

The Ecological Footprint of Mauritius

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Mauritius has witnessed an almost exponential economic growth over the past two decades that has undoubtedly raised the standard of living. The current level of material well-being has serious ecological implications, especially regarding Earth's biologically productive and regenerative capacities. Should the standard of living of each human being be equal to the ecological footprint of the average Mauritian, we will require at least 1.8 planets! This unsustainable standard of living cannot be ignored and needs to be addressed in a responsible way by businesses, government authorities and citizens alike.

Economic growth

I mentioned in one of my previous articles that an obstacle to achieving ecologically sustainable development was the preoccupation of politics with economics.¹ This is evidenced by the fact that politicians, and supported by most businesses, trumpet economic growth as a panacea for our social problems. Further, they also suggest that more economic growth is a pre-requisite for dealing with our ecological problems! The fallacies and myths about the growth argument have been debugged quite adequately.² Further, market democracies have a tendency to define 'progress' or 'development' in terms of 'material well-being', which is usually measured in monetary terms like per capita Gross Domestic Product (GDP). There are a few pertinent points to consider here. First, we will all agree that someone's welfare or well-being cannot simply be equated to material well-being. For our quality of life also encompasses non-monetary components, including psychological, physical, social and spiritual dimensions. Several of these components are not captured in measurements of economic growth because they cannot be measured in monetary terms or traded through a market system. Second, there is certainly a direct correlation between economic growth and well-being but only up to some threshold, beyond which, if there is more economic growth, quality of life may begin to deteriorate.³ The third comment concerns the moral foundation of the economic growth debate. Growth is relative to nothing save more growth. Hence, economic growth is meaningful only if there is more economic growth. Economic growth has no end beyond itself – i.e. it is its own end. The self-legitimising process has placed itself in a position to disregard its consequences. Hence, the ideology that economic growth is desirable and that it will solve all our problems.

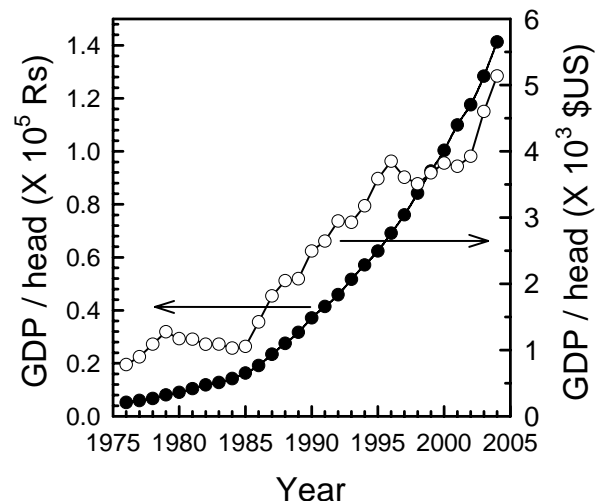


Figure 1. Per Capita Gross Domestic Product (GDP).

¹ See Business Magazine, Issue 635, August 25 – 31, pp.56-58.

² H. E. Daly, *Ecological Economics and the Ecology of Economics: Essays in Criticism* (Edward Elgar, Northampton, 1999); E.J. Mishan, *The Economic Growth Debate: An Assessment* (Allen & Unwin, London, 1977) and *Twenty-one Popular Economic Fallacies* (Penguin, London, 1969); Clive Hamilton, *Growth Fetish* (Allen & Unwin, Sydney, 2003).

³ M. Max-Neef, "Economic Growth and Quality of Life: A Threshold Hypothesis", *Ecological Economics* **15**, 115 (1995).

Omissions in measuring economic activity

Figure 1 shows that the variation of per capita GDP at market prices for Mauritius [Rs (solid circles) and \$US (open circles)] has been almost exponential over the past two decades. Although it is tempting to use per capita GDP as a proxy for measuring the progress of a country, we first need to be clear about what GDP actually measures. GDP measures the total of all economic activity in a country, which is important to keep track of business cycles. It is not meant to be an indicator of quality of life nor is it a suitable indicator of whether economic activities are ecologically sustainable. In fact, GDP excludes key contributors to well-being and the sustainability of ecosystems. Some examples are:⁴

- *Unpaid and domestic activities* – Activities like house keeping or planting trees, though productive in themselves, are only counted in GDP if someone is paid to do the job.
- *Leisure* – Any improvement in efficiency that produces the same output but gives more recreational time is recorded at exactly the same value as the less efficient process. It matters not that the freed-up time is used for socially or ecologically desirable activities like volunteering work and spending more time with our families and neighbours.
- *Depletion of resources* – The use of natural resources does not account for the fact that an irreplaceable part of the ecological capital stock has been consumed. For example, if all rainforests were logged and the wood turned into furniture, timber and paper that were then traded on the market, GDP would go through the roof.
- *Environmental costs* – GDP figures do not distinguish between polluting and non-polluting economic activities.
- *Defensive expenditures* – These are expenditures that contribute positively to GDP, despite the fact that they are the result of activities that diminish the quality of life and the environment. Consider the example where someone vandalises your property. If you pay someone else to fix the damage, then that contributes positively to the national accounts, although the act of vandalism may have caused you grave psychological and emotional stress. Another example is the development of new technologies for cleaning up the pollution that a prior technology has created.

