Information sheet 2: Ecological foot-printing

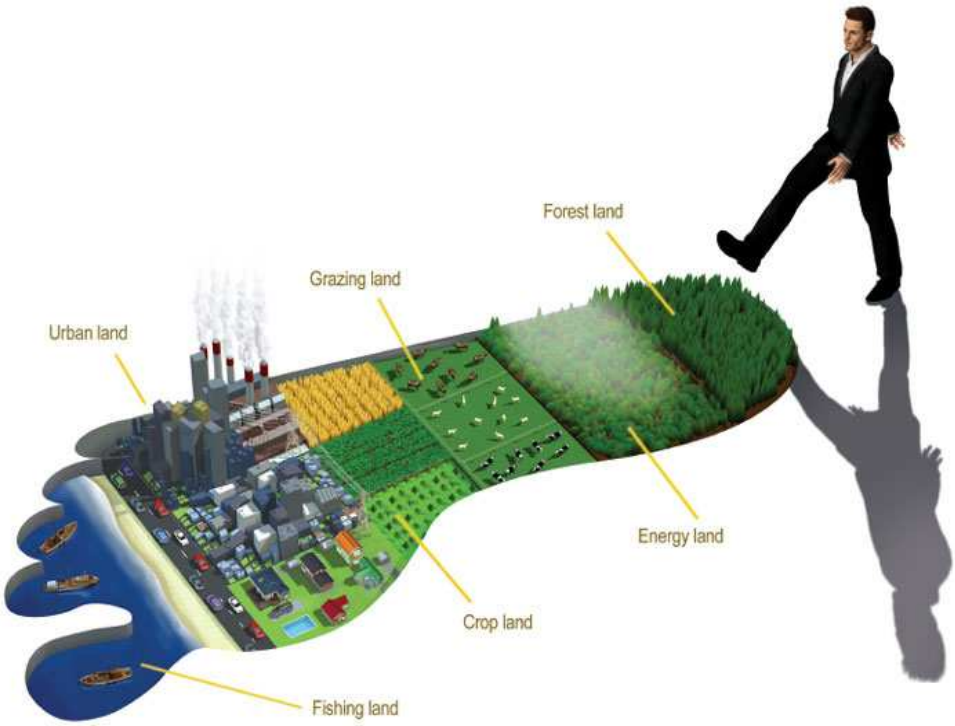
(Adapted from Ministry for the Environment, Environment New Zealand (2007) at www.mfe.govt.nz)

Ecological footprint

An 'ecological foot-print' is one of several tools that may be used to illustrate the pressure placed on the environment by our production and consumption of natural resources. The larger a population's ecological foot-print, the more natural resources that are needed to sustain that population's lifestyle.

An ecological foot-print estimates the amount of productive land and sea area that is required to support the lifestyle of a particular population (for example, a country, region or household). This includes the land needed to produce food and fibre and other goods and services, and to support infrastructure and housing. It also includes the area of land that is needed to absorb carbon dioxide emissions (see Figure 1).

Figure 1 Composition of an ecological foot-print



Source: Ministry for the Environment.

This figure is a graphical representation of what makes up an ecological foot-print. Generally, an ecological foot-print is made up of fishing land, urban land, crop land, grazing land, energy land and forest land.

Notes:

(1) 'Energy land' is defined as the theoretical amount of land required to be planted in exotic forests to absorb our carbon dioxide emissions.

(2) 'Fishing land' is the area required to support the fishing industry and the production of seafood.

The ecological foot-print can be used to show whether a population's demand for natural resources exceeds the supply of those resources – that is, whether a population is living within its land's ecological carrying capacity. In this way, an ecological foot-print can be used as a proxy measure of the environmental sustainability of a population's lifestyle.

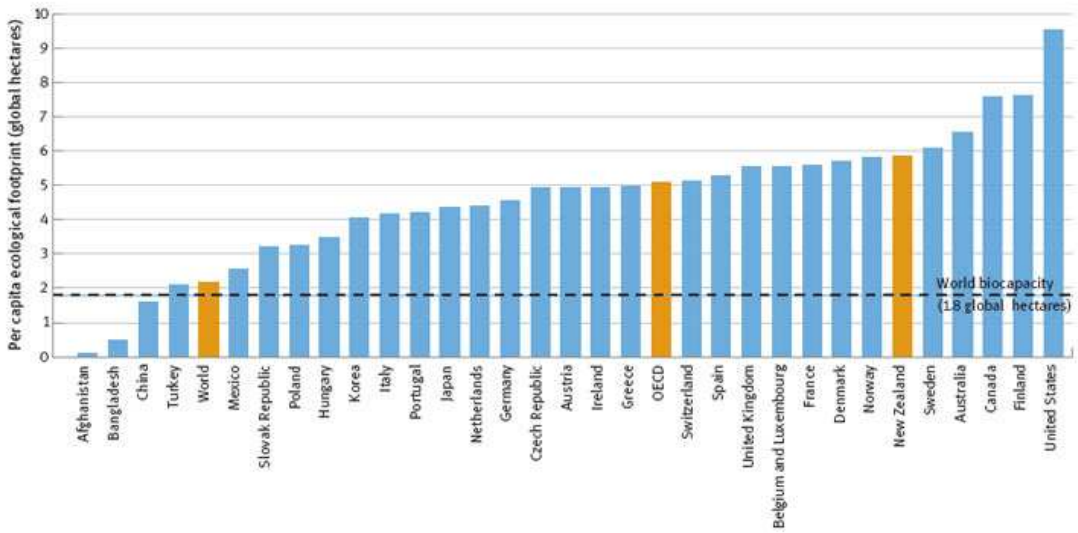
New Zealand's changing foot-print

Population growth is a key influence on the size of an ecological foot-print. In addition, as an economy grows, so too does its ecological foot-print. The wealthier a country or region is, the higher levels of material affluence and consumption of goods and services it has (Ministry for the Environment, no date).

