



## **Reconstructing the Premise: Entering the Global Auction**

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November 1, 2012

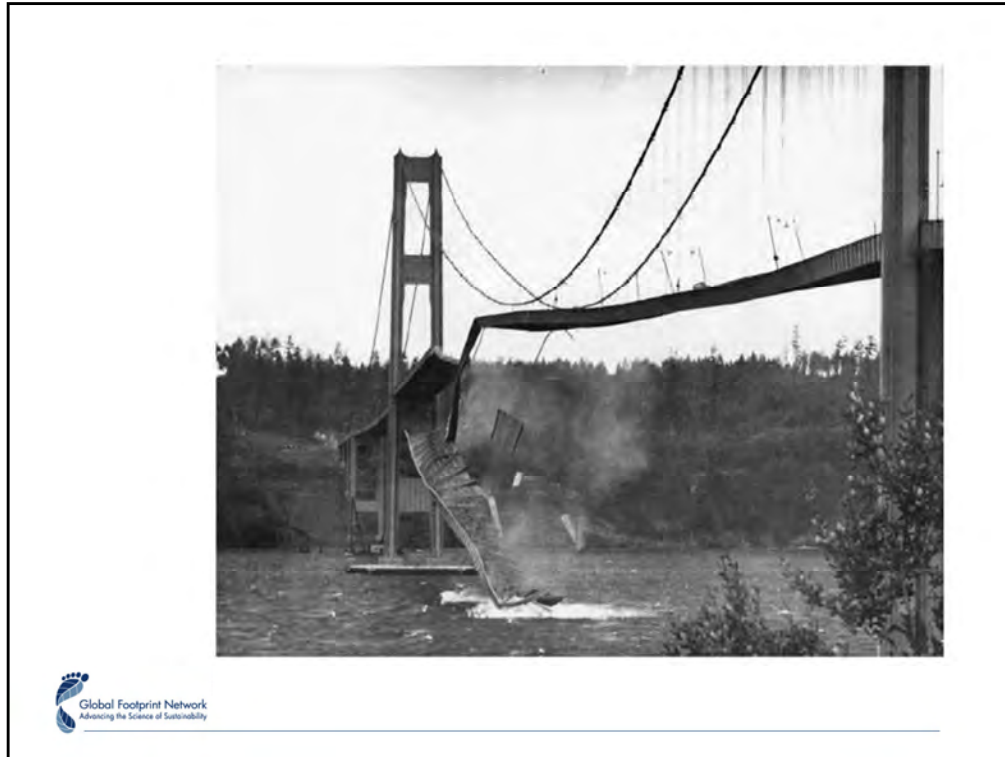
The Asahi Glass Foundation – Blue Planet Prize Lecture



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**Thank you.** I accept the Blue Planet Prize Award with enormous joy and gratitude. Thank you all. Both my dear friend, Bill Rees, and I are utterly thankful and humbled. We accept this magnificent honor with a great sense of responsibility. And we are particularly thrilled to share this honor with Tom Lovejoy, who has been such a lighthouse in innovative conservation practice. I also want to celebrate and thank the Asahi Glass Foundation. You have worked so diligently to make sure the Blue Planet message gets promoted far and wide. I am deeply touched by your efforts to make the world sustainable. Thank you.

This wonderful prize is truly a gift to a larger community, including many dedicated individuals at Global Footprint Network and its partner organizations across the globe, the indispensable community of funders, supporters, teachers, enablers and all the others who have dedicated themselves to the most fundamental, and so utterly necessary, dream of flourishing lives for all on our great blue Planet.

Let me start with this bridge...the Tacoma bridge. What you see here is not a disaster – it is a learning opportunity. For all engineers. All students of structural engineering learn about this bridge that started to swing and then collapsed. They learn that they matter and that good, solid, reliable work is needed to make sure other bridges do not follow this example.

That's also how we approach sustainability at Global Footprint Network. What is needed to make the world stable? This is a pragmatic question – in need of pragmatic answers.

Like a bridge engineer, I am neither an optimist nor a pessimist. Rather I am interested in finding out how the world works. Like the engineer who calculates the structural integrity and points out that the bridge may need a few additional beams, we are looking at economies and ask: what is needed to make these economies stable? Does an engineer ever get asked why she is so pessimistic when she explains why the bridge needs more beams?



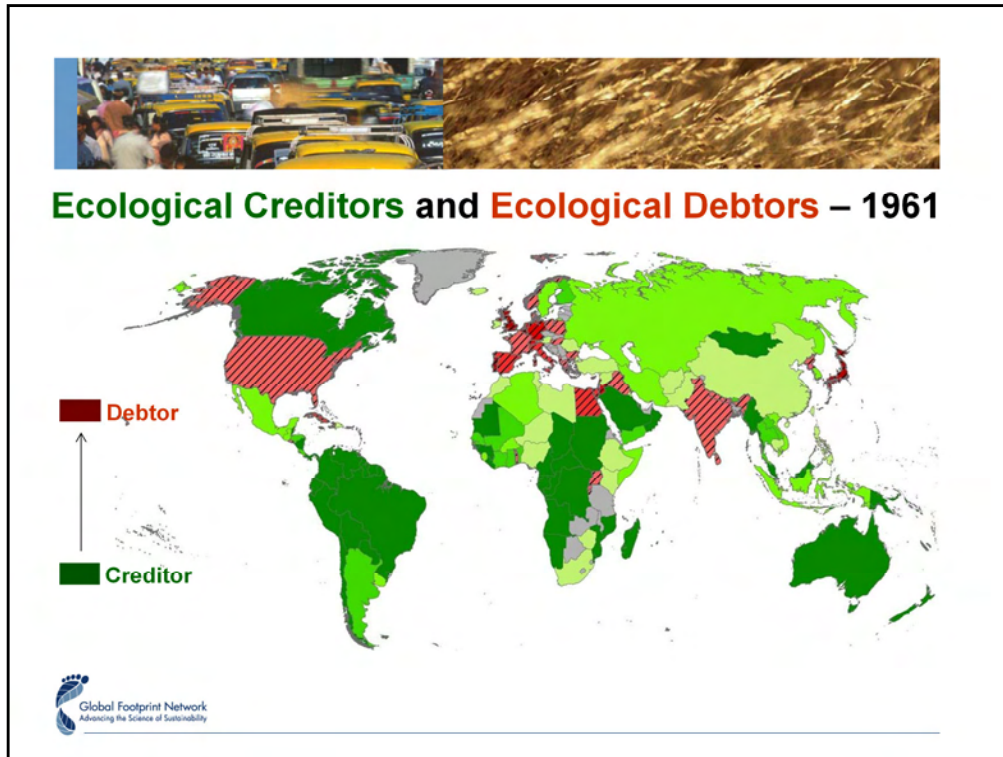
# Why resource limits now undermine economic performance & what we can do

## **Let's apply this pragmatism to humanity's dilemma**

Humanity's growing resource hunger has moved us all into global overshoot. Yet so many people in the world are deprived and lack opportunities for a dignified life. This spectacular double-challenge is confronting us – and there is little evidence that our past efforts have been sufficient in redirecting our destiny onto a sustainable path.

How can we address this dilemma? *I will use this generous opportunity with you for exploring this dilemma.*

*More specifically, I will focus on the following question: Why are resource limits now undermining economic performance? And what can we do about it?*



### I think like a farmer

This is how the world looks like from a farming perspective. How big are the farms? Are they big enough to feed the farm family?

Let me start 50 years ago – just about when I was born. This map for **1961** shows that most countries were true farms – they had more biocapacity than their residents consumed. They were ecological creditors. Resources were not constraining economies. There seemed to be plenty.

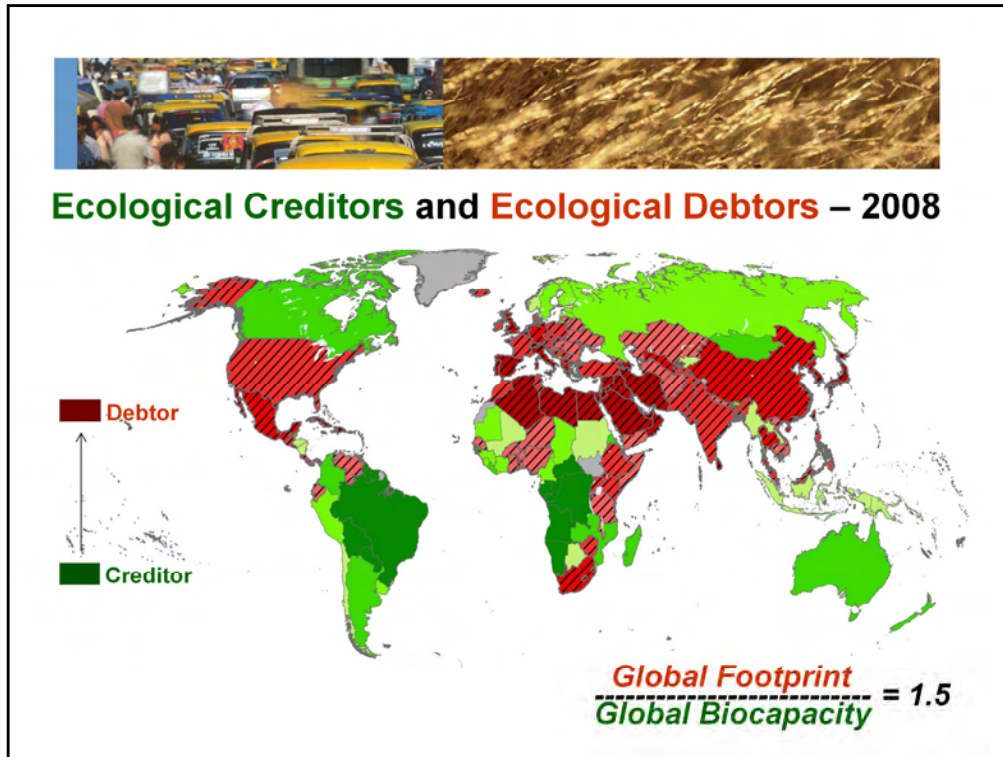
Residents of **ecological creditor countries** consume on average less resources than their countries' ecosystems can regenerate (the darker the green the higher the ratio). Note: since there is trade among all countries, both demand and supply are calculated from the perspective of net imports (or net exports).

**Ecological debtor** countries are in the opposite situation. They run a biocapacity deficit. They use, in net terms, more than what their countries' ecosystems can renew. They are more like "hobby farms" – with a few apple trees and three chicken, but then the family needs to work outside of the farm to earn money so they can buy the extra food...

#### FURTHER EXPLANATIONS:

- **Ecological Creditors:** Residents of ecological creditor countries use less ecological services than are available within their national borders, and therefore are endowed with a reserve of natural assets. This reserve, in an increasingly resource-constrained world, give those countries an economic advantage and strengthens their strategic positions.
- **Ecological Debtors:** In contrast, countries with ecological deficits depend on net imports of such resources or on liquidating their ecological assets. Both are an economic drain on those countries.





**This has fundamentally changed. We have entered a new era of “biocapacity constraints”**

With global overshoot, and rapidly increasing resource costs since 2000, the situation has shifted. As a whole, humanity’s resource demand now exceeds the planet’s supply by over 50 percent (2008 data). This ecological deficit means that it took a year and six months to regenerate what humanity used in 2008.

