Ch3. Metrics: Human development for the Anthropocene
Part 2: One index to rule them all?

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HDI. Historical context

The **Human Development Index (HDI)** introduced in 1990 was intended to be a general index for global assessment based on a minimal listing of capabilities focused on enjoying a **basic quality of life**

Clear and simple, and focused on **income**, **education** and **health**, it shaped public and political debate and reoriented objectives and actions

It has since been augmented by the **Inequality-adjusted HDI**, the **Gender Development Index**, the **Gender Inequality Index** and the **Multidimensional Poverty Index**.

Carbon emissions and footprint

The inclusion of **income** in the HDI was intended only as **a proxy for capabilities** other than **education** and **health**, as something instrumentally important for achievements in those other capabilities

Income does not account for **planetary pressures**. Therefore, it is necessary **to complement the HDI**, by introducing:

- **Carbon emissions**
- **Footprint** (resources)

The Planetary pressures–adjusted HDI (PHDI) provides a sense of the possibilities for achieving high HDI values with **lower emissions** and **resource use**

Carbon emissions

The social cost of carbon is the economic cost attributable to an additional tonne of carbon dioxide emissions or its equivalent. The United Nations Development Program (2020) considers **two estimates**:

1. One proposed by the **International Monetary Fund.** It is based on a model showing that the impact of a global carbon tax at this level would be consistent with countries meeting their Paris Agreement pledges
2. The other estimate is from a recent application of the **Dynamic Integrated Climate-Economy integrated assessment model**. It includes the latest climate science and reflects a broad range of expert recommendations on social discount rates—a key parameter in the model that weighs the value today of future benefits and costs

For more information about **Dynamic Integrated Climate-Economy model (DICE model)** visit:

- Pedagogy in Action.
- (Wikipedia).

Footprint (resources)

A country's material footprint measures the amount of material extracted (biomass, fossil fuels, metal-ores (minerals) and nonmetal-ores) to meet domestic final demand for goods and services, regardless of where extraction occurs

It is a consumption-based measure that **accounts for international trade**

It also indicates **pressures on the biosphere** exerted by socioeconomic activities, since it includes the use of biomass—thus indirectly reflecting impacts of actions such as land use change on the loss of biosphere integrity

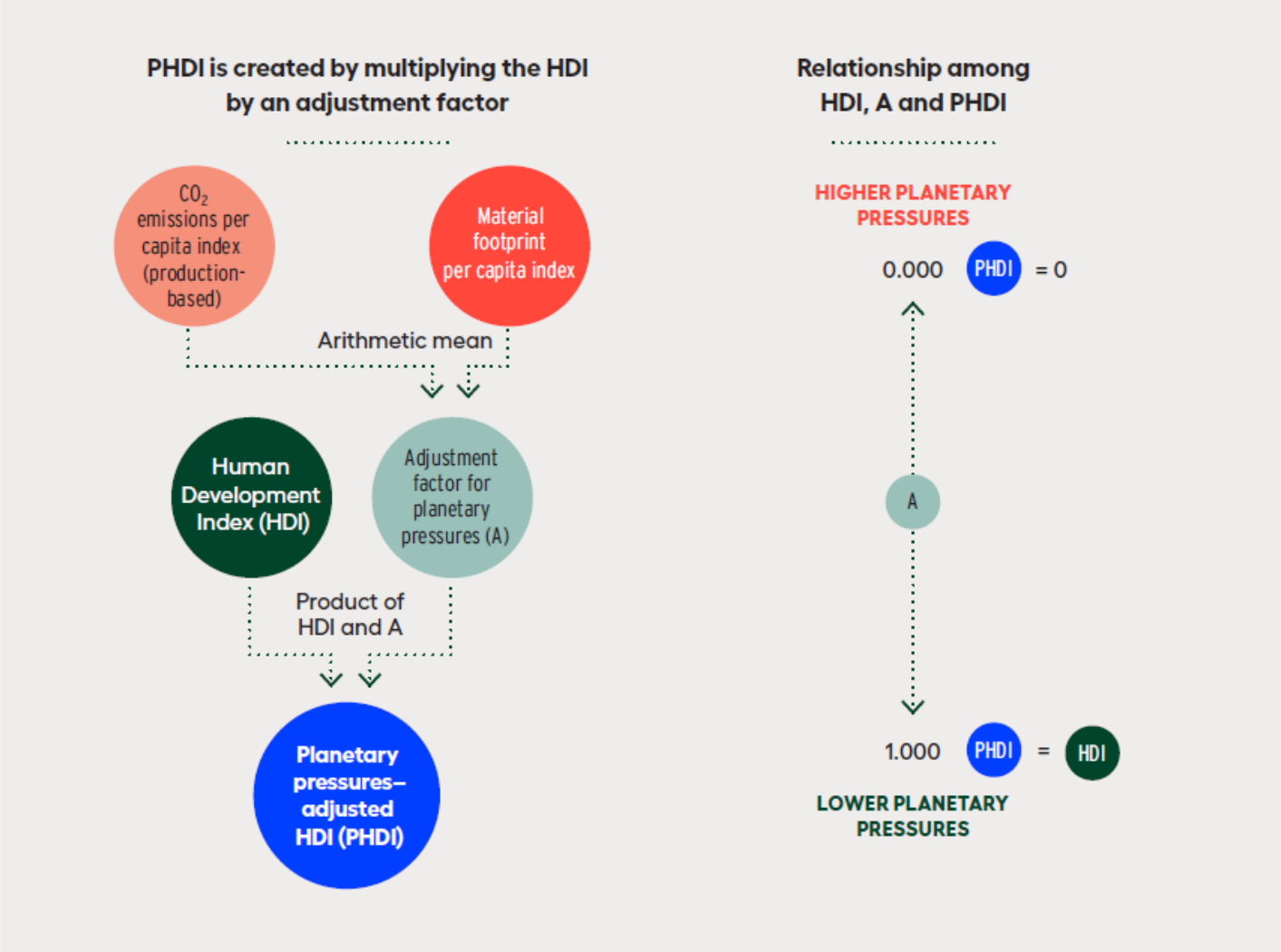
Planetary pressures

The adjustment to the HDI is a **signalling device** for positive change, encouraging the expansion of capabilities while reducing planetary pressures

The focus on greenhouse gases and material flows does not imply that all other environmental concerns are less important or urgent—as is the case for **losses in biosphere integrity** and several other urgent concerns, as reflected in the **Sustainable Development Goals**

But reductions in the flows of greenhouse gases and more efficient material use would eventually **reflect the outcomes of the broader economic and societal transformation** to ease planetary pressures.

The Planetary pressures Human Development Index



Source: Human Development Report Office.

The Planetary pressures Human Development Index

The adjustment corresponds to multiplying the HDI by an **adjustment factor**, creating the Planetary pressures–adjusted HDI (PHDI) (figure in the previous slide)

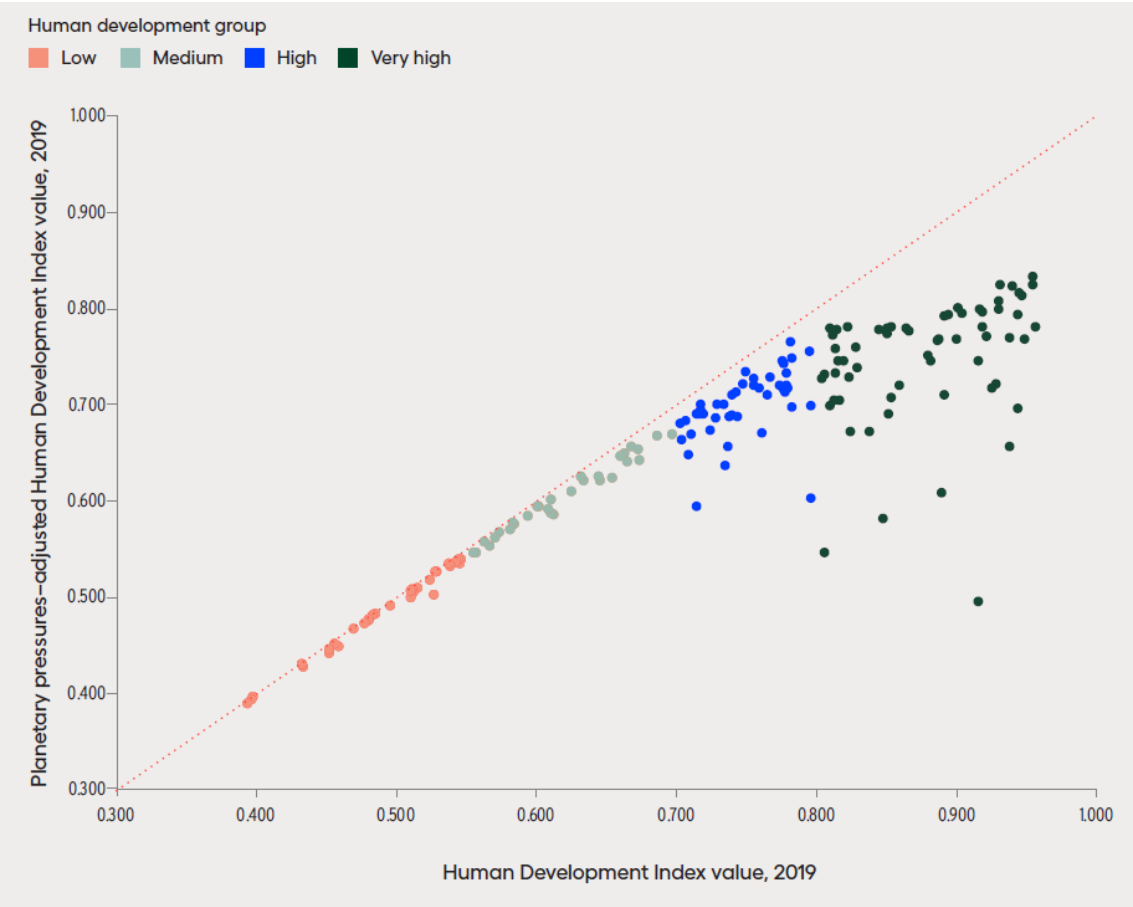
If a country puts **no pressure on the planet**, its PHDI and HDI would be equal, but the PHDI falls below the HDI as pressure rises

The **adjustment factor** is calculated as the arithmetic mean of indices measuring **carbon dioxide emissions per capita**, which speaks to the energy transition away from fossil fuels, and **material footprint per capita**, which relates to closing material cycles

HDI-PHDI

PHDI values are very close to HDI values for countries with an **HDI value of 0.7 or lower**

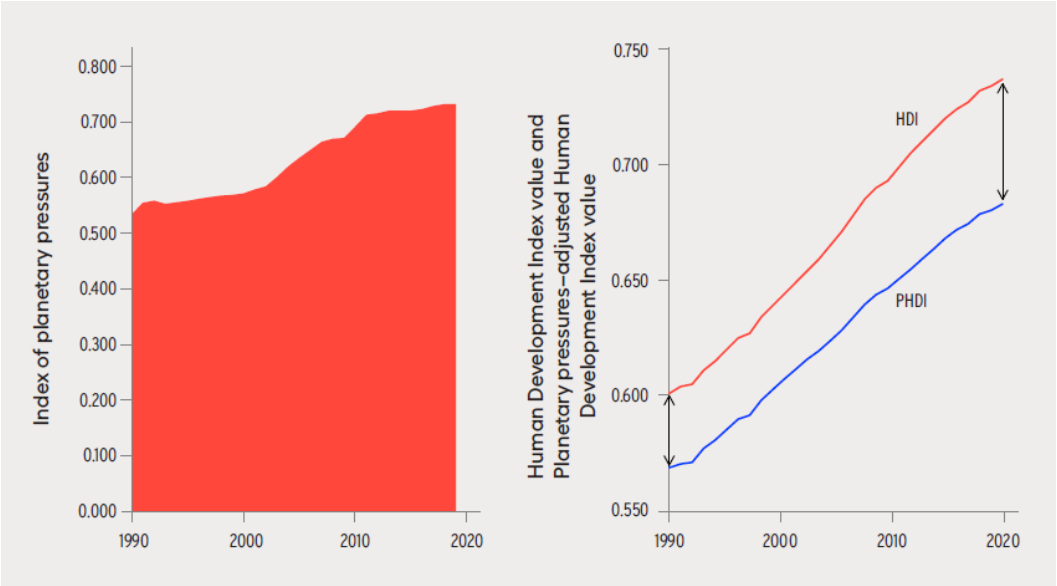
Differences start to open up at higher HDI values, with wider divergence at **very high HDI values**



