Case study Summary sheet

Context

CASE STUDY

Footprint use category: Supply option **Assessment time:** Sample 2017

Business application: Biodiversity management & performance

Perimeter

		LUEFN Pressures	CC Pressure	Aquatic Pressures
Scope 1				
Scope 2				
Scope 3	Natural rubber purchases	✓	✓	
	Downstream			

COMPANY'S IDENTITY

MICHELIN

Industry
Manufacturing

Sub-industry
Auto and truck parts

2017 turnover
EUR 21.96 billion

Listed
Euronext, CAC40

Why?

EXPLORE THE DIFFERENCE OF IMPACTS OF A RANDOM SAMPLE OF NATURAL RUBBER SUPPLY SOURCES

When?

COMPUTATION IS DONE FOR A RANDOM SUPPLY SPLIT PER COUNTRY OBSERVED IN 2017

How often?

ONE OFF (TESTING PHASE)

What?

AVERAGE TERRESTRIAL BIODIVERSITY FOOTPRINTS PER COUNTRY ARE EVALUATED PER TON OF RUBBER

For who?

INTERNAL USE
STRATEGY, SOURCING

How detailed?

SOURCING OPTIONS ARE EVALUATED AT THE COUNTRY LEVEL

DATA COLLECTED

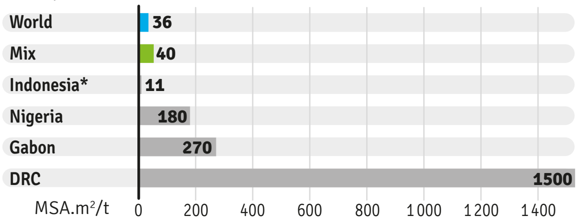
Item	Details
Sourcing locations	List of countries
Sourcing split	% per country
Production yield	Average yield (t/ha) for 5 countries accounting for 96% of supply

Footprint analysis

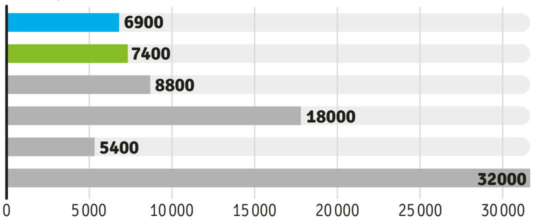
RESULTS

For a fictive supply of 1 million tons of natural rubber, based on the sample's mix per country

Dynamic footprint — **Total footprint 40 MSA.km²**
or the area of the French city of Dijon



Static footprint — **Total footprint 7 400 MSA.km²**
close to the area of Corsica, 8 680 km²



(source: GBS calculations, December 2018)

KEY MESSAGES

- Land use change is the key driver of dynamic biodiversity footprint
- Additional information from suppliers certifying that land conversion is broadly contained within their business perimeter would improve significantly the precision of the assessment of their dynamic footprint
- Yield is the main explanatory factor of static biodiversity loss
- Additional information from suppliers on their yield performance would significantly improve the accuracy of the static footprint

IMPROVEMENTS

- Integration of additional pressures such as air and water pollutants or water use in the GBS methodology in the future should put into perspective the significant share of impact of spatial pressures

4.1 Michelin

A CONTEXT AND OBJECTIVES

Michelin is involved in various initiatives in order to better assess and reduce the socio-environmental impacts related to the upstream part of its value chain. Being the world's second largest tyre manufacturer, Michelin is an important buyer of natural rubber which accounts for about a quarter of a tyre's composition (source: Michelin). Natural rubber production takes place in plantations located in tropical or sub-tropical regions and can potentially have a significant impact on biodiversity.

In this case study, the "Supply option" use of the GBS tool is explored. The tool is used to compute the average biodiversity footprint of the production of 1 ton of natural rubber depending on its country of origin. The objective is to provide Michelin with preliminary information on the risks of biodiversity impacts of different supply options and identify potential impact hotspots requiring further attention (and additional data collection to refine results). As rubber is a purchase of Michelin, it falls within its Scope 3 (see Figure 10).

The GBS is still under development, so only the impacts caused by the five terrestrial pressures listed in GLOBIO (land use changes, encroachment, fragmentation, climate change, atmospheric nitrogen deposition) on terrestrial biodiversity are assessed.

B METHODOLOGY

Michelin provided a 2017 non-representative sample of its natural rubber supply split among ten countries. For five countries (Indonesia, Brazil, Thailand, Côte d'Ivoire, Malaysia) accounting for most of this supply by weight, Michelin also provided a production yield based on the LMC - *Outlook for Natural & