

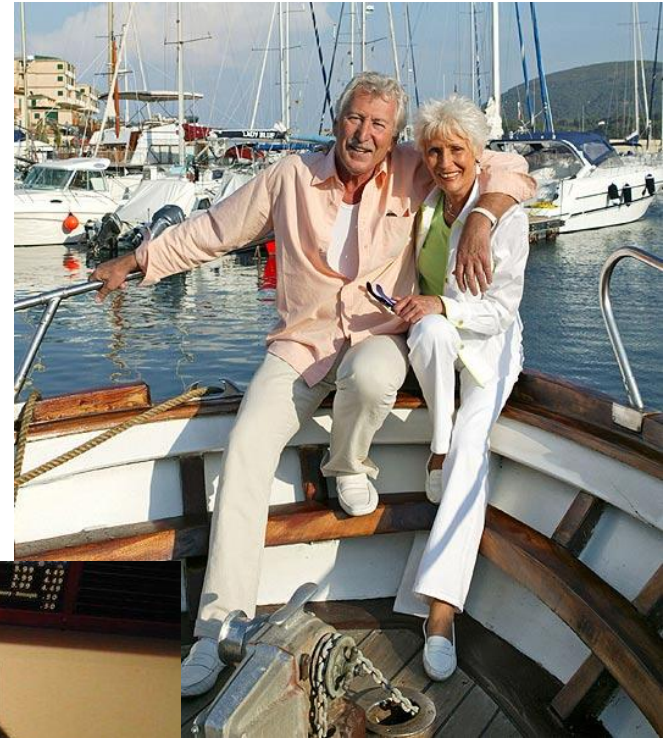
Natural capital accounting and resource depletion

Traditional National Accounts

$$\text{GDP} =$$

private consumption +
gross investment +
government spending +
(exports – imports)

Wealth vs Productivity



Wealth vs Productivity



Stocks
vs
Flows



We wer'
poor but we
wer'appy



What Does GDP Miss

Equity

Sustainability

Wellbeing

So why do
we bother?
What
DOES it
measure?

Economic Activity & Expected Tax Revenues

How to fix it.

This would require:

1. Understand the environmental intensity of economic activity, i.e. recording the evolutions of its environment and natural capital
2. An understanding of how to use the data collected in order to record this evolution

What?

We first need to define what we want to measure – i.e. define natural capital.

“[...] the elements of nature that produce value (directly and indirectly) to people, such as the stock of forests, rivers, land, minerals and oceans.[...] Natural capital underpins all other types of capital (man-made, human and social) and is the foundation on which our economy, society and prosperity is built. By combining different forms of capital, we are able to enjoy a huge variety of benefits; ranging from the food we eat and water we consume in our homes to outdoor experiences and improved health to name but a few.”

UK Natural Capital Committee

What?