HDI-PHDI trends

The world has consistently **increased planetary pressures per capita** over the past three decades

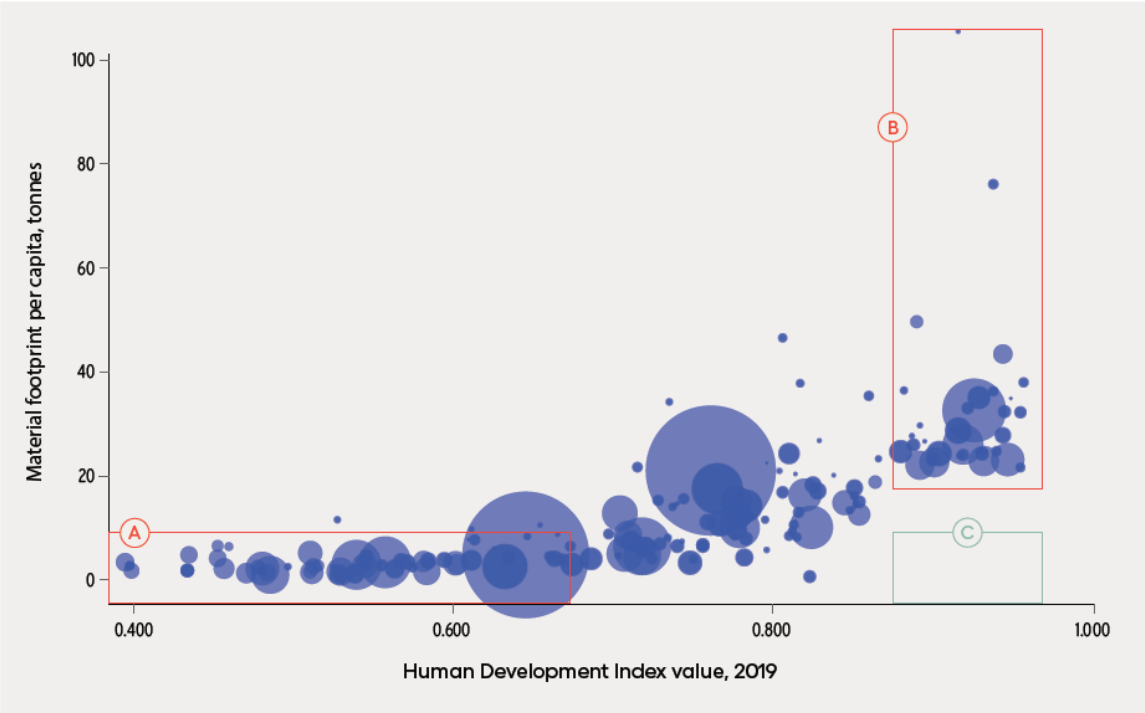
The PHDI is not only lower than the HDI; it is also growing more slowly



Footprint and Human Development Index

From a policy perspective the PHDI provides a **guiding metric** towards advancing human development while easing planetary pressures

A combination that today corresponds to an "**empty corner**" when human development is contrasted with indicators of planetary pressures



Note: Includes only countries with more than 1 million inhabitants. Bubble size is proportional to population.
Source: Human Development Report Office based on data from the United Nations Environment Programme.

