

Ecological footprinting: accounting for our environmental impact



ABOUT ACCA

ACCA (the Association of Chartered Certified Accountants) is the global body for professional accountants. We aim to offer business-relevant, first-choice qualifications to people of application, ability and ambition around the world who seek a rewarding career in accountancy, finance and management.

Founded in 1904, ACCA has consistently held unique core values: opportunity, diversity, innovation, integrity and accountability. We believe that accountants bring value to economies at all stages of their development. We seek to develop capacity in the profession and encourage the adoption of global standards. Our values are aligned to the needs of employers in all sectors and we ensure that, through our qualifications, we prepare accountants for business. We seek to open up the profession to people of all backgrounds and remove artificial barriers, innovating our qualifications and their delivery to meet the diverse needs of trainee professionals and their employers.

We support our 140,000 members and 404,000 students in 170 countries, helping them to develop successful careers in accounting and business, based on the skills required by employers. We work through a network of 83 offices and centres and more than 8,000 Approved Employers worldwide, who provide high standards of employee learning and development. Through our public interest remit, we promote appropriate regulation of accounting and conduct relevant research to ensure accountancy continues to grow in reputation and influence. As part of its series of Friday Forums, ACCA held an event, 'Ecological Footprinting – Accounting for our Environmental Impact', on 2 July 2010.

Speakers included:

- Paul Cooper, managing director, Best Foot Forward
- Oliver Greenfield, head of sustainable business and economics, WWF
- Tony Greenham, head of finance and business, New Economics Foundation.

This article introduces the concept and role of ecological footprinting as a sustainability indicator, as presented at the Forum.

PODCAST

Listen to the podcast of 'Ecological Footprinting – Accounting for our Environmental Impact' at http://www.accaglobal.com/podcasts/members/ Sustainability_Friday_Forums/ Progress means getting nearer the place you want to be. And if you take a wrong turning, then to go forward does not get you any nearer. If you are on the wrong road, progress means doing an about face and walking back to the right road, and in that case the man who turns back the soonest is the most progressive man.

CONTEXT

What will the world be like in 2030, 2050 or even 2100, when several generations will have taken a seat at the global table and be ready to shape their future? By that time global societies will have had to face up to many interlocking environmental, social and economic barriers to real progress. To take just a few examples, consider the following questions.

- How will we feed a global population predicted to grow from six billion currently to over nine billion in 2075?²
- How can we halt the accelerating decline in biodiversity and learn to live in true balance with other species?³
- How will we meet the predicted energy needs of expanding economies without damaging ecological consequences?⁴
- How will we succeed in eliminating poverty and inequality, and provide an acceptable quality of life for all?⁵

These are just some of the big questions that society has begun to address only recently, under the umbrella terms of 'sustainable development' and 'sustainability'. Future developments will largely be dictated by prevailing worldviews of what constitutes 'quality of life' and how different societies relate to the environmental, social and economic factors that contribute to its further enhancement. This can also be illustrated by the 'Russian dolls' model, which contrasts the current dominant neo-economic view that the environment is a subset of societal and economic spheres and activities (Figure A) with a view that acknowledges that economic and societal needs can be met only within the context of a healthy natural environment (Figure B).







^{1.} C. S. Lewis, Mere Christianity, MacMillian Publishers, 1952.

^{2.} *Population until 2300,* UN Department of Economic and Social Affairs, 2008.

^{3.} UN Convention on Biological Diversity, <http://www.cbd.int/>, accessed 29 November 2010.

^{4.} Energy Policy Scenarios to 2050, World Energy Council, 2009.

^{5.} United Nations, 'UN Millennium Development Goals 2015: End Poverty and Hunger', http://www.un.org/millenniumgoals/poverty.shtml, accessed 29 November 2010.

Although it would be helpful to consider more deeply the philosophy behind the guiding paradigms here, this is beyond the scope of this article. There is increasing evidence, however, that the current dominant paradigm (figure A) has significant blind spots to measuring and incorporating the value of properties that lie outside traditional economic and financial accounting boundaries. These include access to clean water, the maintenance of fertile soils, relatively stable weather patterns, sufficient biodiversity of flora and fauna, and protection of insects and other vectors for the production of food staples relying on pollination.⁶

Many more natural phenomena enable and underpin current global economic and social activities but are not currently reflected in the corporate or national accounts that are used to decide on future courses of action because there is no numerical or currency value attached to them, which would make their value directly comparable to that of, for instance, a ton of gold sold at a set market price. Without any form of robust and comparable numerical valuation of global natural services, they will remain invisible to the accounting, and ultimately the decision-making, processes guiding economic activities such as extraction of natural resources.

Current accounting systems and financial statements only capture what is within them so if the corporate management responsibility lies outside the normal boundaries how do we properly measure and influence it? We need new tools a more holistic way of measuring the impact of enterprises.

(TONY GREENHAM, NEW ECONOMICS FOUNDATION)⁷

THE ECOLOGICAL FOOTPRINT – MEASURING INVISIBLE VALUE

The ecological footprint (EF) is among a number of emerging, progressive sustainability indicators that attempt to arrive at a value representing the impact of human activities and demand on the Earth's ecosystems.