As global overshoot increases, the gap between ecological creditors – countries that have more biocapacity than they use – and ecological debtors – those using more biocapacity than they have – is becoming more pronounced, and is into an increasingly more significant economic divide. Today, 83 percent of the world’s people live in countries that run an ecological deficit.

As a result, Global Footprint Network focuses on the economically ever more acute **Ecological Creditors** and **Debtors** dilemma since it makes obvious the self-interest of countries to react to biocapacity constraints.

We are not facing a ‘global problem’ but a ‘global storm’. The question is: is your ‘boat’ ready? In a world of resource-constrained world, can you, as a country, afford to run an ecological deficit? Can you afford ‘not to fix your boat’?



**How do we know? By using Ecological Footprint accounting**

The Ecological Footprint is the area of land and water it takes for a human population to generate the renewable resources they consume and degrade the waste it produces in a given technological context. In other words, it measures the "quantity of nature" that we use, and compares it with how much we have (biocapacity). This accounting supports decision makers when it comes to making difficult choices, managing conflicting objectives and placing themselves in an optimal situation for the future. The accounts can be applied to the global, country, region, individual or product.

Cropland: Cropland is the most bioproductive of all the land-use types and consists of areas used to produce food and fiber for human consumption, feed for livestock, oil crops, and rubber. Due to lack of globally consistent data sets, current cropland Footprint calculations do not yet take into account the extent to which farming techniques or unsustainable agricultural practices may cause long-term degradation of soil. The cropland Footprint includes crop products allocated to livestock and aquaculture feed mixes, and those used for fibers and materials.

Forest land: The forest Footprint is calculated based on the amount of lumber, pulp, timber products, and fuel wood consumed by a country on a yearly basis.

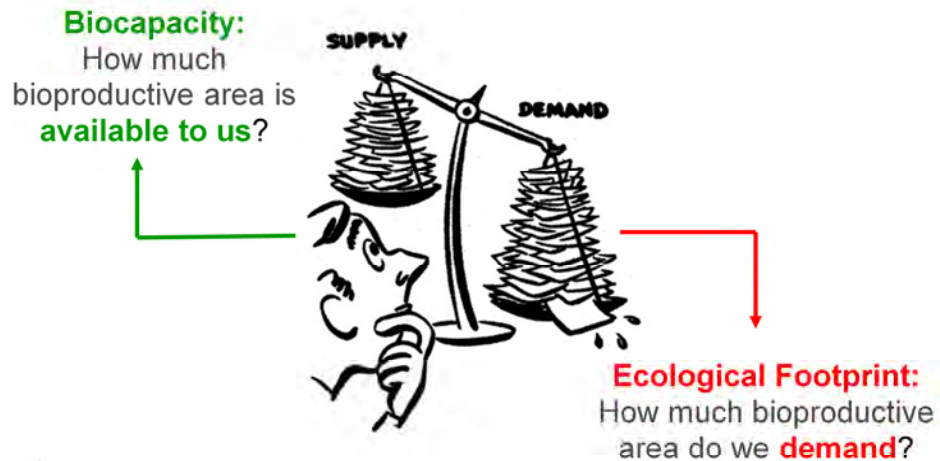
Grazing land: Grazing land is used to raise livestock for meat, dairy, hide, and wool products. The grazing land Footprint is calculated by comparing the amount of livestock feed available in a country with the amount of feed required for all livestock in that year, with the remainder of feed demand assumed to come from grazing land.

Carbon Footprint: Carbon dioxide emissions from burning fossil fuels are currently the only waste product included in the National Footprint Accounts. The carbon Footprint includes embodied carbon in imported goods. The carbon Footprint component of the Ecological Footprint is calculated as the amount of forest land needed to absorb these carbon dioxide emissions. Currently, it is the largest portion of humanity's Footprint.

Fishing grounds: The fishing grounds Footprint is calculated based on estimates of the maximum sustainable catch for a variety of fish species. These sustainable catch estimates are converted into an equivalent mass of primary production based on the various species' trophic levels. This estimate of maximum harvestable primary production is then divided amongst the continental shelf areas of the world. Fish caught and used in aquaculture feed mixes are included.

Built-up land: The built-up land Footprint is calculated based on the area of land covered by human infrastructure — transportation, housing, industrial structures, and reservoirs for hydro-power. Built-up land may occupy what would previously have been cropland.

# Accounting Framework for Ecosystem Services



## What is (physical) accounting for ecosystem services?

Ecosystem Services are the benefits that ecosystems generate, and humans depend on. According to the Millennium Ecosystems Assessment, the services can be divided into four categories:

1. **Provisioning** (food, water, energy, minerals, urban space, etc.)
2. **Regulating** (**carbon sequestration**, water purification, pollination, etc.)
3. **Supporting** (nutrient cycling, primary production, etc.)
4. **Cultural**

Ultimately, all life competes for surface area. The Ecological Footprint is an accounting framework that tracks ecological services that compete for space. Current national accounts cover predominantly provisioning services, urban space provision, and carbon sequestration.

As with any account, there are two sides: demand and supply, or income and expenditure, or assets and liabilities. This allows us to compare one side against the other. As households and firms compare income against expenditures, Footprint accounting offers a biophysical parallel. Footprint accounts compare **how much nature is demanded to how much is available** (biocapacity).

## The Basic Equation

$$\text{Yield} = \frac{\text{Amount per year}}{\text{Area}}$$


### The Basic Equation behind the Footprint

Since

$$\text{Yield} = \text{amount per year} / \text{area}$$

We can swap the two factors of the equation (see high-school algebra) and we get

$$\text{Area} = \text{amount per year} / \text{yield}$$



## The Basic Equation

$$\text{Area} = \frac{\text{Amount per year}}{\text{Yield}}$$

Translate **area** from **ha** into **global ha**...

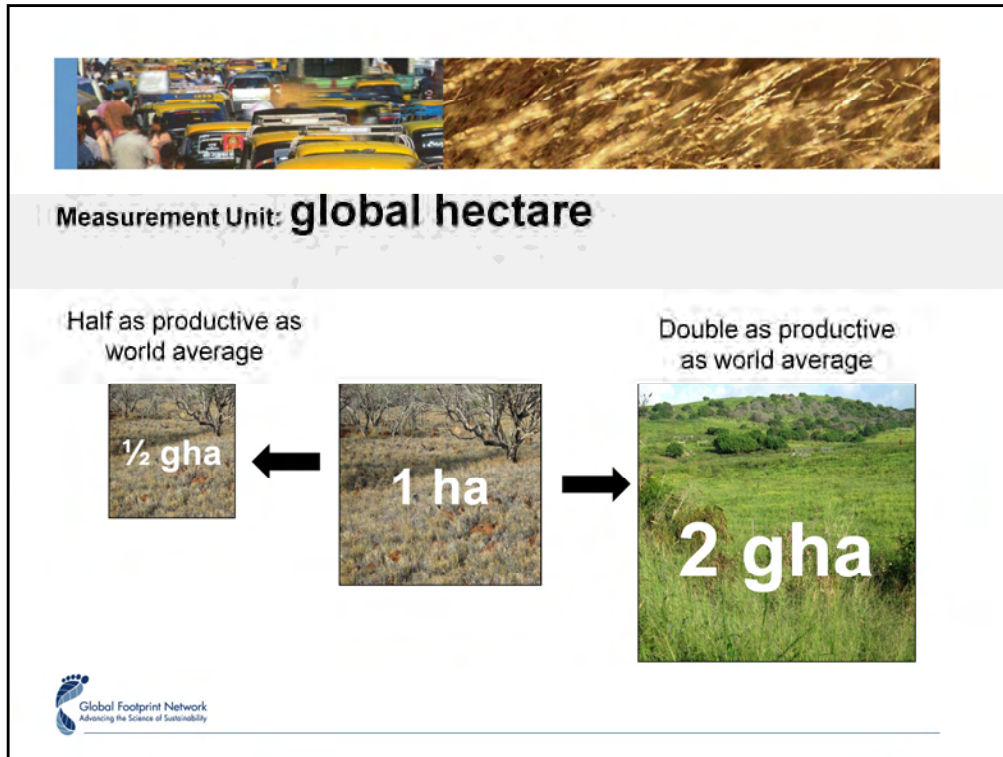


### The equation transformed

$$\text{Area} = \text{amount per year} / \text{yield}$$

We can add up the areas that compete for the planet's bioproductive surface to give us Footprint (on the demand side) .

To make results comparable, we translate **hectares** into **global hectares**

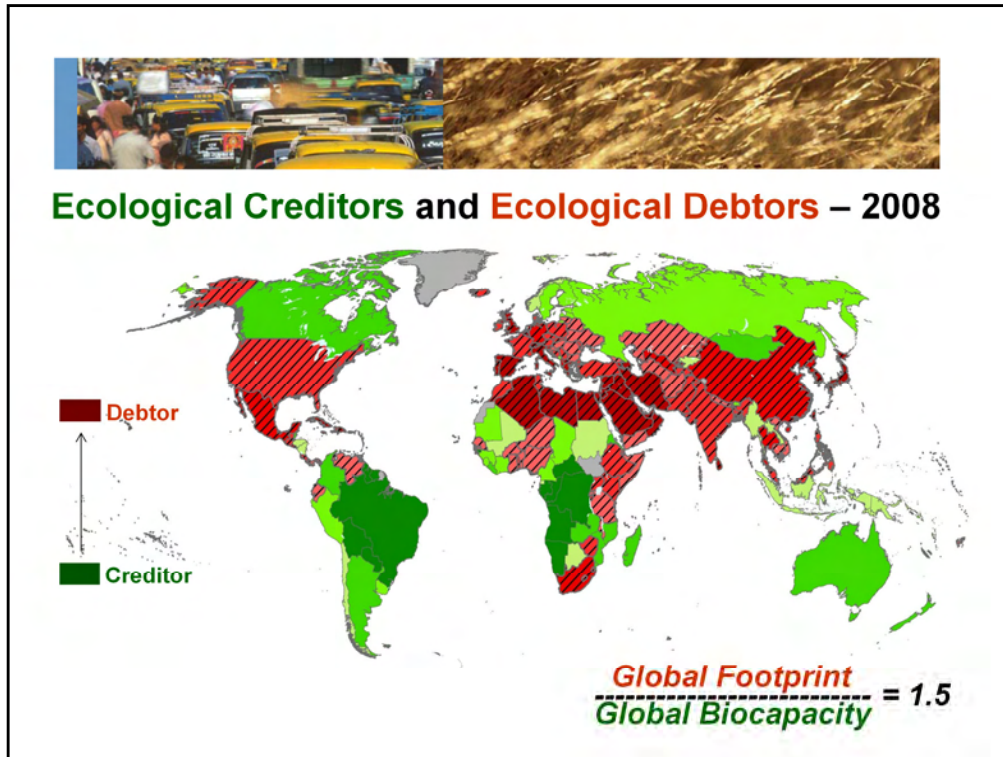


### What is a global hectare?

**A global hectare** is a biologically productive hectare with world average productivity.

It is the Footprint and biocapacity unit of measurement, representing world average productivity of all the planet's biologically productive land and sea area in a given year. Biologically productive areas include cropland, forest and fishing grounds, and do not include deserts, glaciers and the open ocean.