Human development and planetary pressures

In the figure in the next slide, the horizontal axis shows the **HDI**, and the vertical axis shows the **index of planetary pressures**

Also plotted are contour lines corresponding to the same PHDI values that result from different combinations of the HDI and the index of planetary pressures **(isoquants)**

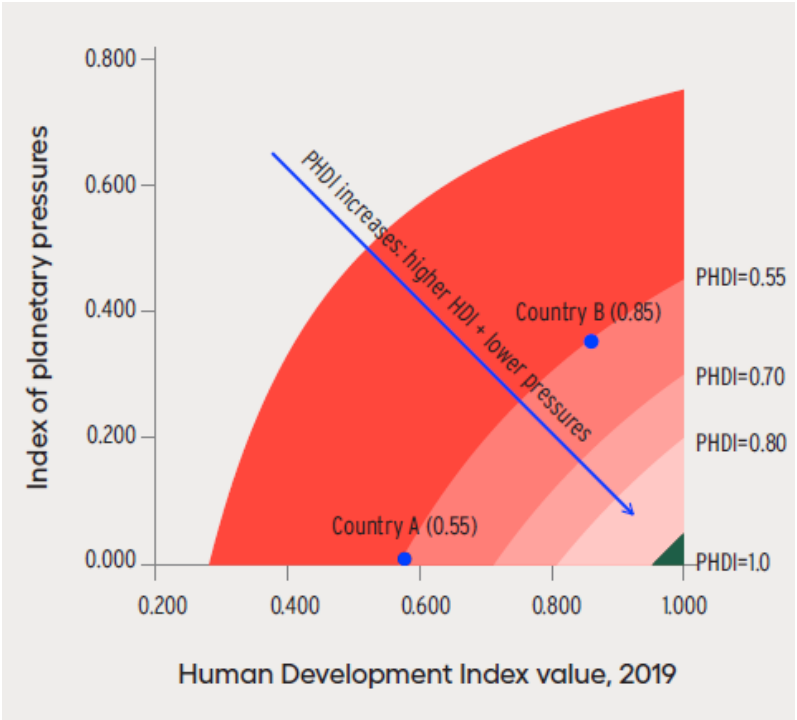
PHDI values increase as these lines move towards the **bottom right corner**

This corner is the **“empty space”** in the previous slide

Human development and planetary pressures

For instance, countries in positions **A** and **B** have very different HDI values (0.55 and 0.85) but the same PHDI value (0.55) because the greater progress in HDI in country B has been coupled with much greater planetary pressures

This simple example shows the importance of a joint assessment of socioeconomic and planetary pressure indicators as part of a single framework