Ecological footprint (EF) of Mauritius

I will now skip any further discussion on the relationship between economic growth and quality of life, and focus on the impact that economic growth has on resource consumption and waste generation using data generated by Ecological Footprint Analysis (EFA). EFA is an accounting tool that measures the per capita of land equivalent requirement to produce the resources that a given population consumes and to assimilate the waste that the population produces. Hence, EFA estimates a population's consumption of energy, food, and materials in terms of the area of biologically productive land (or sea) required to produce the natural resources.⁵ The analysis covers five categories of consumption, including food, housing, transportation, consumer goods, and services. EFA also includes the land equivalent of the energy embodied in a country's economic activities, as well as the amount of land required to sequester the corresponding amount of carbon dioxide emitted.⁶

Table 1 lists the consumption EF of selected nations taken from *Ecological Footprint of Nations 2004*.⁷ The values listed in Table 1 are for the year 2000. They must be taken as underestimates because (1) complete data on resource consumption and waste generation are not readily available, and (2) pollutants, such as heavy metals, radioactive waste and persistent synthetic compounds, for which Nature has no significant absorptive capacity, are left out in the analysis.

⁴ The Economist Guide to Global Economic Indicators (Wiley & Sons, NY, 1994), pp. 27-28.

⁵ M. Wackernagel and W. Rees, *Our Ecological Footprint: Reducing Human Impact on the Earth* (New Society Publishers, British Columbia, 1996).

⁶ A detailed account of the EFA methodology can be found at (www.RedefiningProgress.org).

⁷ J. Venetoulis, D. Chazan and C. Gaudet, *Ecological Footprint of Nations* (Redefining Progress, 2004).

Although there is scope for improvements in the EFA methodology, the existing analysis provides powerful insights into the effect of increasing material welfare on Earth's biocapacity and the moral implications of ever increasing standard of living.

EF is measured in global hectares per person, where a global hectare is a hectare the biological productivity of which equals the global average. The productive area of the biosphere translated into an average of 1.8 global hectares per person in 2001 (1.9 global hectares per person in 1999).⁸ This means that under sustainable conditions, the

average per capita footprint of the world should have been at most 1.8-1.9 global hectares per person in 2000. Yet, the world per capita footprint was 2.18 global hectares per person in 2000. This simply means that, on average, the world is living beyond the regenerative capabilities of the planet's ecosystems – i.e. we are spending Earth's natural capital. The recently released *Millennium Ecosystem Assessment Synthesis Report* mentioned that some 15 of the 24 ecosystems vital for life on Earth have been seriously degraded or used unsustainably. This has happened along the backdrop of the world population doubling and the global economy increasing more than six-fold over the last 40 years. One qualification, however, is that not all countries in the world are living beyond their share of the Earth's natural capital. The main culprits have been the developed countries, since there is a positive relationship between economic activity measured by per capita GDP and footprints.

I'll now consider the case of Mauritius in order to raise some points worth pondering on.⁹ If each person in the world were to live at the same standard as the average Mauritian, that would require more than 1.8 planets. It is biologically impossible for everybody to live like the average Mauritian. In fact, for Mauritius to appropriate 3.25 global hectares per person when its biocapacity is only 1.29 global hectares per person means that it has to consume the equivalent of 1.96 global hectares per person from the share of other countries. But that can only be at the expense of countries that have an ecological surplus of production, mainly the less developed countries. Mauritius being a net consumer (over-consumer on average), and given that Earth's natural capital is finite (actually decreasing), has to face up to the otherwise hidden relationships between the exponential growth of its economy and the poverty and suffering that prevails elsewhere. EFA demonstrates that growth fetish may well be a zero sum game, whereby some can win only if others lose.

Beyond the ethical dimension of intra-generational equity, we ought to also consider the effects of unsustainable footprints on inter-generational equity. The *Millennium Assessment* further mentioned that the current strain on Earth's natural capital will jeopardize the ecosystems' ability to service future generation. It also reported that several local and regional environmental collapses, in particular ecosystem services, can be anticipated over the next 50 years. Is this the kind of future we want for our children and ourselves? More importantly we should ask: Is it

Table 1. Ecological Footprint of Nations (2000).

| Country | EF (Global hectares) | Country | EF (Global hectares) |
|------------------|----------------------|--------------|----------------------|
| USA | 9.57 | Malaysia | 2.99 |
| Australia | 7.09 | World | 2.18 |
| France | 5.74 | China | 1.36 |
| United Kingdom | 4.72 | Kenya | 1.08 |
| Saudi Arabia | 4.05 | Madagascar | 0.97 |
| Japan | 3.91 | India | 0.76 |
| South Africa | 3.52 | Mozambique | 0.56 |
| Mauritius | 3.25 | Bangladesh | 0.50 |

⁸ This value has steadily decreased over the past decades due to an increase in per capita consumption and waste generation, and an increase in world population.

⁹ Any other country with a footprint greater than 1.8-1.9 global hectares per person would serve the discussion equally well.

worth pursuing economic growth in countries that already enjoy material well-being if that means damaging Earth's life support systems, and ultimately undoing our own quality of life?

There is nothing in Nature that can grow exponentially at infinity without collapsing, and economic growth is no exception. A common sense approach underpinned by the principles of Ecologically Sustainable Development should drive social, environmental and economic policy-making. In his recent book *Collapse*, Jared Diamond takes us on a compelling journey through the history of why societies choose to fail or survive self-induced environmental degradations. He convincingly demonstrates that the choice to do something about the self-induced environmental crises was the most determining factor in the survival of societies. Something needs to be done about unsustainable footprints!

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