It is a [productivity](#)-weighted area used to report both the biocapacity of the earth, and the demand on biocapacity (the Ecological Footprint). The global hectare is normalized to the area-weighted average productivity of [biologically productive land and water](#) in a given year. Because different land types have different productivity, a global hectare of, for example, cropland, would occupy a smaller physical area than the much less biologically productive pasture land, as more pasture would be needed to provide the same biocapacity as one hectare of cropland. Because world bioproductivity varies slightly from year to year, the value of a gha may change from year to year.

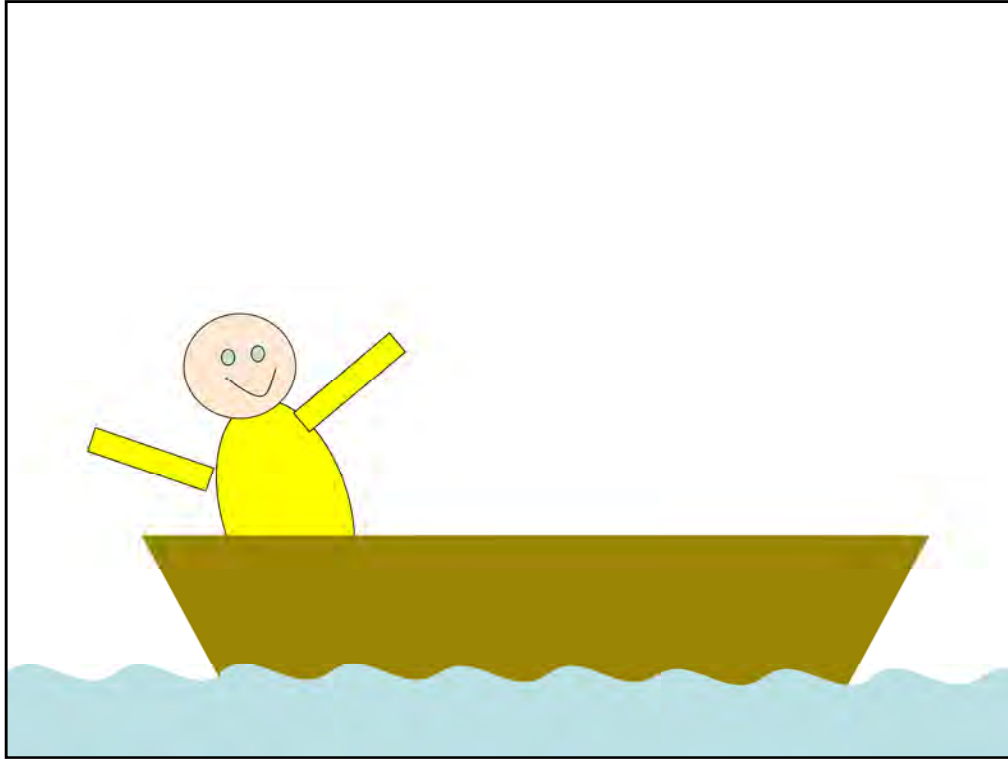


**We live in a new world of “biocapacity constraints.” What does this mean?**

Typically, when listening to the climate debate, most people argue that we are in a “tragedy of the commons” and that acting is not worth it since the benefits are socialized.

While this is true when isolating the CO2 emissions problem, by adding all resource dimension into one portfolio, we start to recognize that this is no longer the case. While there are still “tragedy of the commons” elements, overall the self interest of nations to address resource constraints (and apparent externalities) is overwhelming.

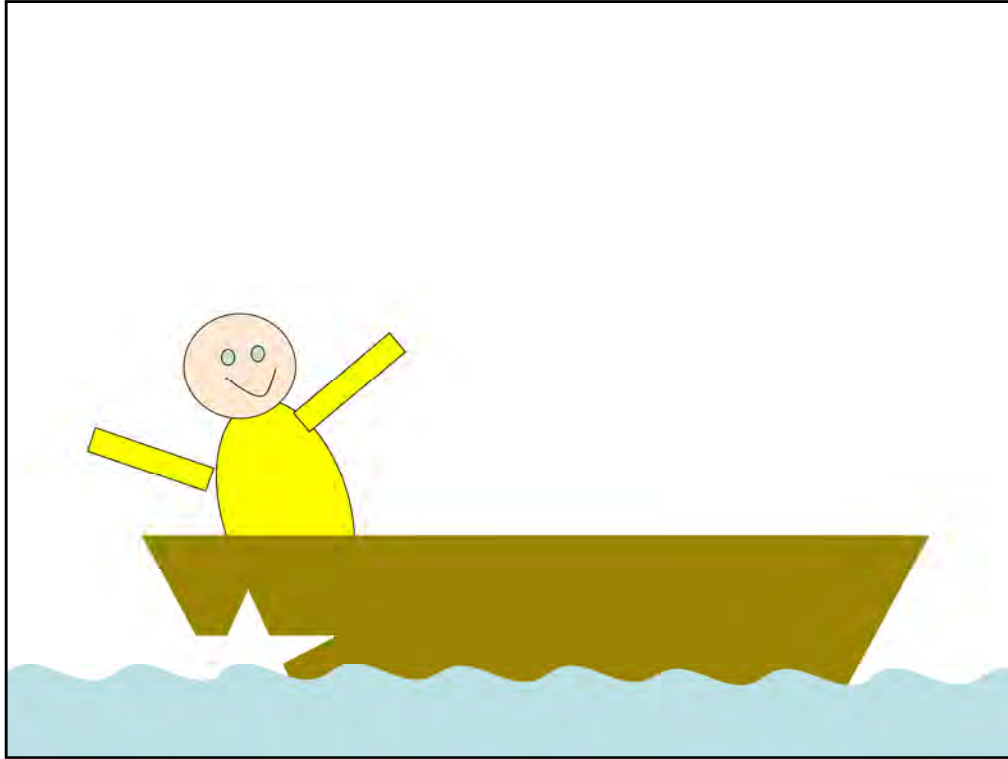
Let me explain.



### **The boat analogy**

Perhaps we are not facing a global problem. Perhaps the emerging resource constraints are merely a huge global storm. It is a storm getting stronger and stronger, and we are sitting in many different boats – countries , cities, and investments.

Each boat is facing the storm. Some boats are better prepared, others are larger. All are different.



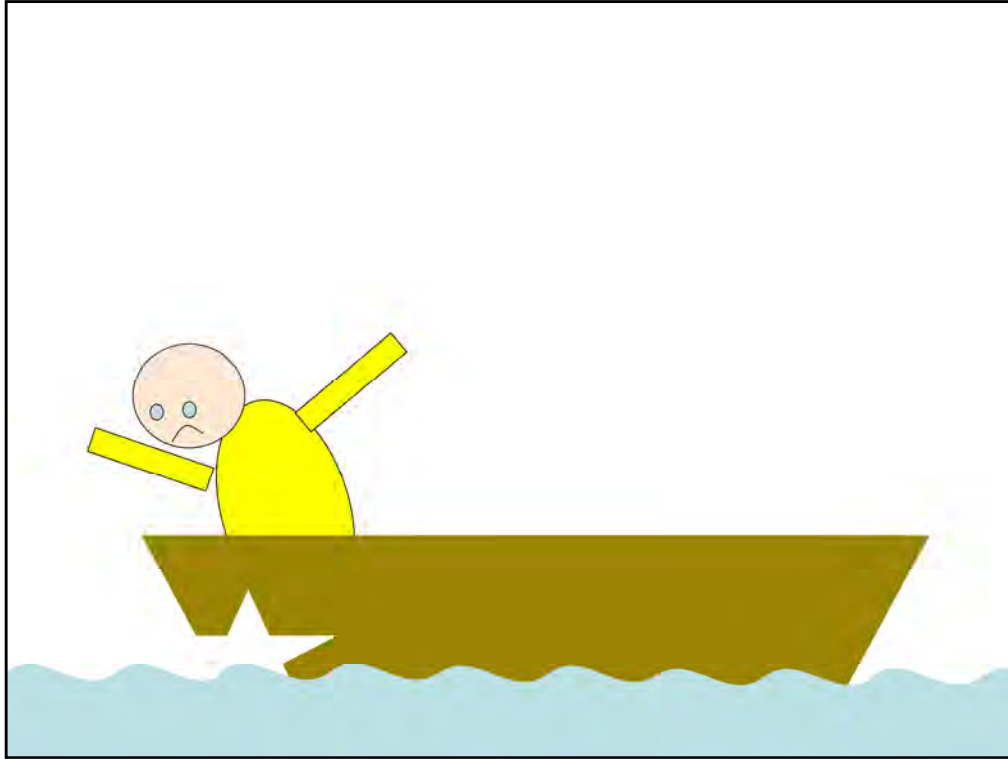
### **A hole in the boat**

We are all sitting in our own boat. Many of our boats have severe holes.

There is no advantage in waiting for all others to agree to fix their own boat first .

What are we waiting for? Maybe we are waiting to get rescued? Good luck!





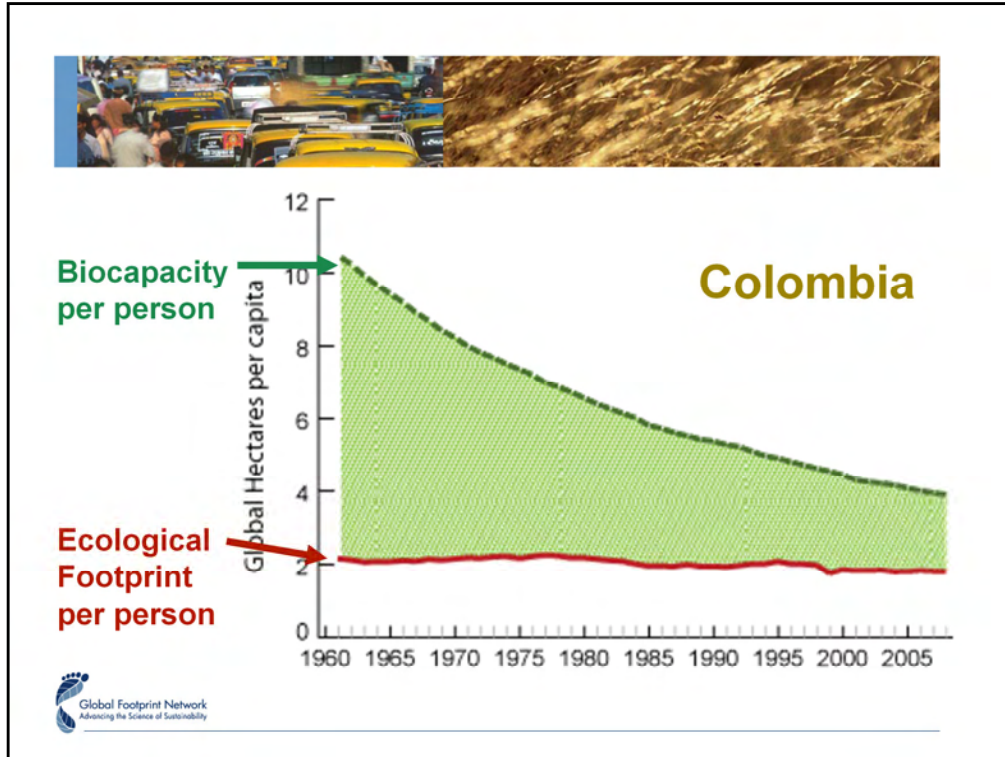
**What is the best strategy?**

If nobody else is fixing their boat, it is even more important to fix our own boat, since there is no other boat to go to.