The EF compares human demand with the planet Earth's ecological capacity to regenerate, and represents the amount of biologically productive land and sea areas, measured in global hectares (gha), needed to regenerate the resources a human population consumes and to absorb and render harmless the corresponding waste.⁸

Simply put, the EF is an accounting framework that tracks humanity's competing demands on the biosphere by comparing human demand against the regenerative capacity of the planet.⁹

The EF connects species extinction and resource use intensity with markets by mapping planetary capacity and ecological limits and thereby establishing in the psyche of business, politicians and society the concept of 'a physical limit. (OLIVER GREENFIELD, WWF-UK)¹⁰

^{6.} Mainstreaming the Economics of Nature – A Synthesis of the Approach, Conclusions and Recommendations, The Economics of Ecosystems and Biodiversity (TEEB), 2010. <http://www.teebweb.org/LinkClick. aspx?fileticket=bYhDohL_TuM%3d&tabid=924&mid=1813 EEB>, accessed 29 November 2010.

^{7.} Tony Greenham, head of finance and business, New Economics Foundation, speaking at the ACCA event 'Ecological Footprinting – Accounting for our Environmental Impact', 02 July 2010.

^{8.} Mathis Wackernagel, Sharing Nature's Interest; Ecological Footprints as an Indicator of Sustainability, Earthscan, 2000.

^{9.} WWF, Living Planet Report 2010: Biodiversity, Biocapacity and Development, WWF, 2010. http://www.wwf.org.uk/what_we_do/about_us/living_planet_report_2010/, accessed 29 November 2010.

^{10.} Oliver Greenfield, head of sustainable business and economics, WWF-UK speaking at the ACCA event 'Ecological Footprinting – Accounting for our Environmental Impact', 02 July 2010.

It is this notion of an inbuilt environmental 'limit' to economic activities that sets the EF apart from other, more frequently used, sustainability indicators, including the amount of carbon dioxide (CO_2) emitted. Whereas the finite nature of our planet's resources cannot be disputed, the question of what constitutes a safe level of CO_2 emissions is still being debated.¹¹

The EF is often expressed as a graphic representation dividing human uses of biologically productive land (Figure C) and as the number of planet earths that would be needed if global societies adopted the land-use and resource-use practices necessary to support the lifestyle of any given country, eg if the current world population wants to consume material goods, food and energydependent services at the current UK level it would require three planets of resources to meet that demand (Figure D).

Figure C

CARBON
GRAZING
FOREST
FISHING
CROP LAND
BUILT-UP LAND

PRACTICAL APPLICATIONS OF THE ECOLOGICAL FOOTPRINT

Examples of practical application of the EF can be found across a range of entities and actors from individuals, households, businesses and business projects, local communities, cities, regions and nations. Here are a few examples to illustrate its use.

At individual and household level, Web-based footprint calculators have been available for a number of years, illustrating how personal lifestyle choices, including travel modes and energy use, translate into the land and resources needed to enable these choices.¹²

There are a number of examples of businesses that have adopted the EF as part of their sustainability suite. The Swiss bank Sarasin developed a new country bond-rating matrix aimed at changing the way investors think about sovereign bonds – and the way governments think about their own ecological balance sheets and risks. The company's 'Bond Sustainability Matrix', based on EF analysis, is used to evaluate factors of resource efficiency and resource availability and the associated risk attached to investing in particular countries.¹³

Ecover, the UK's leading manufacturer of effective yet ecological cleaning and washing products, has used ecological footprinting to analyse and minimise its full product-lifecycle impacts, including raw materials, manufacture and distribution.¹⁴

Figure D



^{12. &#}x27;Personal Footprint calculator', Global Footprint Network, http://www.footprintnetwork.org/en/index.php/GFN/page/personal_footprint/, accessed 29 November 2010.

^{13. &#}x27;New Bond Ratings Look at Ecological Risk', Global Footprint Network, <http://www.footprintnetwork.org/en/index.php/newsletter/det/new_bond_ratings_look_at_ecological_risk>, accessed 29 November 2010.

^{14. &#}x27;Clients and Case Studies', Best Foot Forward, <http://www. bestfootforward.com/case_study/type/ecological/>, accessed 29 November 2010.

The Mayor of London undertook an EF exercise in 2002, with the aim of mapping the ecological impact of goods and services used to maintain London's infrastructure and activity levels. The results showed, for instance, that London consumed resources from a geographical area equivalent to 293 times the city's size, or twice the size of the UK, raising questions around better planning for future energy and food security.¹⁵

Projects such as the 2012 London Olympic Games are also using EF as part of their sustainability assessment, including mapping their impact on local food production, transport and on-site energy generation.¹⁶

WWF has been producing the Living Planet Report for a number of years, using the EF alongside other indicators to measure the impacts of nations' resource consumption and their knock-on effects on, for instance, biodiversity, water scarcity and communities' livelihoods.¹⁷

VALUE OF THE ECOLOGICAL FOOTPRINT

Evidence suggests that the EF is being used mostly as part of a portfolio of sustainability measures and awarenessraising tools, such as carbon measurement, accounting and reporting, environmental impact assessments (EIA), greener building practices and more sustainable transport schemes.