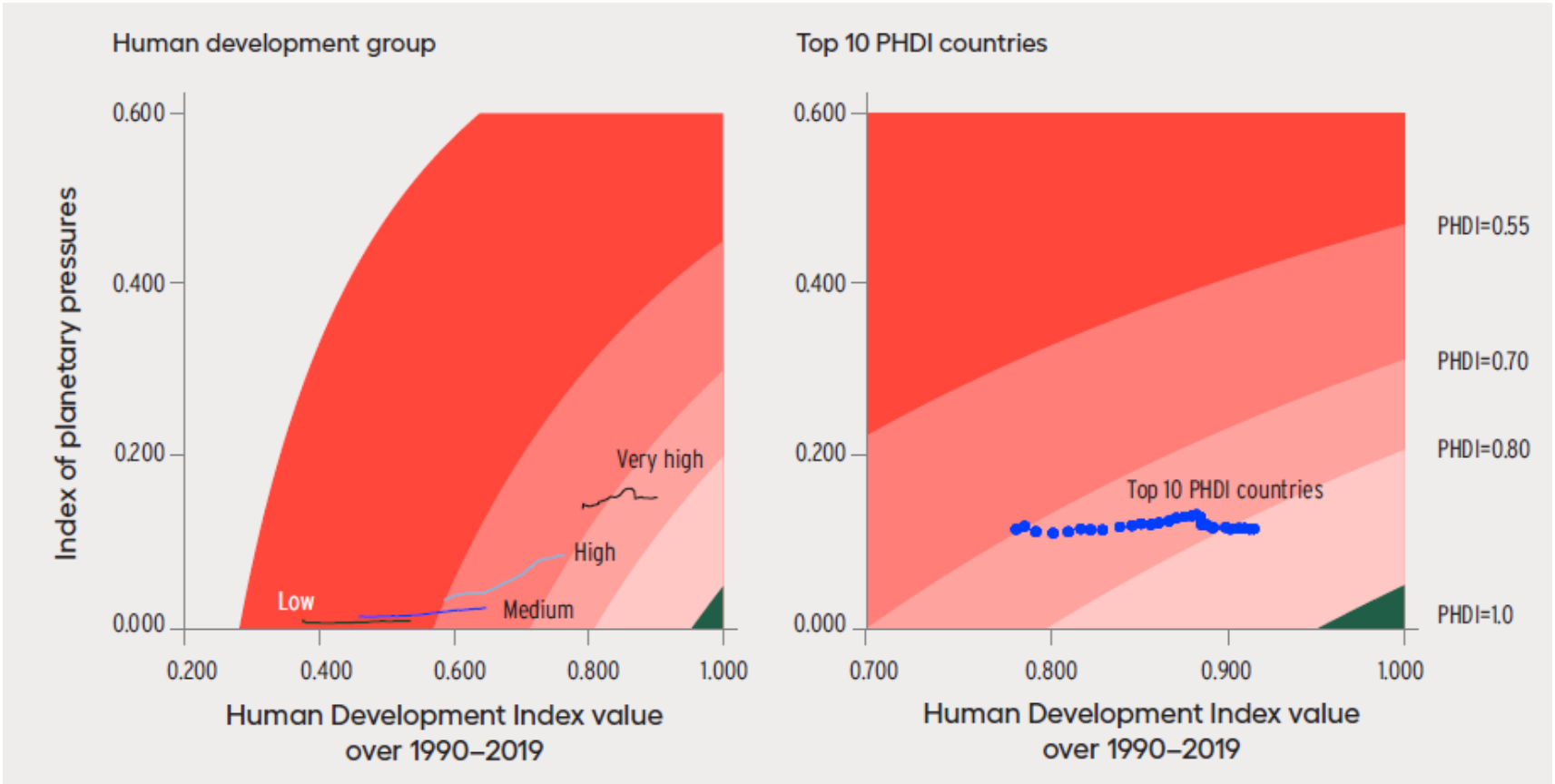
HDI-PHDI trends per country

Looking at the **trajectory of countries** over the past three decades shows different paths across human development groups

Low and medium human development countries have been able to improve social and economic conditions substantially without a high burden on planetary pressures

But in **high and very high human development countries**, improvements on the HDI have been coupled with rising planetary pressures

