



Combined ecological and carbon footprints effective in regional policy

New research has recommended using both ecological and carbon footprints to assess the impact of environmental policies and strategies at a regional level. The combination can provide an evidence-based means of evaluating policies to help achieve environmental targets.

The research combined both the ecological footprint and carbon footprint to analyse a range of policies and actions that aim to improve the environmental sustainability of the Northern Ireland region of the UK. The ecological footprint translates human impacts into the area of land and water ecosystems that is required to produce the resources consumed and to absorb the wastes produced. The carbon footprint represents the amount of carbon dioxide emissions (usually in tonnes) that is directly or indirectly caused by or emitted by an activity, organisation or product. By combining the two, the research sought to maintain continuity with previous research, provide policy-relevant indicators and meet ongoing needs for a communication tool.

The researchers analysed the contribution of five key policy areas to the ecological and carbon footprint of Northern Ireland. These were housing, transport, food, consumables and private services. The ecological footprint of Northern Ireland residents in 2003 was estimated to be about 4.2 giga-hectares per person. Housing contributed the most, at 39% of the footprint (equivalent to 1.8 giga hectares per person). Housing also contributed the most to the carbon footprint (48%) and, at about 4.5 tonnes per capita, was greater than the UK target of CO₂ emissions per person by 2050.

Considering possible scenarios of future policy options, the study estimated that the greatest reduction in the ecological footprint of housing would be achieved through retrofitting a range of energy efficiency measures to existing housing stock, which could produce a 38% reduction in the footprint by 2025. Meanwhile, policies focussed on building regulations and the Code for Sustainable Homes (CSH) could reduce the ecological footprint of housing by 28%, whilst a smaller reduction of 14% could be achieved by increasing the efficiency of electricity production and distribution.

The greatest reduction in the carbon footprint of housing was also achieved by retrofitting energy efficiency measures with an estimated decrease in the footprint of 41% by 2025, whilst it was estimated that implementing building regulations could achieve a 30% reduction.

Looking at other policy areas, the most effective measure to reduce the food ecological footprint was to decrease food waste (a possible reduction in footprint of 14%), whereas a smaller food carbon footprint is best promoted by policies that encourage a lower carbon diet, which could produce a decrease of 11%.

The research indicates a valuable role for the combined ecological and carbon footprint analysis to estimate the impact of humans on the environment and to assess which policy options would be most effective. The ecological footprint remains a popular measure as its representation, in terms of the area of the earth's surface, captures the imagination and communicates a strong message. However, it does suffer criticism of its assumptions and statistical robustness.

The researchers suggest the combination of the ecological and carbon footprints is beneficial as it places our consumption activities within an ecological and environmental framework and provides a powerful communication tool. However, more research is needed to standardise methods of calculation and reporting.

Source: Curry, R. & Maguire, C. (2011) The use of Ecological and Carbon Footprint Analysis in regional policy making: application and insights using the REAP model. *Local Environment* 16(9):917-936.

Contact: r.curry@gub.ac.uk **Theme(s):** Sustainable consumption and production, Sustainable development and policy assessment

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