Environment and energy

Atmospheric emissions in Environmental Accounting

The figures relating to pressure caused by economic activities (production activities and households) on the natural environment, in the form of air emissions, derive from the air emissions satellite account known as Namea (*National accounting matrix including environmental accounts*). The main source for the calculation of Namea figures is the national air emission inventory, created as part of the European Corinair project, which is produced on an annual basis by the Institute for Environmental Protection and Research (ISPRA), which produces the figures for the Italian Communications on an international level under the United Nations Framework Convention on Climate Change and the Convention on Long Range Transboundary Air Pollution[1] (see Atmospheric Pollution).

However, the total emissions calculated using Namea methodology is different from both the total emissions according to the Corinair inventory and that calculated as part of the main international conventions mentioned above. This difference is due to the adoption in the Namea data of the principles and standards used to calculate national economic accounts, established by the European system of national and regional accounts *European System of Accounts* ("ESA95"). With reference to the data presented here, it is important to point out the residence principle. For coherence with this principle, the emissions from resident units operating abroad (for transport activities) are added to the Corinair emission data, which refer to the national territory, and the emissions from non-resident units operating in the national territory (for transport activities) are subtracted. Furthermore, the satellite account for atmospheric emissions includes only emissions caused by human activity and not those associated with natural phenomena, which in contrast are included in the Corinair inventory.

Regarding production activities, the Namea data include the emissions caused by production processes characteristic of the principal activity, those generated by any secondary activities and the emissions caused by anncillary activities such as in-house heating or transport processes[2]. With regard to households, the data are structured into three headings which are of particular interest for emissions: "transport" (including household emissions deriving from the use of fuel for private transport and gardening), "heating" (including cooking) and "other" (which includes household emissions caused mainly by the use of solvents).

The time series included here, both with reference to households and to production activities, cover the years 1990-2008. These are coherent with the 2010 version of the Corinair[3] inventory and include emissions from nineteen atmospheric pollutants: carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4), nitrogen oxides (NOx), sulphur oxides (SOx), ammonia (NH_3), non-methane volatile organic compounds (NMVOCs), carbon monoxide (CO), particulates (PM_{10}), fine particulates ($PM_{2,5}$), arsenic (As), cadmium (Cd), chromium (Cr), copper (Cu), mercury (Hg), nickel (Ni), lead (Pb), selenium (Se) and zinc (Zn), in addition to the aggregate indices for "greenhouse", "acidification" and "tropospheric ozone" environmental issues.

The methodological coherence of the Namea data with the figures in the national economic accounts allows for the economic National Accounts data to be used to calculate indicators representing the

[1] United nations - *Economic commission for Europe convention on long range transboundary air pollution*.

[2] For a given production unit, the primary activity is that whose value added is higher than any other activity performed in the same unit, a secondary activity is an activity performed in addition to the primary activity and an ancillary activity consists in a supporting activity (purchases, sales, marketing, data processing, transport, stocking, etc.) performed with the aim of creating suitable conditions for the performance of the primary or secondary activities.

[3] See: www.sinanet.apat.it/it/sinanet/sstoriche.

efficiency of production activities such as emission intensity[4] (emissions/output, emissions/full time equivalent employees).

[4] The higher the value of the indicator, the less efficient the production activity is.