Every boat is in a distinct situation, as we will see. We are not just subject to one global fate. There are global threats (such as global climate change), but it matters to understand how we are prepared and positioned as a country or city.

Here's the good news: All countries can win, but only if they turn their own fate around. Look at your resource trends. Don't wait for others.

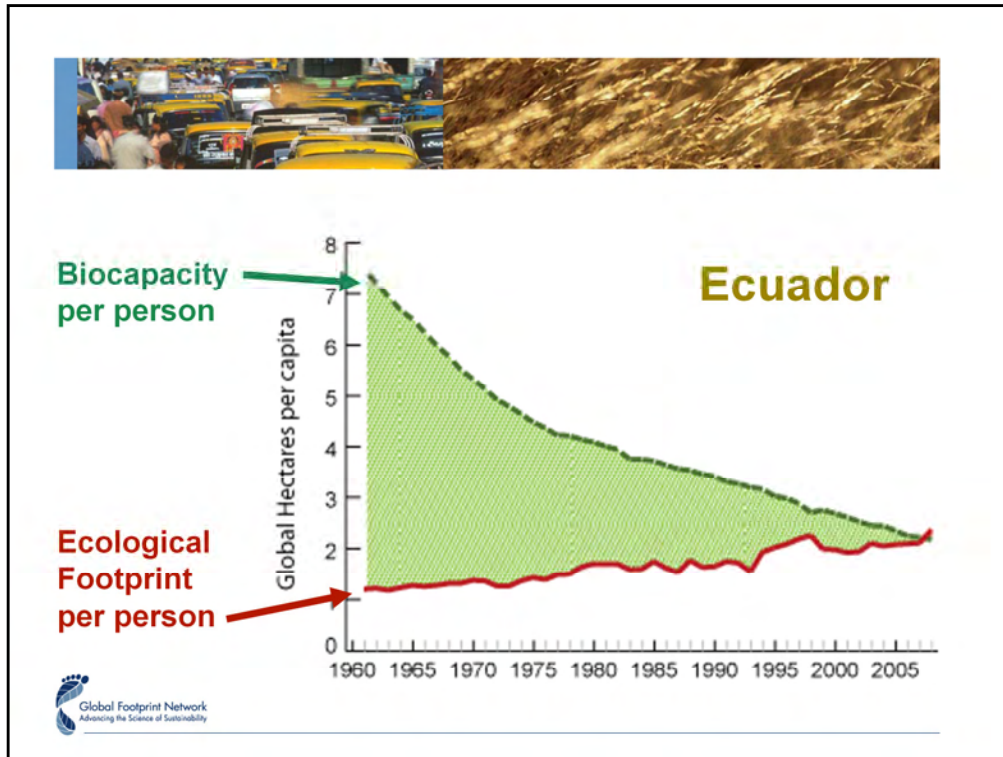
That's why Global Footprint Network works directly with national governments.



**Let's look at some of these boats – all boats I had the privilege of visiting over the last two months**

Colombia – a country that's finding its strength again, with still quite significant amounts of biocapacity – but is losing out rapidly on a per capita basis.

I am just back from discussing with the Central Bank of Colombia, where we are exploring a collaboration on revisiting Colombia's competitiveness in a resource constrained world.

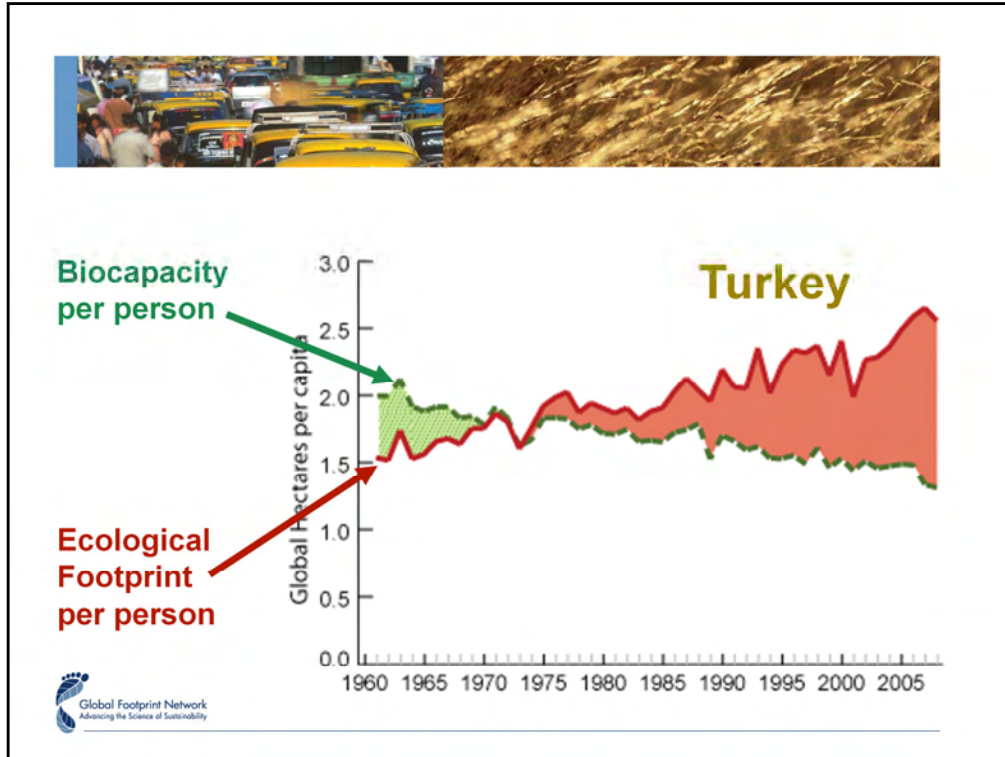


**Ecuador – the first country to make biocapacity deficit reduction a national policy goal.**

**The most biologically diverse country in the world, Ecuador’s ecological** wealth once vastly exceeded what its population used to support its activities. Today, that surplus has all but disappeared, and the country’s Ecological Footprint is almost equal to its biocapacity. That is why, in 2009, Ecuador launched a program to keep its country in the ecological black. In its National Development Plan, the government has committed that it will not let Footprint exceed biocapacity, even as its population size and standard of living grow.

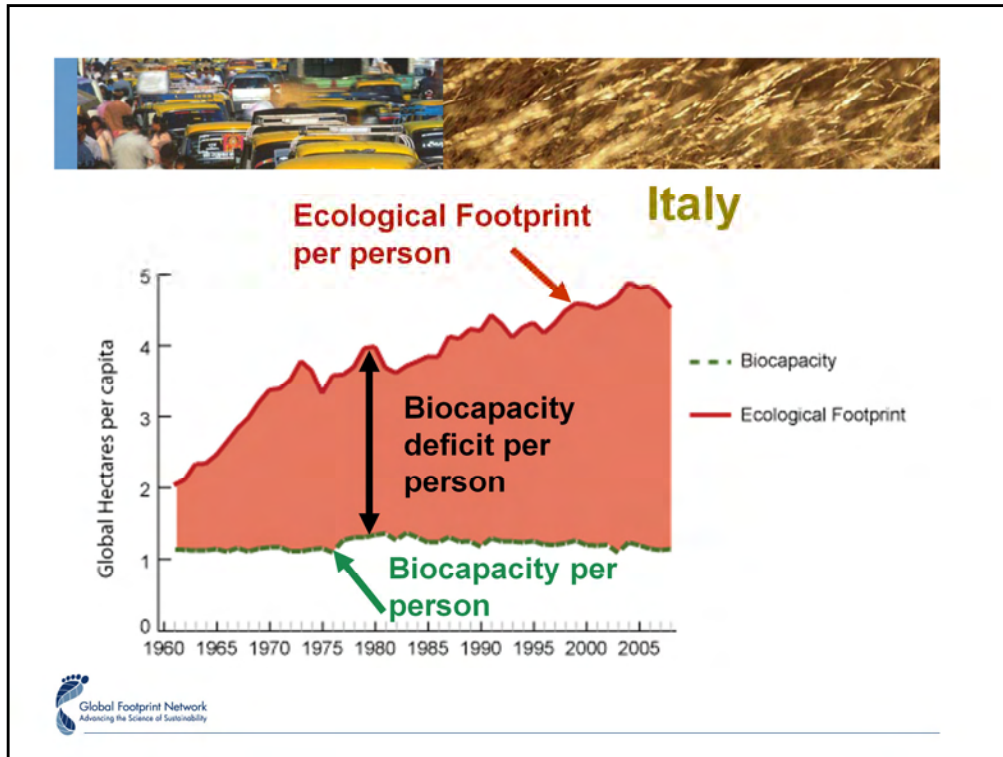
Some critic, seeing this graph challenged Global Footprint Network claiming that “Global Footprint Network must be being against the right to develop”. We said. “Quite the contrary. Global Footprint Network is deeply committed to the right for all to develop. But what we see in these graphs is a commitment to collapse. Why would a nation be interested in that?”

In Ecuador, we now have a formal agreement with the Ministry of Environment, but also work with the Ministry of Planning, and the Ministry of tourism. Next week, we will be hosting a delegation of the Ecuadorian government at our offices in California.



**Turkey** is a country that has only more recently entered the club of biocapacity debtors.

One month ago, I was in Ankara, visiting the ministries of development, finance and environment. This follows a Footprint report for Turkey which was published earlier this year through WWF. Discussions were productive.



