrogen dioxide (NO_2),sulphur dioxide (SO_2), dust particulates or heavy metals are included.

Bathing water quality improvement and monitoring
Variable name: coliform

Variable description: The variable records the first introduction of policies aimed at improving bathing water quality. Bathing water means natural running or still fresh waters or parts thereof and sea water, in which bathing is explicitly authorised by the competent authorities or bathing is not prohibited and is traditionally practised by a large number of bathers. Often regulations will be obligatory standards such as limit values for toxic substances and coliform bacteria, and/or monitoring programs.

Hazardous substance in detergents
Variable name: detergents

Variable description: The variable records the first introduction of policies aimed at regulating toxic substances in household and business detergents. Policies may include bans of toxic substances, limit values, and /or labelling schemes.

Efficient use of water in industrial production –tax or fee on groundwater extraction
Variable name: effwater

Variable description: The variable records the first introduction of policies aimed at improving the use of industrial groundwater. Policies often include taxes, levies and /or permits for groundwater extraction. In some cases, taxes are levied not on the water actually extracted but on the quantity for which a permit has been granted.

Water protection – industrial discharges into surface water
Variable name: surfacewater
Variable label: The variable records the first introduction of policies aimed at mitigating industrial discharges into surface waters. Such emissions encompass a wide range of substances, as well as industrial waste water polluted with these substances, especially chemicals, heavy metals, nitrogen oxides, fish toxicity, and biochemical oxygen demand. Industrial discharges into surface water can be regulated by standards (limit values for specific emissions) or by taxes on the discharge of waste water.

Contaminated site policy
Variable name: sites
Variable label: The variable records the first introduction of policies aimed at regulating liability for sites contaminated by industrial production. In most countries, liability schemes are developed to clarify the obligations of present and previous owners of a polluting industry. Another option is construct a fund to finance cleaning expenditures (a.k.a. superfunds). Other instruments relate to insurance policy, tax rebates or refunds for cleaning efforts, voluntary agreements for cleaning contaminated sites, etc.

Soil quality
Variable name: soil
Variable description: The variable records the first introduction of policies that aim to preserve soil quality, often on agricultural land.

Noise emissions from lorries (trucks)
Variable name: lorries
Variable description: The variable records the first introduction of policies aimed at mitigating noise pollution from lorries /trucks. Policies may include driving bans for lorries/trucks during night hours; constructing roads using low-noise pavements and/or special 'noise walls'; subsidies for low emission vehicles; noise emission standards for new and/or old lorries, etc.

Noise levels around motorways
Variable name: motorways
Variable description: The variable records the first introduction of policies aimed at mitigating noise pollution from motorways. There may be different

policy measures taken including: limit values for noise levels, road construction with low noise pavements; special 'noise walls'; and nightly bans for trucks, etc. Generally, noise level standards are expressed in zones, in terms of distances in meters, where a certain amount of noise, expressed in dB(A), is allowed. Motorways is defined as having at least four lanes. Where there are different values, e.g. for urban and non-urban areas or based on industrial zoning policies, the strictest value is taken.

Energy efficiency of refrigerators
Variable name: fridge

Variable description: The variable records the first introduction of policies aimed at increasing energy efficiency of household refrigerators. Measures to promote efficiency mostly consist of labels that provide detailed information on possible energy cost savings to consumers. Some countries combine labels with subsidies for buyers of the most efficient types, or subsidies for returning an old inefficient refrigerator when buying a new one.

Feed-in tariffs
Variable name: feedin

Variable description: The variable records the first introduction of policies that allow, prescribe, or facilitate small-scale electricity production (from solar, geothermal, wind, biomass, or hydro) to be fed back into the electricity grid.

Recycling of construction waste
Variable name: constructionwaste

Variable description: The variable records the first introduction of policies aimed at establishing a recycling system for waste from construction projects. The separation of hazardous wastes such as asbestos, lead, mercury and other heavy metals; hydrocarbons; paint adhesives, solvents, preservatives; contaminated soil and various materials containing PCBs usually plays a decisive role for the recycling of construction waste. Policies include prescriptions for on-site separation and recycling, promoting the development of easy-to-disassemble products, or 'flanking' instruments like financial incentives (landfill taxes) and landfill bans.

Landfill waste treatment
Variable name: landfill

Variable label: The variable records the first introduction of policies aimed at regulating landfill waste treatment sites. Policies typically consist in regulations for permitting, placement, construction, and use of landfills.

Environmental impact assessment

Variable name: eia

Variable description: An environmental impact assessment is a systematic assessment of environmental effects likely to arise from a project with the aim of ensuring that significant environmental impacts are identified, assessed and taken into consideration in the decision-making process. The policy is considered in place when prescribed by law as mandatory in at least one major environmental permitting process.

Eco-audit

Variable name: ecoaudit

Variable description: The variable records the first introduction of policies in support of management instrument which consists of a systematic, documented, regular and objective assessment of an organisation's performance with respect to environmental protection. Policies usually define third-party independent certifying and auditing bodies. The most common examples are ISO 14001 and EMAS labelling systems.

Eco-labelling

Variable name: ecolabel

Variable description: The variable records the first introduction of policies aiming at establishing an environmental labelling system. The practice of labelling products based on a wide range of environmental considerations in order to make relevant environmental information available to consumers. The policy is considered in place when prescribed by law as mandatory in at least one major group of household appliances.

Recycling of glass

Variable name: glass

Variable description: The variable records the first introduction of policies that aim to establish recycling of household glass, often in the form of a deposit system.

Recycling of Paper

Variable name: paper

Variable description: The variable records the first introduction of policies that aim to establish recycling of household paper and/or cardboard. Policies are usually some form of deposit system, mandatory rules, or recycling infrastructure.

DDT ban

Variable name: ddt

Variable description: Ban for using DDT. The policy is considered in place only when the ban is without exceptions.

Ministry of the Environment
Variable name: ministry

Variable description: The introduction of a ministry in the national government mainly dealing with environmental issues.

Environmental Protection Agency
Variable name: agency

Variable description: The introduction of a national-level governmental agency mainly dealing with environmental issues. An agency is not directed by a minister, but typically by a civil servant.

Council of Environmental Experts
Variable name: experts

Variable description: The variable records the introduction of a permanent national-level council of environmental experts reviewing and advising government on environmental matters.

Endangered species
Variable name: species

Variable description: The variable records the first introduction of policies aimed at defining, identifying, and protecting endangered species.