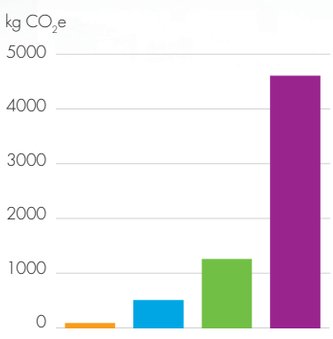
The Biofore Company UPM

# UPM Green Light Briefings

## CARBON FOOTPRINT

### Carbon footprint of some common things we do




A banana, grown and consumed **80 g $CO_2e$** per banana

amount of greenhouse gas equivalent to

approx. the volume of a golf ball

Taking a shower **500 g $CO_2e$**

amount of greenhouse gas equivalent to

approx. the volume of a can of coke

Using a mobile phone **1,250 kg $CO_2e$** per year

amount of greenhouse gas equivalent to

approx. the volume of 18 road tankers

Taking a return flight London to Hong Kong **4.6 tonnes $CO_2e$**

amount of greenhouse gas equivalent to

approx. the volume of a hot air balloon

Ref: How Bad Are Bananas – Mike Berners-Lee

### A look inside carbon footprint

The term carbon footprint has firmly established itself in modern vocabulary but for many of us it's not an easy term to understand.

So let's start with the basics. A carbon footprint is a measure of how much something contributes to global warming; an estimate of its potential contribution to climate change.

More precisely it's a measure of the amount of greenhouse gases emitted in order for us to do something (e.g. take a shower) or produce and use something (e.g. paper, or a mobile phone). And the bigger the carbon footprint, the greater the impact. It's as simple as that.

### Is carbon dioxide the only bad guy?

Most of us associate global warming with carbon dioxide ($CO_2$) released when we burn fossil fuels such as coal, oil and gas. For instance when we heat our home, drive our car, or from power stations generating the electricity we use.

But carbon dioxide isn't the only gas that contributes to global warming, and isn't the only gas which makes up a carbon footprint. It also includes emissions of other greenhouse gases, some more powerful than others.

### Greenhouse gases

| | SOURCE |
|---|---|
| Carbon dioxide ($CO_2$) | Burning of fossil fuels |
| Methane ($CH_4$) | Landfill<br>Agriculture and livestock |
| Nitrous oxide ($NO_x$) | Vehicle emissions<br>Power stations |
| Refrigerants (HFCs) | Air conditioning |

To keep things simple a carbon footprint is normally expressed as a single figure. All greenhouse gases are added together and expressed as an equivalent amount of carbon dioxide ($CO_2$equivalent, or $CO_2e$).

### How is a footprint measured?

A carbon footprint can't actually be measured, it's calculated by examining the life cycle of the product or service. It covers greenhouse gases released at every stage of a product's life, from extraction and conversion of raw materials through to its use and final disposal.

In the case of paper, it not only covers obvious stages like production and transport of the paper itself, but also emissions from forestry operations, manufacture of process chemicals, or even small volume emissions from sales persons travelling. Calculating the true carbon footprint of a product is a highly complex task really only suited to academic studies.

**Most carbon footprints you see printed on products are really a best estimate of their true footprint. They're based on the main stages of a products life cycle, using the best data we have available, but making some well-intentioned assumptions along the way.**

**Where to find further information**

- UPM Carbon Profiles – available at http://www.upmpaper.com/sustainability/certificate-finder/pages/default.aspx
- CEPI Ten Toes – available at http://www.cepi.org/node/12939

## What figures can we trust?

How can we know whether a reported $CO_2e$ is reliable? How can we be sure that a paper manufacturer isn't just reporting their own mill emissions while ignoring the impact of bought-in raw materials such as pigments?

To establish some ground rules, European paper producers have developed a best practice guide. It's called the 'Ten Toes'.

### CEPI Ten Toes

The CEPI Ten Toes (full name 'Ten Toes: Framework for the development of Carbon Footprints for paper and board products'; see links top left) is the methodology used by most European paper manufacturers to calculate and communicate the carbon footprint of their products.

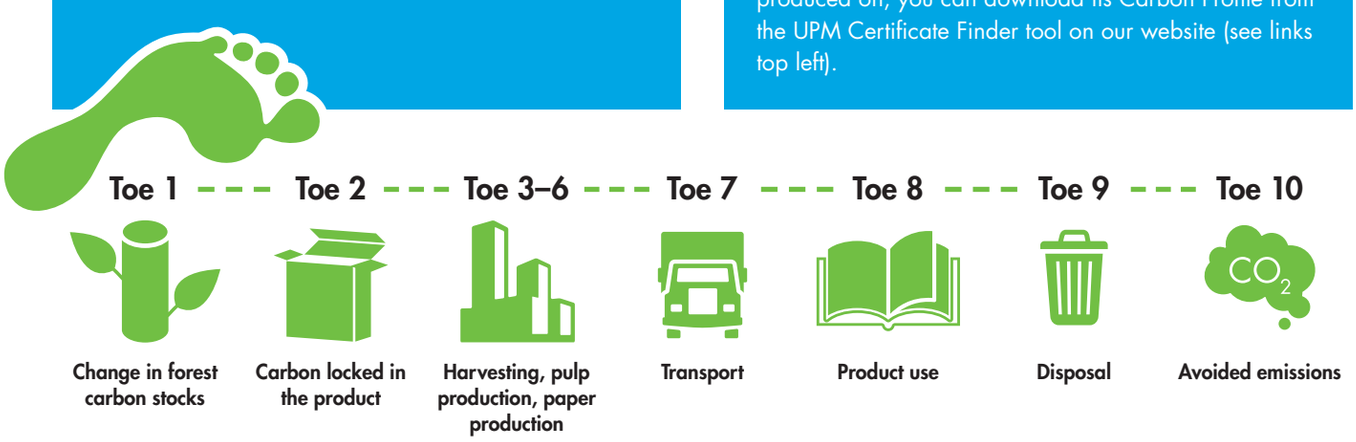
It breaks down the carbon footprint into 10 elements and defines how greenhouse gases should be calculated for each of these. It's the method that UPM uses to calculate the carbon footprint of our papers.

### UPM Carbon Profiles

UPM uses the Ten Toes method to calculate the carbon footprint of each of our papers annually so that they are always up to date.

We publish these as a 'Carbon Profile' for each of our products indicating its carbon footprint up to the point it leaves the mill. These profiles provide a full breakdown of the footprint of each paper, showing the amount for each of the ten toes of the papers life cycle, not just the total.

If you know the paper machine your UPM paper is produced on, you can download its Carbon Profile from the UPM Certificate Finder tool on our website (see links top left).




## Use with caution

Comparing the footprint of one product with another is difficult, as they are often calculated differently. Most carbon footprints are simply a best estimate and few cover the whole life cycle.

A carbon footprint really only tells us the magnitude of a product's footprint, whether for example it's less than that of a return flight to Hong Kong, but greater than that of a banana.

Its true value is in revealing which parts of the product's life cycle contribute most to its overall climate change impact. A carbon footprint helps us identify where we need to concentrate our efforts in order to reduce the footprint.

The Carbon Profiles for our papers show that purchased electricity, and the type and amount of fuel combusted at our mills to generate energy, make the largest contribution. This is why we're continually innovating to improve our energy efficiency and increase our use of non-fossil energy sources (biomass and hydro).

**A carbon footprint is a management tool, and that's really its true intention.**

UPM

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