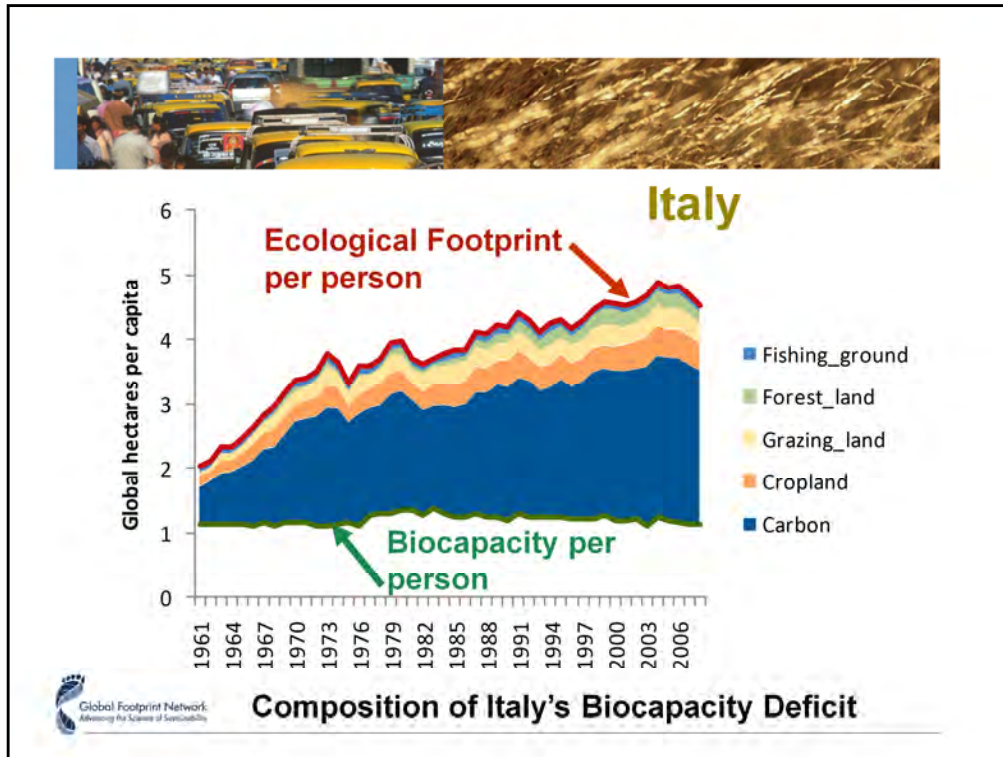
### Italy – continues to rapidly increase its deficit

Italy's media, particularly its most prestigious newspapers, have been actively reporting on the Footprint. A month ago, we had a workshop with UNESCO in Venice bringing together representatives from over 12 countries from the Mediterranean region. We launched our Mediterranean report showing the rapidly tightening resource situation for most countries in that region. Let me give you a deeper look at that country:

Since 1961 (when UN records started to become more consistent across nations), Italy has been in a biocapacity deficit situation. The average Italian has demanded more resources than can be renewably generated within the borders of Italy. In 1961, Italy had a per capita biocapacity deficit of 0.9 global hectares, meaning that Italians were in essence using 1.8 Italys. By 2008 this deficit had grown to 3.4 global hectares, which was the equivalent of using an additional three Italys.

The next slide shows what this biocapacity deficit is made up of.





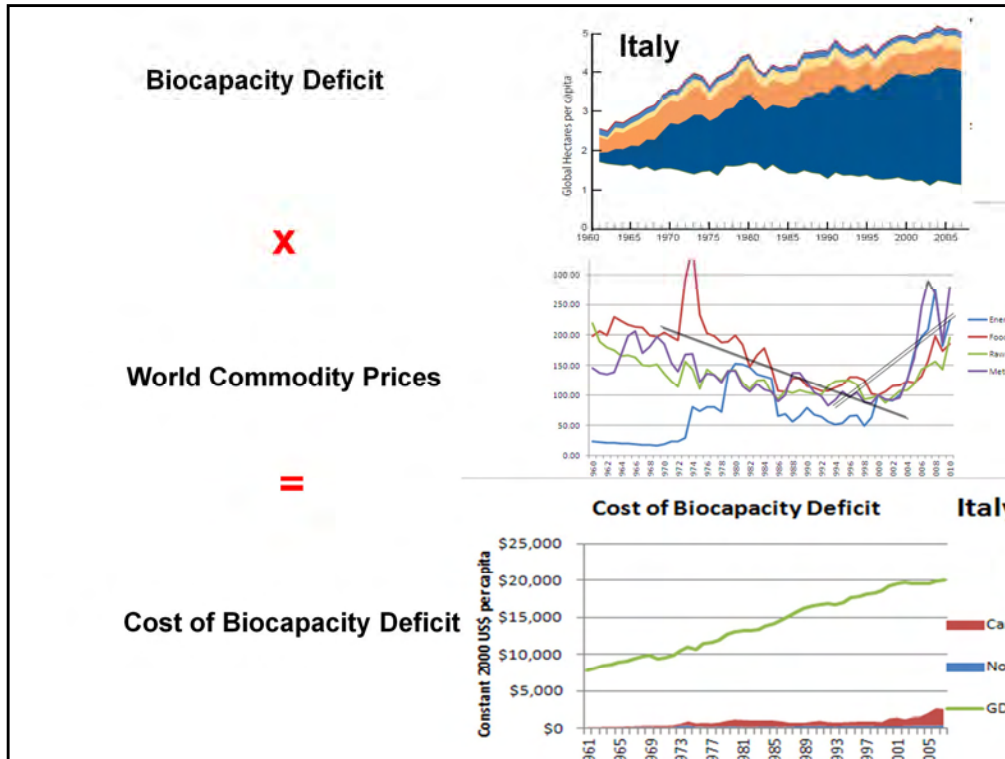
### Biocapacity Deficit Breakdown for Italy

Italy's biocapacity deficit can be disaggregated into the individual land use type components that make up the Footprint. The majority of this deficit has been driven by the carbon Footprint, but the cropland and forest land deficits have also been growing in the last few decades.

This biocapacity deficit is due to three main causes: 1) Importing resources from external sources, 2) Degrading domestic biocapacity and 3) Placing pressure on the global commons, for example for carbon sequestration.

Such a deficit is not sustainable because humanity's demands on the planet are already requiring the resource supply equivalent to 1.5 planets. As such, many countries find themselves in a biocapacity deficit situation and are becoming more and more reliant on external sourcing to meet the demands of their residents.

**What are the economic implications?** Up to the year 2000, resource and commodity prices went down faster (according to World Bank pink sheet) than Italy's biocapacity deficit went up. Hence the net costs for Italy did not increase. The growing biocapacity deficit for Italy did not seem to be a problem. **But this has changed since 2000.** Resource costs have nearly tripled. Therefore, the costs for Italy are rising -- more precisely, the costs for resources Italy must import to make up for its own ecological deficit.



### The cost of Italy's biocapacity deficit

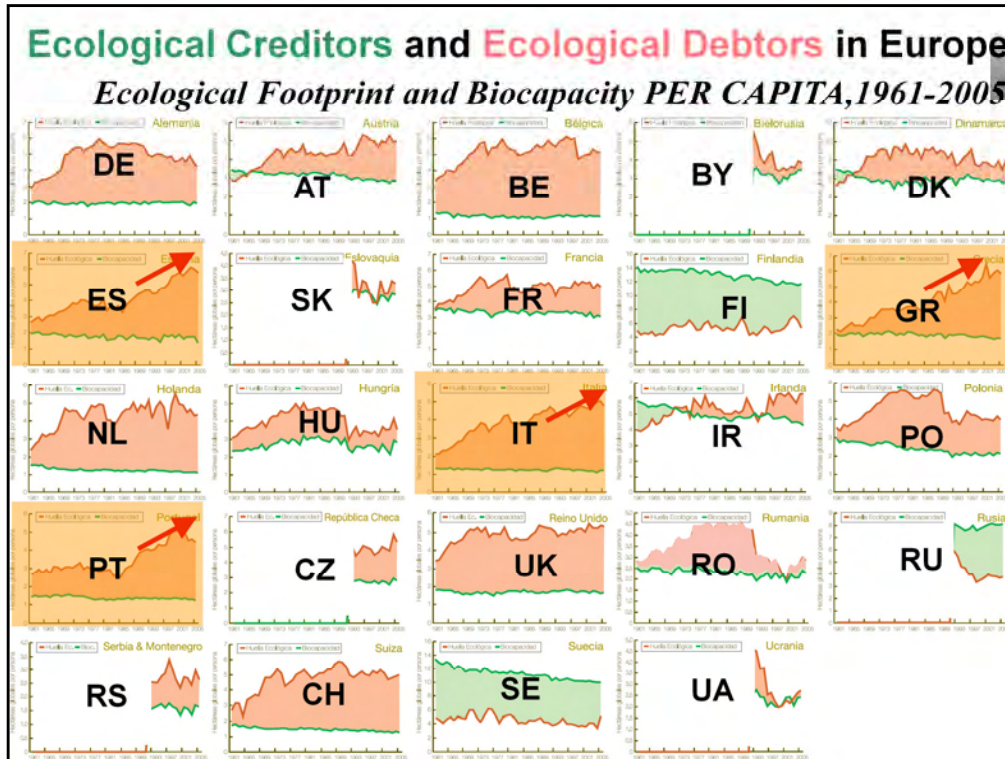
Global Footprint Network can calculate the net resource costs for Italy over time. What does it cost Italy to get the resources it cannot renew domestically? Essentially, this can be calculated by multiplying amounts of resources missing times price of each resource.

In the 1990s, these costs stayed constant in absolute, and even declined relative to GDP. But this has shifted. Since 2000, the resource costs have been growing so rapidly that Italy has not been able to compensate these rising costs through other means. More fragile economies, already under debt burdens, cannot cope with this additional pressure.

This financial pressure from growing resource costs enticed Italy into financial deficit spending. It thereby can overcome the economic stress in the short term, but it is leading to a financial debt crisis in the medium term.

Changes in costs – in the order of percentage points of GDP – are material and significant for economic performances. If resource costs increase by just one percentage point of GDP, this may actually slow down economic performance by more than one percentage point of GDP because of multiplier effects. Because money leaving the economy does not recirculate in the economy.

Is Italy alone? See next slide, which compares several European countries.



**Italy is not alone – here are 24 European countries compared** (Source: Global Footprint Network, National Footprint Accounts edition 2008 (1961- 2005). Note: newer data are now available).

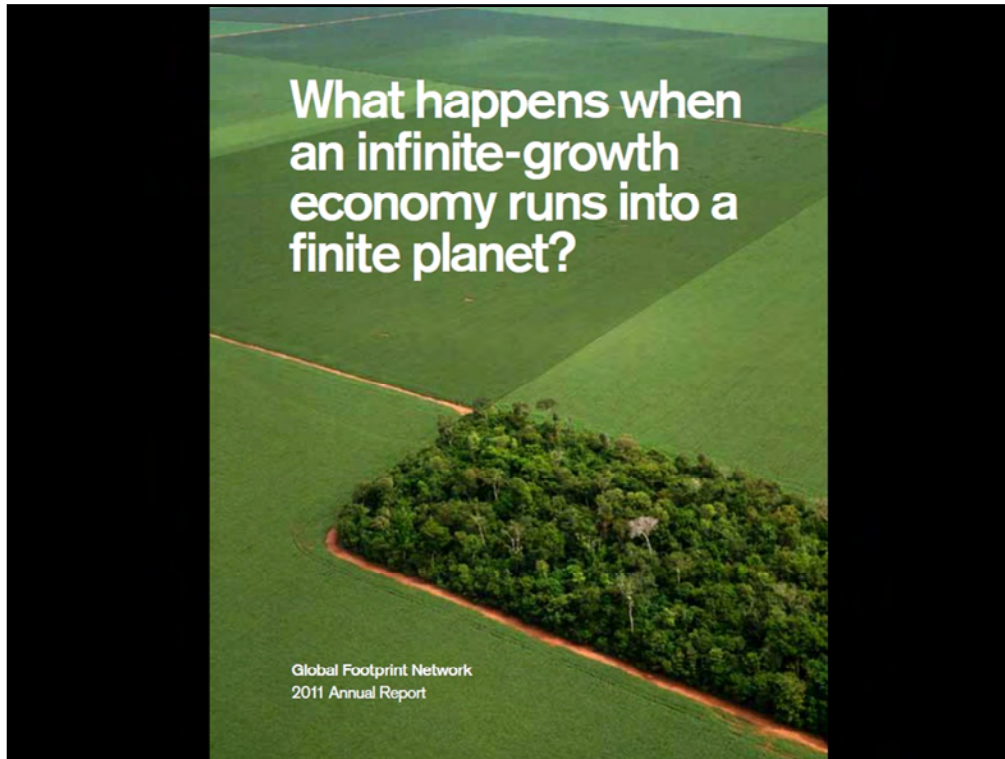
**Why the Euro Crisis has been in the making for a while:**

Here are 24 European countries, 19 of which are part of the European Union. All results are presented in PER CAPITA terms - on the same time scale, but the y-axis is different. The y-axis is adjusted to better show each country's historical path.