Between the 1998 and 2004 March financial years, New Zealand's ecological foot-print is estimated to have increased 15.4 percent, from 19.9 million global hectares to 22.9 million global hectares (Ministry for the Environment, no date). This was accompanied by an increase in the ecological foot-print of each of New Zealand's 16 regions (as defined by regional authority area).

On a per capita basis, New Zealand's ecological foot-print increased from 5.24 global hectares in 1998 to 5.65 global hectares per person in 2004, which is an increase of 7.8 percent (Ministry for the Environment, no date). New Zealand has the sixth highest ecological foot-print amongst OECD countries (see Figure 2).

Figure 2 Comparison of per capita ecological foot-prints of OECD countries in 2003, including OECD and world averages



Source: Ministry for the Environment.

Notes:

(1) No data is available for Iceland.

(2) Belgium and Luxembourg have been grouped together for the purposes of this figure.

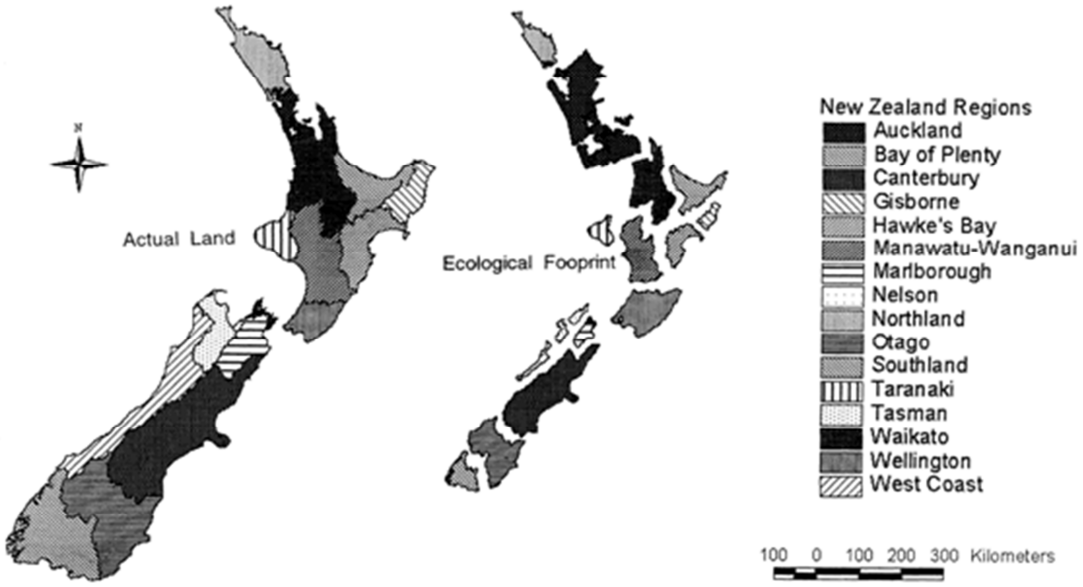
(3) Afghanistan, Bangladesh and China are not members of the OECD, but have been included to provide a global scale.

Data source: Adapted from Global Footprint Network, 2006.

Ecological footprint – Bay of Plenty

The Ministry for the Environment undertook a study to evaluate the ecological foot-prints of New Zealand regions. Auckland has the highest ecological foot-print and is ranked 15th in terms of its actual land size. The West Coast is ranked 5th by land size and 14th by ecological foot-print. Bay of Plenty is the 9th largest region by land and the 7th highest ecological foot-print of all the regions. The impact of the various regions is represented in Figure 3.

Figure 3 Ecological foot-prints of New Zealand regions



Source: Ministry for the Environment.

References

Ministry for the Environment. 2007. *Environment New Zealand*. MfE. Wellington.

Question / Pātai:

1. What factors might contribute to New Zealand having the sixth largest ecological foot-prints?
2. If Auckland is ranked 15th by land size and has the largest ecological footprint and the West Coast has one of the smallest ecological footprints and largest land sizes – what role do think population plays in this equation?
3. What factors would contribute positively and negatively to:
   - your own personal ecological footprint?
   - the ecological footprint of your whānau or family?
   - the ecological footprint of your school?
4. Bay of Plenty residents purchase products from outside the region and these accounts for 84,780 ha of the regions footprint. Most of this (76,400 ha) is purchased from overseas. What would it mean for our region to be self sufficient? How would this positively and negatively impact on our ecological footprint?