HDI-PHDI trends per country

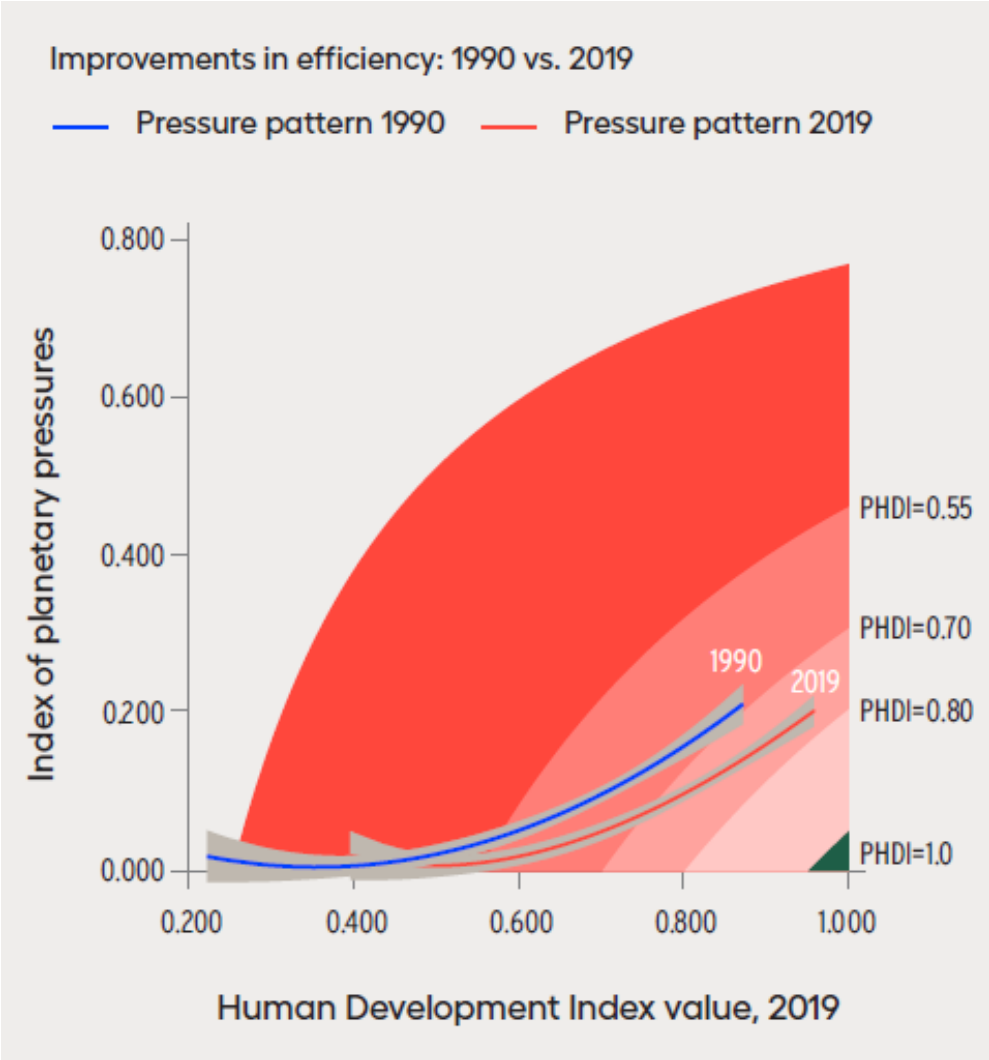


HDI-PHDI trends per country

Although absolute planetary pressures have been growing, **two aspects reflect some progress**:

1. After the 2008 global financial crisis a few developed countries have shown some **decoupling of human development gains from planetary pressures** (right-hand side panel, figure in the previous slide)
2. There is some evidence **more broadly of relative decoupling**. The curve corresponding to the average performance on the HDI and planetary pressures for all countries moved slightly towards the bottom right-hand corner between 1990 and 2019 (figure in the next slide)

HDI-PHDI trends per country



Other measures of wellbeing

In 2005 the **Organisation for Economic Co-operation and Development (OECD)** began its Global Project on Measuring the Progress of Society to catalyse growing interest in going beyond GDP

In 2007 the OECD, along with the European Commission, the United Nations, the United Nations Development Programme (UNDP), the World Bank and others, cosigned a declaration on the importance of measuring the progress of societies

Later that year the European Union held a conference—**Beyond GDP**—on developing indicators that are as clear and appealing as GDP but more inclusive of environmental and social aspects of progress.

The OECD began developed the **Better Life Index** in 2011 to bring together internationally comparable measures of wellbeing.

Other measures of wellbeing

Bhutan's Gross National Happiness work is a well known project from the Global South. That index covers **four pillars**:

- Promotion of sustainable development.
- Preservation and promotion of cultural values.
- Conservation of the natural environment.
- Establishment of good governance.

The government of **New Zealand** recently made a strong political commitment to go beyond GDP, with its Treasury using the OECD's Living Standard Framework, which measures wellbeing, capital stocks, and risk and resilience to inform budget decisions

Around the world the development of wellbeing indicators for **children**, **older people**, **people with "disabilities" (special capacities)** and **indigenous communities** is ongoing, sometimes building on a long tradition of work

Other measures of wellbeing

Wellbeing initiatives undertaken by local communities, such as indigenous communities, that are also undertaking socioenvironmental wellbeing surveys

These and other communities are developing wellbeing indicators to understand the **needs and aspirations of their communities in the widest sense**

Better Life Index.

This index allows you to compare well-being across countries, based on topics the OECD has identified as essential, in the areas of material living conditions and quality of life.

For more information about the Better Life Index visit: Better Life Index (link).