All 24 countries have their own paths. There are some similarities; for instance, many European countries run significant biocapacity deficits.

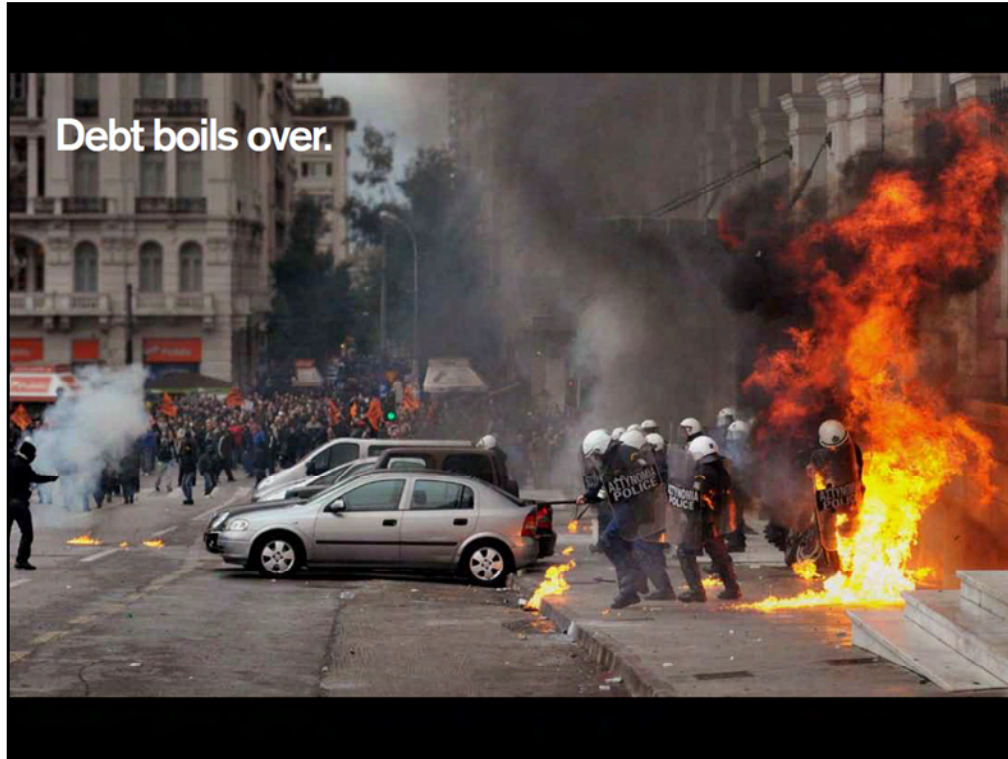
What is striking is that Spain, Greece, Italy and Portugal show quite similar dynamics: rapid increase of their biocapacity deficit over time. And these are the countries suffering most severely in the current Euro debt crisis. Combined with economic analysis, it becomes clear that this trend caused significant, and rapidly rising cost pressures on those four countries, making them more vulnerable than other countries to economic fragility.

Using Global Footprint Network data (including the cost analysis), it becomes quite obvious that the Euro crisis in Southern Europe cannot be divorced from the resource performance of those countries.



**To summarize -**

What happens when an infinite growth economy runs into a finite planet?



### **Debt boils over**

One of the hidden drivers behind Europe's financial turmoil is the dramatic increase in resource prices over the last 10 years. Historically, cheap resources have helped fuel economic growth, but the situation has now changed. Increasing costs impose a burden on economic performance that is often reflected in rising debt levels. This, at a time when the ability of many countries to service this debt is being called into question.





### **The majority is left out**

As prices rise, many countries must spend larger portions of their budgets on essential resources from abroad, often foregoing expenditures on health, education, infrastructure or other productive capacity building. People find it more difficult to make ends meet. The socio-economic impact of ecological overshoot, including climate change, disproportionately affects the most vulnerable.



### **Biodiversity is for sale**

The threats facing plant and animal life on the planet are greater than at any time in recorded history. Human pressure in the form of overharvesting and habitat loss is driving down wildlife populations worldwide. In our economic system, wild species have little value. As long as trees, for example, are worth more cut than they are standing, the pressures to liquidate natural resources will be overwhelming.



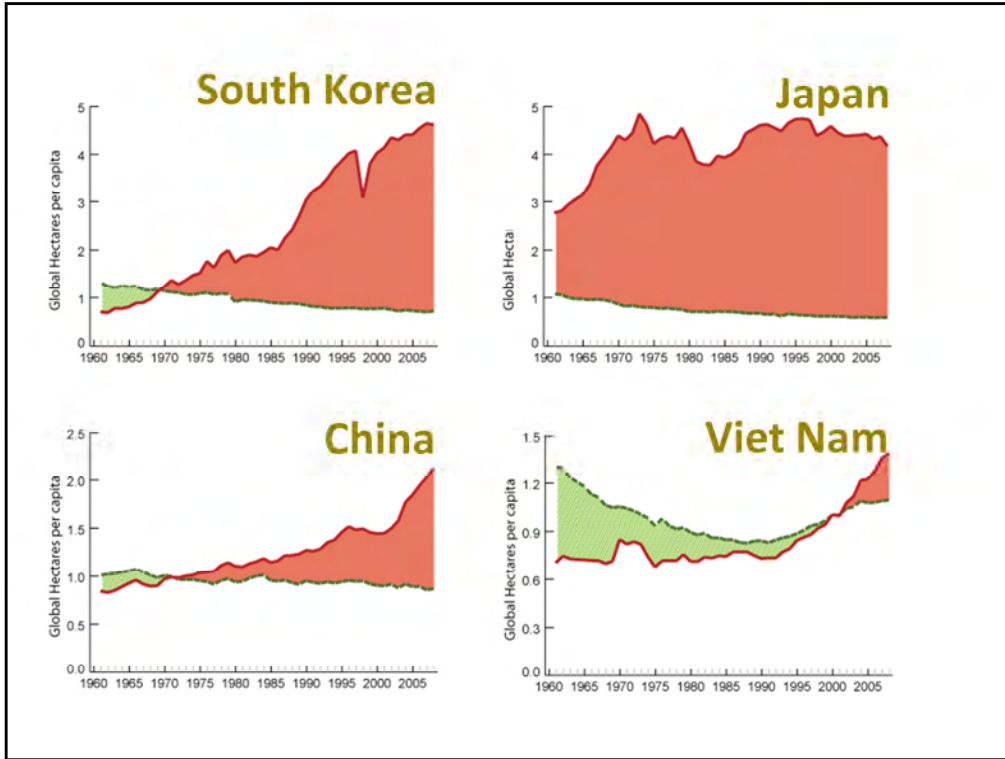
### **Food turns into a luxury**

Soil erosion, rising fertilizer prices, and severe weather brought on by climate change have all contributed to the volatility of crop yields and food prices. This is particularly harsh in countries where most people depend on basic foods, such as unrefined grains and rice, which are more directly linked to global commodity prices than are the refined foods found in supermarkets.

**We are entering a new dynamic.**

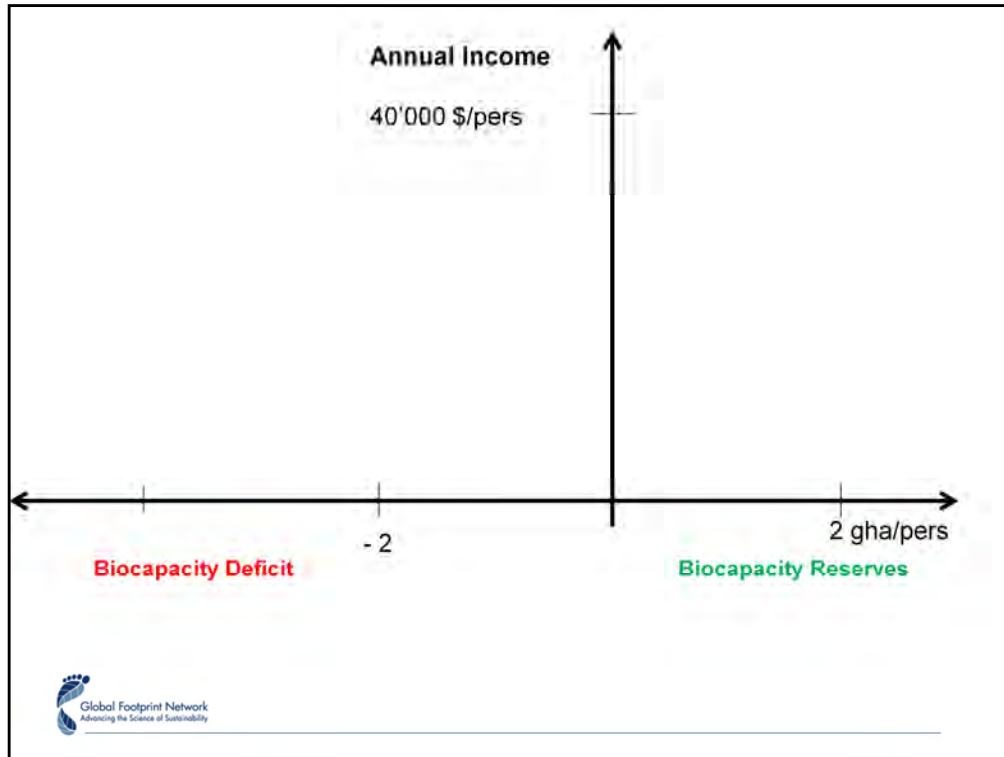
**We call this new dynamic the global auction.**

**Let me explain**



**Asian countries – four examples**

Again – trends from 1961 to today.



### What to track in a resource-constrained world?

What is the situation of various countries around the world?