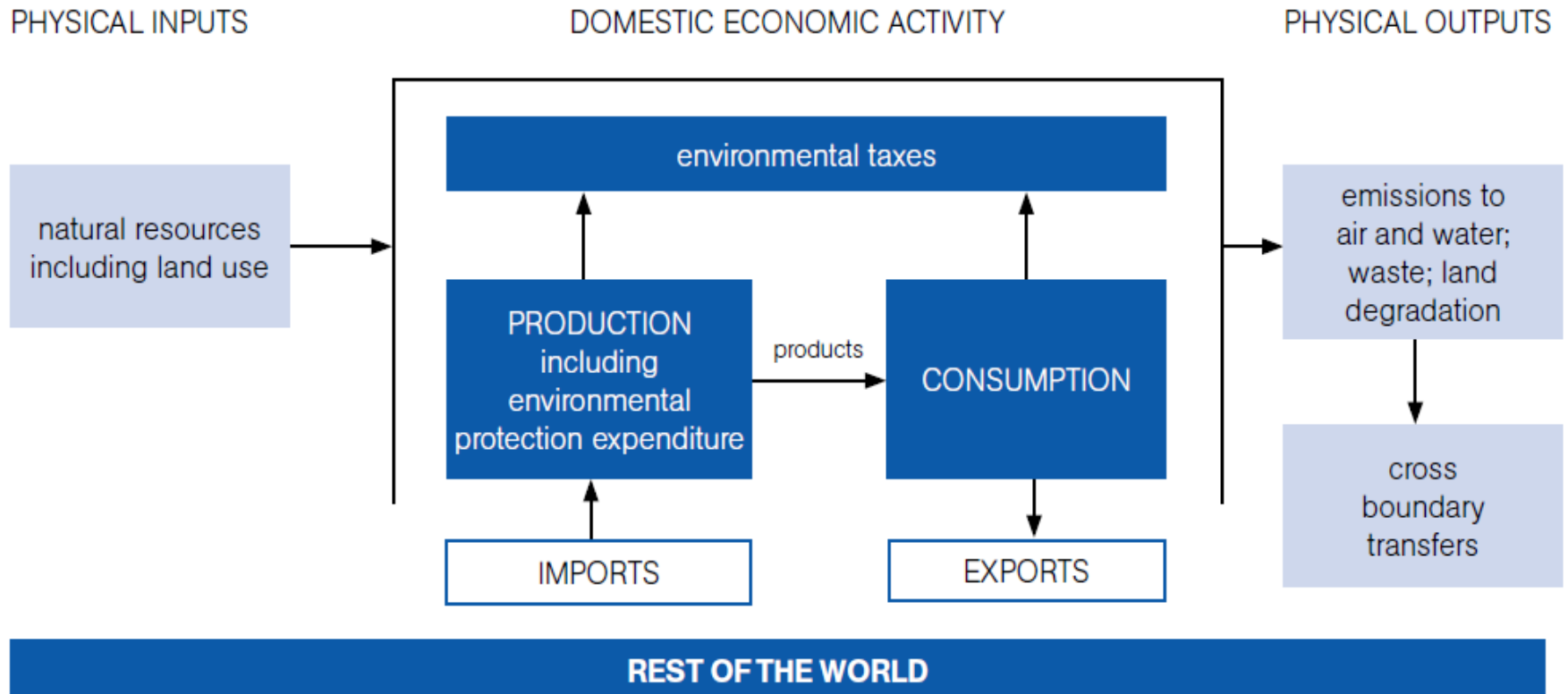
The first step is to measure – we can't make decisions on what we can't measure...

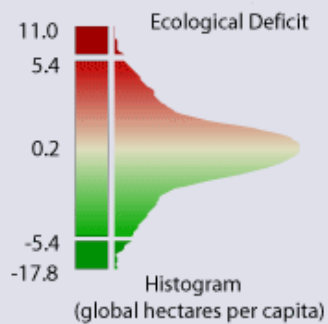
...the SEEA proposed by the UN for example, aims to integrate environmental accounts into the traditional system of national accounts (SNA) frameworks...