In practice the EF is very flexible, as its analysis can be expanded by including land put aside for biodiversity, and it can be used alongside other metrics such as carbon emissions. The graphic display of its findings makes it a good, intuitive engagement tool for any audience. It is, however, in the demonstration of a limit to individual, corporate and nationwide consumption patterns imposed by a finite planet that the EF really comes into its own, compared with other indicators of sustainability pathways.

Finally, the EF's underlying datasets and assumptions are being constantly updated and refined by the Global Footprinting Network using robust UN and country-specific government statistics for land use, resource extraction, food production and relevant conversion factors to arrive at the number of global hectares required for particular activities.

ISSUES WITH THE ECOLOGICAL FOOTPRINT

The EF on its own is unlikely to provide a clear map for assessing all ecological impacts from activities such as air travel, dairy farming, industrial fishing, forestry or mining. Future technological developments, social innovation and progressive economic, social and environmental policies will all shape societies' impact on land, sea and air use. To capture these developments and crudely integrate these into a single indicator such as the EF would create an unwieldy and ever-changing measure of sustainability assessment.

^{15.} City Limits: A Resource Flow and Ecological Footprint Analysis of Greater London, Mayor of London's Office, 2002. http://www.citylimitslondon. com/downloads/Complete%20report.pdf>, accessed 29 November 2010.

^{16. &#}x27;The London 2012 Sustainability Plan: Towards a One Planet 2012', http://www.london2012.com/sustainability, accessed 29 November 2010.

^{17.} WWF Living Planet Report 2010 – Biodiversity, Biocapacity and Development, WWF, 2010. http://wwf.panda.org/about_our_earth/all_publications/living_planet_report/, accessed 29 November 2010.

THE ECOLOGICAL FOOTPRINT AND THE ACCOUNTING PROFESSION

A good analogy for relating the EF to accounting principles can be found if we consider ecological 'debits' and 'credits'. Debits represent the value of the Earth's regenerative capacity to provide essential sources such as water and fertile soil as well as to neutralise harmful waste and pollution. Credits are the measure of our impacts, including natural resource extraction, CO_2 pollution and waste, which all need to be absorbed by ecosystems.

WWF's latest global EF accounts show that global society is in credit, using the equivalent of 1.5 earths, yet the debit side can only ever remain at 1 earth so this deficit poses a problem, especially considering that developing countries such a China and India are aspiring to provide consumption levels found in the developed world, possibly pushing up the credit value.¹⁸

The accounting profession can play a strong role in tackling the material sustainability issues underpinning the EF. Having standardised global financial accounting practices and making them more efficient and effective, accountants are well placed to help identify, value and account for assets outside the traditional financial sphere. Ultimately, metrics such as the EF will only make a difference if forced into corporate and governmental strategies and taken into account in the composition of future products. Accountants are part of the decisionmaking chain influencing the final outcome. Accountants also have an important contribution to make in developing robust auditing practices for progressive metrics such as the EF: as demonstrated by KPMG, which signed off the 2012 London Olympics Ecological Footprinting plan and strategy.¹⁹

In summary, if you believe the saying 'If you can't measure it you can't manage it' then you cannot do without the skills accountants can contribute, engaging with and helping to capture values lying outside traditional account ledgers.

FINAL THOUGHTS

The EF attempts to create awareness of the ecological consequences of our everyday activities measured by one of the most valuable commodities for global societies – available land. All sustainability metrics play an important educational role in raising awareness and, one hopes, influencing the decision-making processes of citizens, corporations and governments. All these efforts must be linked with the critical notion of a 'limit', which is the planetary capacity to withstand increasing populations and accelerating economic activity, together with the mounting pollution and waste arising from these developments.

The EF, despite its limitations, highlights these inescapable limits and can be used to stimulate thinking about the social, political, governance, financial and accounting systems underlying current consumption patterns.

By linking actors, whether at individual, corporate or governmental level, to a bigger story of actions and consequences on a finite planet, the EF can stimulate deeper reflection on such issues as quality of life, measurement of material and non-material progress and well-being, long-term viability of certain corporate activities, and the shape of future societal infrastructures.

Albert Einstein put is aptly when he mused: 'once we accept our limits, we go beyond them'. Proper accounting for the sustainability challenges ahead will help us to plough safer courses of action for future generations, as well as opening up opportunities for communities, businesses and governments to benefit from the move towards a more sustainable interaction with the natural world. Proper application of the EF can be a helpful beacon on this journey.

^{18.} Ibid.

^{19.} Paul Cooper, managing director, Best Foot Forward, speaking at the ACCA event 'Ecological Footprinting – Accounting for our Environmental Impact', 02 July 2010.

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