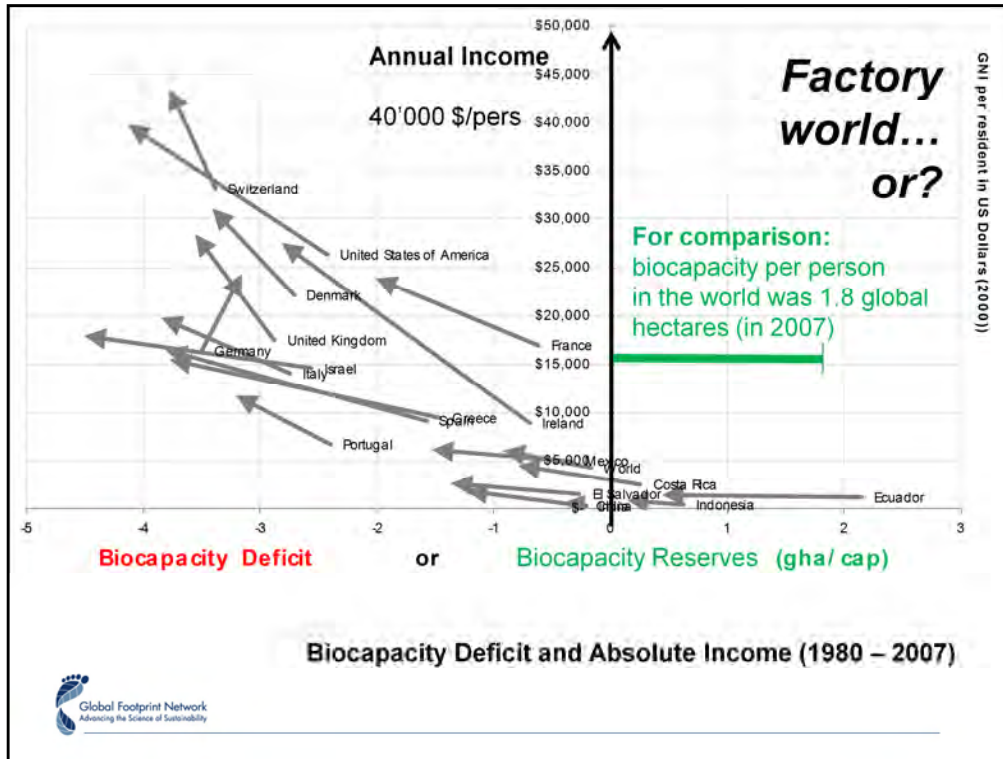
Let's start with the traditional view – and the traditionally most prominent performance indicator: income. (GDP, or better GNI, being an approximation)

**Y- AXIS:** One key performance indicator is income. How much income are economies able to generate in a given year? Income is seen as a proxy for the potential to resolve any problem. More income opens more options. GDP (or GNI) is an approximation of how much income people are able to generate, on average, within an economy. (Note, GDP does not indicate how much income the country can produce in the future – it does not distinguish between regenerated income, and income from liquidation).

**X- AXIS:** In a resource-constrained world, resource performance is becoming another key indicator. Here the X-Axis tracks whether a country is in an ecological creditor or debtor situation.

**Now let's populate the graph with data. Not just for one year, but looking at trends.**





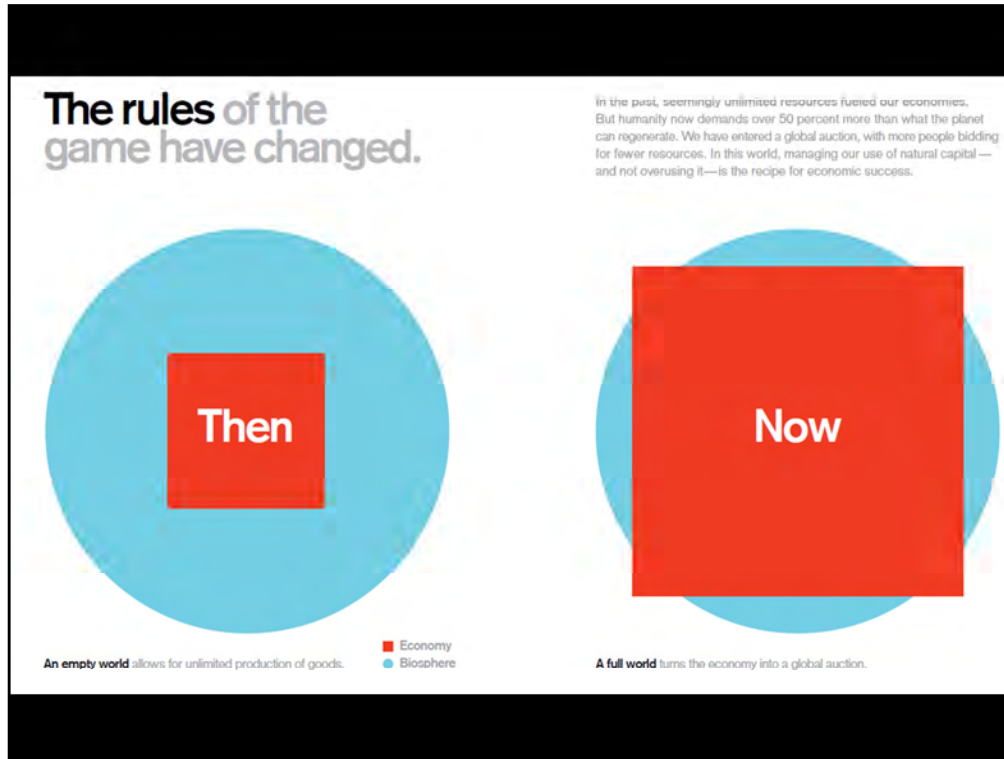
### How have countries performed over the last 30 years?

This graph shows absolute income and an increase in biocapacity deficits of countries. For most countries, their income (measured nominally or as here in purchasing power adjusted income per capita, for short ppp) has increased. At the same time, their biocapacity deficit has increased (or countries' biocapacity reserves have shrunk). (Note: The arrows stretch over a 27-year period – also note that 1.8 global hectares per person is the amount of biocapacity available per person in the world, or about as much as many featured countries have lost per person over this 27-year time span).

Many might interpret this graph as a sign that countries' residents have been able to increase their household consumption – as economies have used more resources. Is a growing biocapacity deficit just an unfortunate cost of business? Others may interpret that the growing biocapacity deficits may call into question these countries' abilities to expand their economies in the future. Maybe larger biocapacity deficits is an unfortunate, but necessary, part of doing business. This biocapacity deficit does not seem to impact the countries' income either. It may be seen as lamentable, but not fundamentally linked to economic performance. **Overall, this graph may give the (misleading) impression that it is inconclusive whether resource dimensions have anything to do with whether countries are on a fundamentally positive or negative track.** *Data source: Income data from the World Bank ; Biocapacity deficit from Global Footprint Network.*

### But are we looking at this from the right angle?

**Which World Are We in?** Are we really in a "factory world"? A world of unlimited resources? In such a world, additional demand will stimulate additional supply. If more books and chairs are purchased, more books and chairs are produced. The limit to supply is demand. All that matters is your absolute income – more income will give you access to more products and services. But the world we are in is a **different world...**



**We are no longer in a “factory world” but are entering a “global auction.”**

Herman Daly makes the distinction between the “empty world” before, and the new world we are entering now: the “full world.”

The economic implications of living in a full world are striking.

Essentially, it turns the global economy into a global auction. At best.

“At best,” because not everybody has equal and full access to the auction. Many resource contracts are already signed, some countries have bigger armies than others, etc.

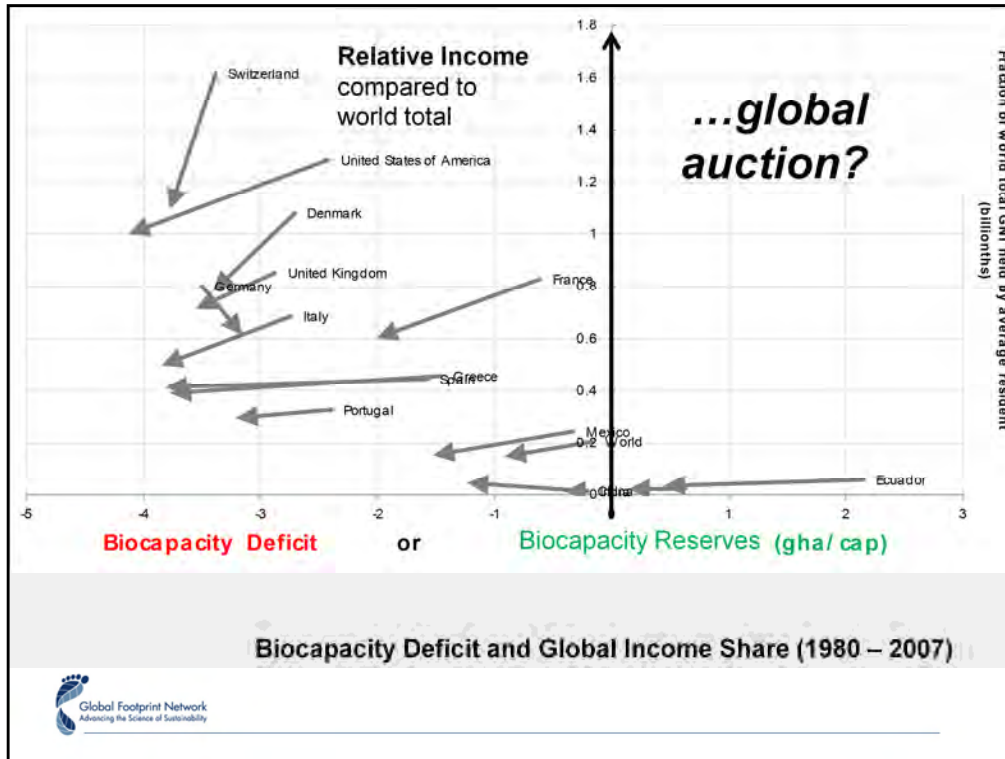
But the auction is the essence of the new resource economy:

**An empty world allows for unlimited production of goods.**

**A full world turns the economy into a global competition for limited resources.**

**In the past, seemingly unlimited resources fueled our economies.**

In contrast, humanity now demands more than 50 percent of what the planet can regenerate. We have entered a global auction, with more people bidding for fewer resources. In this world, managing our use of natural capital — and not overusing it—is the recipe for economic success.



### From “factory world” to a “global auction”

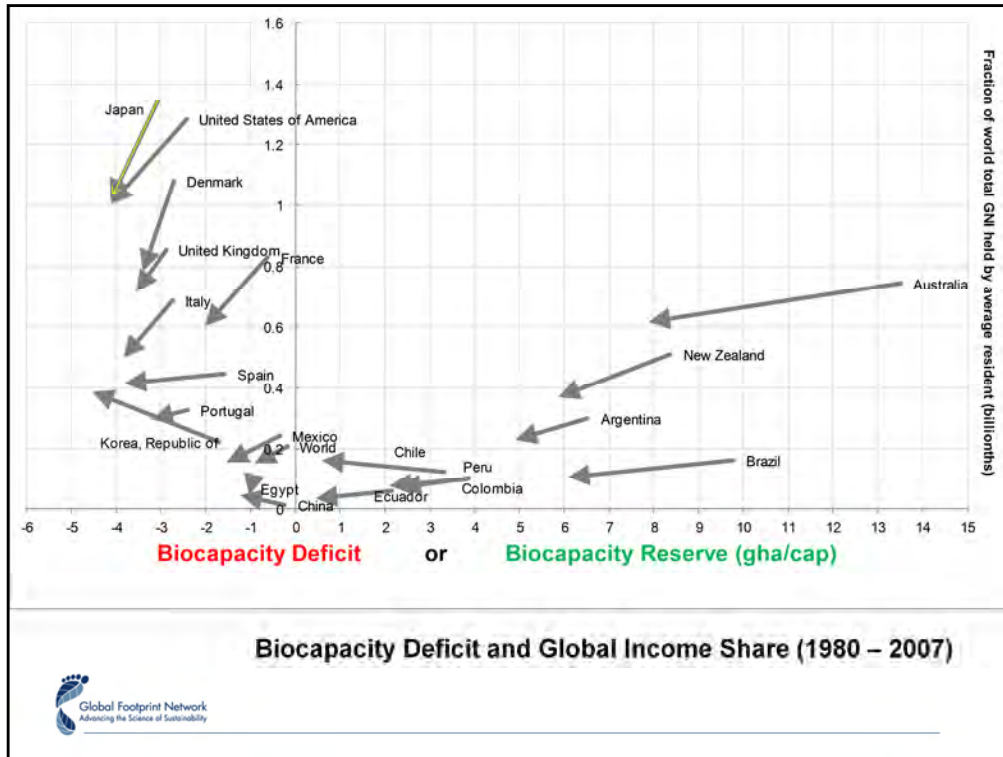
If we assume that we are in a world of resource limitations (as indicated by growing global overshoot), with all countries wanting more and more from the globally limited resource stock, then the “game we are in” can be more likened to a **global auction** of finite goods. In such an auction, what matters is not absolute ability to pay, but the relative ability compared to all the other bidding powers in the auction room.