...which have traditionally dealt with measuring **only** strict economic aspects, such as GDP and sub-indicators - production, consumption, imports and exports.

How to measure? Which framework?

What?





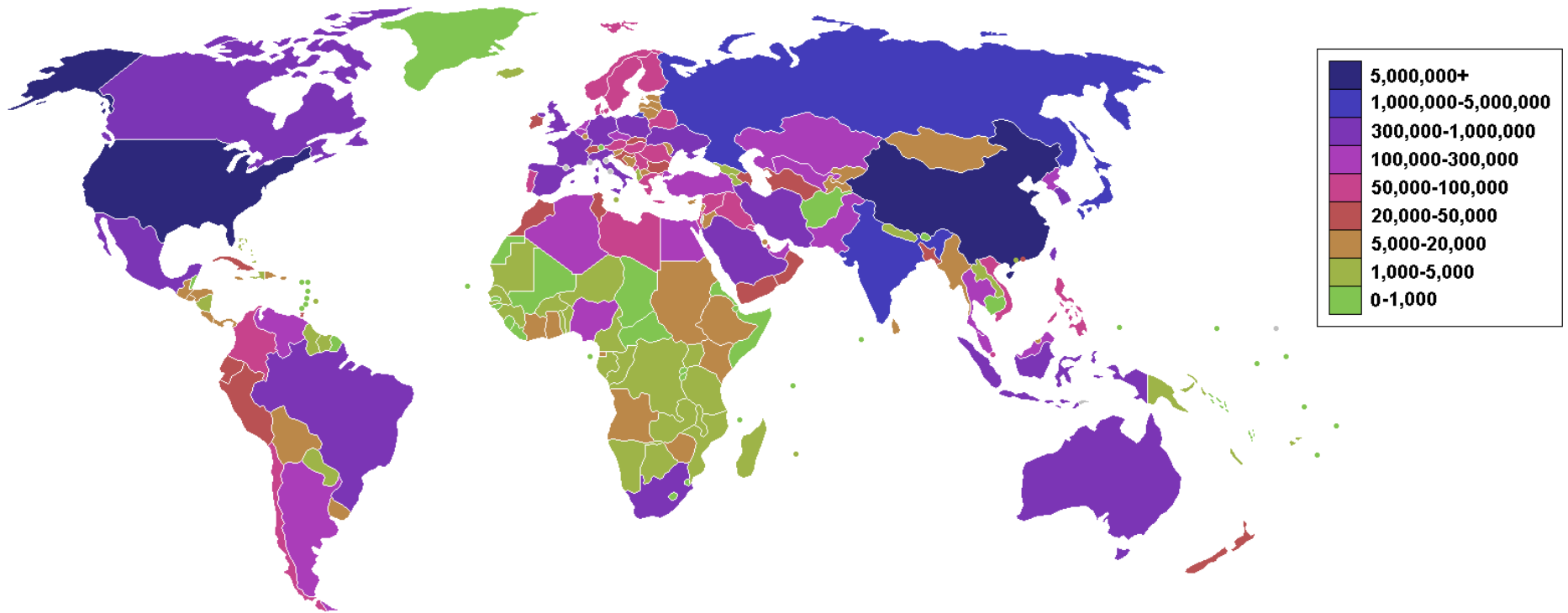
Blue represents insufficient data.

2003 World Consumption Cartogram

<http://pthbb.org/natural/footprint/>

Countries have been stretched to indicate their effective consumption based upon 2006 Global Footprint Network and corresponding 2003 CIA World Fact Book data. The basemap is an edited ESRI ArcIMS world shapefile in the Mollweide equal area projection. Created with ArcMap 9, MAPresso 1.3, OpenOffice 2.2 & Perl 5.8

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How?

SEEA and environmental accounting embodies:

1. Natural resource asset accounts, which deal mainly with stocks of natural resources and focus on revising the balance sheets of the system of national accounts (SNA)
2. Pollutant and material (energy and resources) flow accounts, which provide information at the industry level about the use of energy and materials as inputs to production and final demand, and the generation of pollutants and solid waste

How?

3. Environmental protection and resource management expenditures, which identify expenditures in the conventional SNA incurred by industry, government, and households to protect the environment or manage resources

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How?

- For what regards natural capital, material flow accounts are the most critical element since they evidence (a) the evolution of the level of stocks of resources and (b) the flow of resource use in the economic system
- There are two ways to record material intensity of the economy (all natural capital “used up” in an economy):

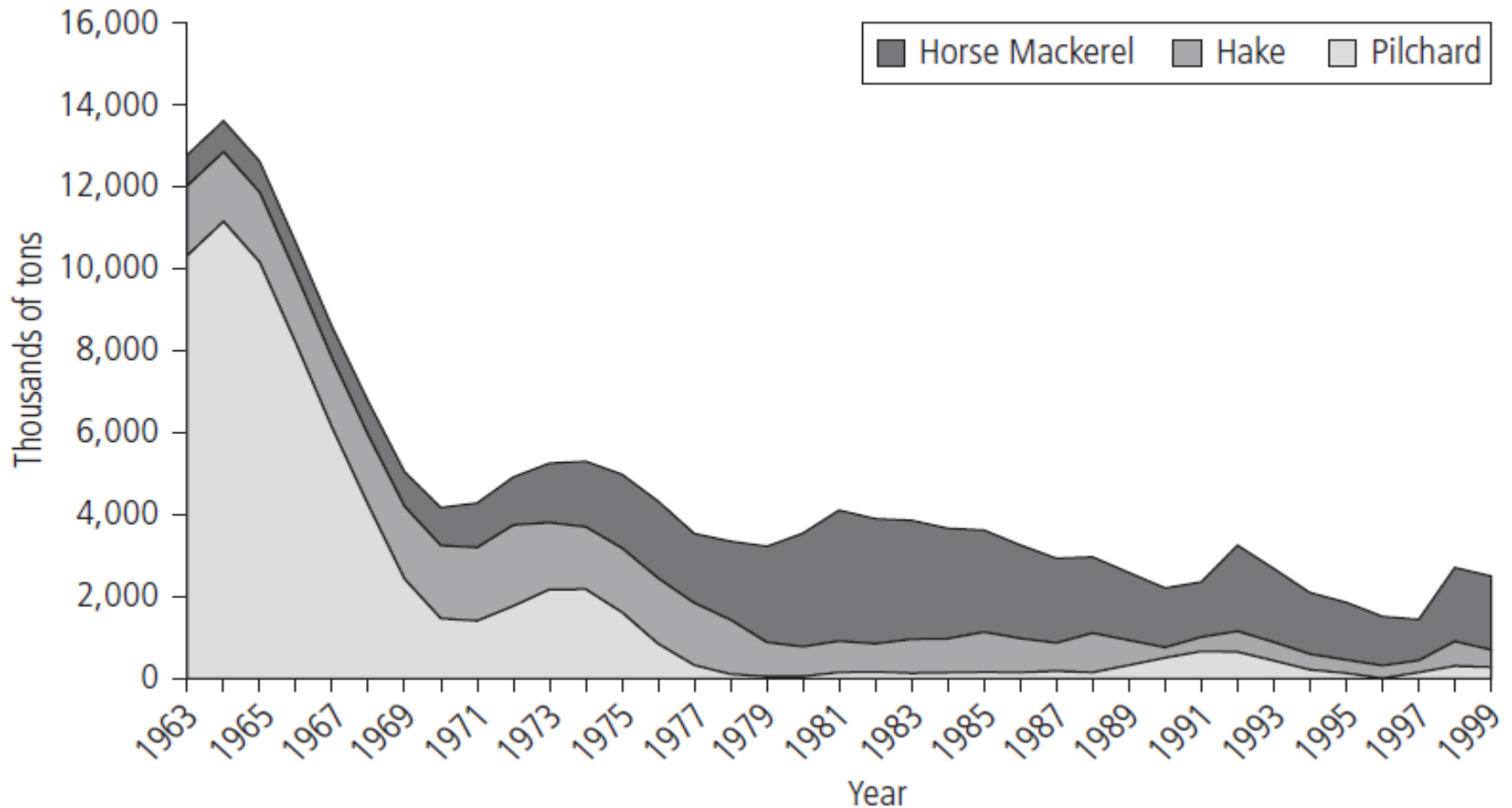
Direct Material Input = Domestic Extraction used +
Material Imports

Direct Material Input = Domestic Consumption used
+ Material Exports

For what?

First, for being capable of recording evolutions of natural capital, for example:

Biomass estimates for three species in Namibia



For what?

Second, for adjusting GDP to reflect for the reduction of irreplaceable resource lost – by valuing these losses

EXTRACTION-ADJUSTED DOMESTIC PRODUCT	Currency units (billions)	Index (GDP = 100)
Gross domestic product	692.4	100.0
Consumption of fixed capital	-104.4	
Net domestic product	588	84.9
Decline in the value of resource stocks due to extraction	-58.6	
Extraction adjusted domestic product	529.4	76.5

DEPLETION-ADJUSTED DOMESTIC PRODUCT	Currency units (billions)	Index (GDP = 100)
Gross domestic product	692.4	100.0
Consumption of fixed capital	-104.4	
Net domestic product	588	84.9
Decline in the value of resource stocks due to extraction	-12.8	
Extraction adjusted domestic product	575.2	88.1

For what?

Thirdly, for creating new indicators that go beyond GDP, such as the ISEW.

ISEW = personal consumption

+ public non-defensive expenditures

- private defensive expenditures

+ capital formation, e.g. equipment to be used in future

+ services from domestic labour

- costs of environmental degradation

- depreciation of natural capital (e.g. stock of a fish)