Therefore, we need to track relative income (What percentage share does an American get from the total global pie?) From that perspective, the same information looks like the diagram above.

For the residents of most countries, their relative income has decreased. At the same time, their biocapacity deficit has increased (or countries’ reserves have shrunk). If we truly are in an auction world, then this would mean that as countries depend more on other countries’ resources, their ability to bid for resources is vanishing. It points to a structural weakening of those countries’ economies. Without the global auction, declining relative income would not have affected countries’ economies, like in an era of plentiful resources, for instance.

In a world where resource costs are becoming a significant factor, this double trap will become a key determinant of economic success – or failure.

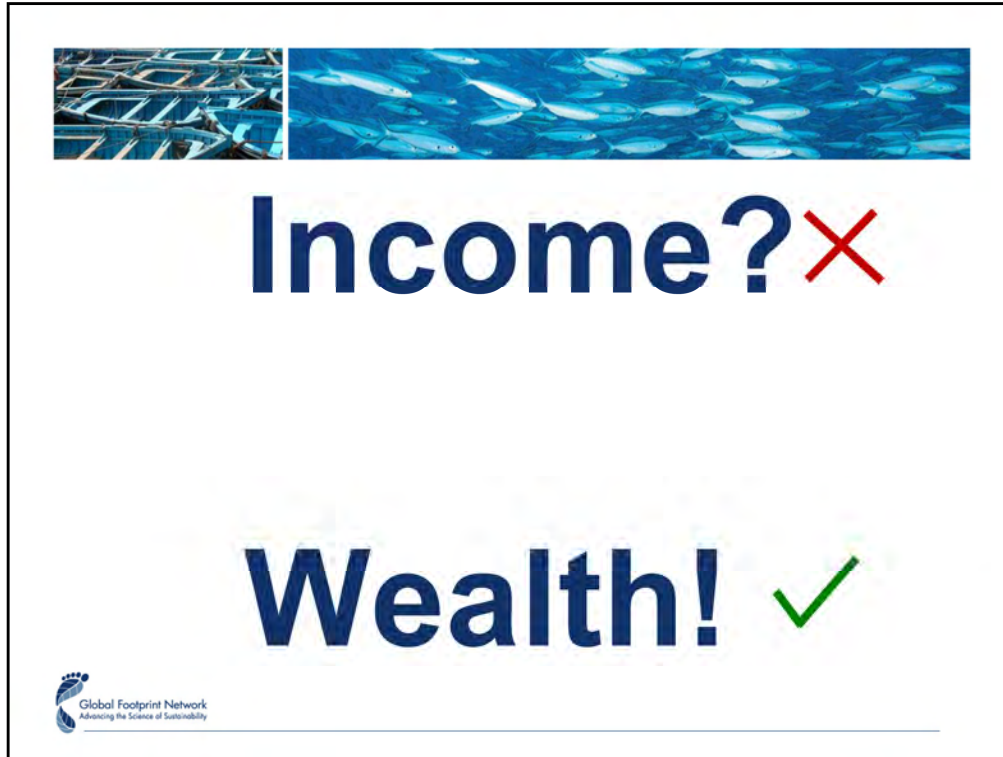
**Note:** The **Y-axis** shows the fraction of the world’s GDP an average resident of a given country generates. Therefore, the world average resident’s share, per definition, is at (1/world population) or currently at about 0.14 of a billionths of total world GDP.



### More countries in the “global auction diagram”

This graph shows more countries, including some that have significant biocapacity reserves. The latter, too, have shown very rapid loss of biocapacity per person over the last 25 years. In other words, they have weakened their position as well, but it is less fatal to them, since they are not dependent on foreign resources. In the cases of ecological creditors, they are mainly losing out on opportunities.. They can continue their natural capital, while generating income – but in the process they are losing significant wealth.

Japan is represented as well, and highlighted in yellow.



### **Let's focus on wealth, not income**

In today's world, where humanity is already exceeding planetary limits, ecological assets are becoming ever more critical and strategic. They are most valuable when they are managed well, and therefore able to serve your economy for years to come.

#### **Old rules of the game:**

Maximize income (or economic growth as measured by GDP, which is a measure of resource throughput), regardless of effects on ecological health and human well-being.

#### **New rules of the game:**

Protect your assets. Your ecological assets are at the core of your long-term wealth. Your per-capita wealth enables well-being.

Question: is wealth per person going up?

How do we measure wealth? There are a number of components: social capital, natural capital, human capital, built-up capital. (and financial capital which gives us access rights to these capitals).



**Japan is using Footprint accounting as part of its Basic Environmental Plan.**

Our report on Japan's Ecological Footprint, which identifies leading areas of ecological demand and offers policy recommendations to address them, reached an audience of well over 8 million people and fueled a growing call to action at both the individual and government levels. The report has been used to engage environment ministers on specific plans of action to more sustainably manage resource demand. Japanese officials are joining in roundtables with representatives of other Asia Pacific countries to share practices that can help better manage ecological assets.

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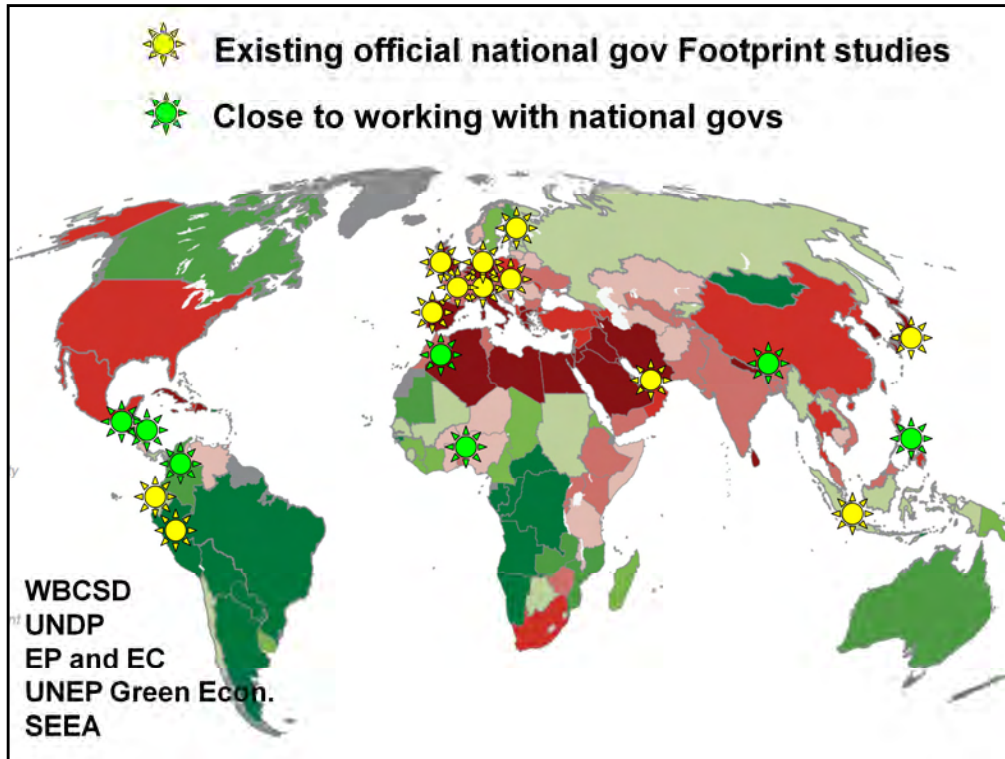
### **Japan has been a leader**

Global Footprint Network has engaged in one of its first three collaborations with national governments was with the Japanese Government through the ministry of environment (starting in 2006). The other early nations were Switzerland and the United Arab Emirates.

We are particularly proud that Japan has been one of the first three countries producing a review of our Footprint calculations.

The Ministry of Environment also convened a group of experts evaluating the Footprint. Ever since, the Ministry of Environment has used the Footprint in a number of publications, including in its 2011 report to the parliament.

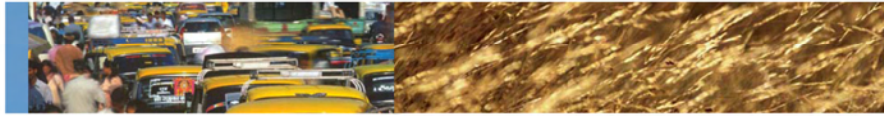




### Where Global Footprint Network works

Yellow dots indicate countries where government agencies have performed reviews of Global Footprint Network's Ecological Footprint assessments. The green dots show where discussions towards a collaboration are well on their way.

Various international agencies have taken up the Ecological Footprint. The World Business Council for Sustainable Development has used the Footprint as the foundation for its "Vision 2050", UNEP's Green Economy initiative builds on Global Footprint Network's HDI-Footprint approach, and UNDP's *Human Development Report* (as well as *The Economist's World in Figures*) list the Footprint in their data tables.



## New principles for success

- Nature has a budget. Do you know **how much biocapacity you have?** And **how much you use?**
- Biocapacity is the currency of the 21<sup>st</sup> century. Key to prosperity. If exposed to auction, relative GDP matters.
- Self-interest for countries, cities to reduce their resource deficit is overwhelming.



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### In summary – key principles and tools to succeed

For most of the 20<sup>th</sup> century, resources were relatively cheap and easily available. As a result, most countries have become increasingly dependent on large amounts of natural resources they do not have – both fossil fuels and biological resources. While resources are still relatively cheap, this increasing global demand is meeting a supply crunch. It now takes more effort to harvest fossil fuels and minerals, and, in some places, fresh water. Also, agricultural production is becoming increasingly fuel-dependent. As a result, basic commodities, such as food and fibers, are becoming costlier.

These resource dynamics are turning into an ever more significant driver of economic performance. Economic planners ignoring these trends may put their country's economy at peril.

Global Footprint Network has comprehensive risk assessment tools to document these changing trends and assess their economic impact for 200 other countries around the world, and by extension each country's trading partners. Some overarching trends are presented on our website at [www.footprintnetwork.org](http://www.footprintnetwork.org). The Network's bio-physical assessment of countries' resource performance, coupled with economic analysis, can show structural challenges for countries that are already shaping present economic realities in many locations around the world – and opportunities for overcoming them.

Thank you, Japan and Asahi Glass Foundation, for hosting us so graciously. We look forward to our continuous collaboration. Because we want Japan to succeed.

Arigato.