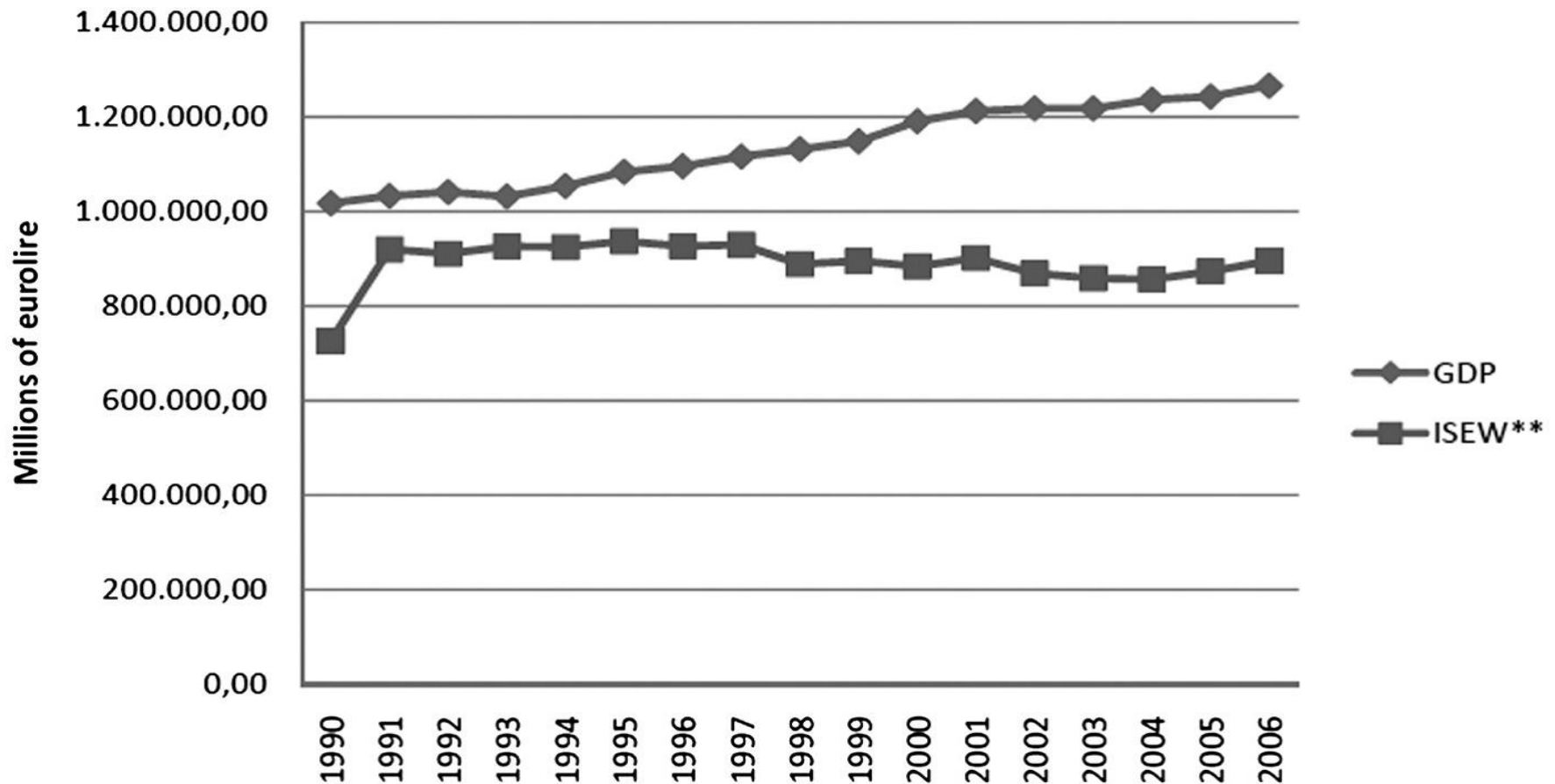
For what?

GNP vs. GPI/ISEW evolution (1950-1990)

Growth rates	1950-1960	1960-1970	1970-1980	1980-1990	1950-1990
GNP	2.4	2.9	1.7	2.6	2.4
NNP	-	-	1.5	2.4	-
ISEW	2.2	3.0	0.9	-4.6	0.4
GNP per capita	2.1	2.3	1.5	2.4	2.1
NNP per capita	-	-	1.4	2.7	-
ISEW per capita	1.9	2.4	0.8	-4.8	0.1

So what?

The performance of Italy as an example



So what?

- There are various other indexes of this sort that have been constructed, including by “radical” institutions such as the World Bank, e.g. Genuine Savings Indicator.
 - Point is: in order to build indicators of this sort that evidence real wealth evolution we first need to measure what we are creating and what we are depleting – and balance them out!
 - And in order to generate this data and information, we need to push governments to take environmental accounts seriously
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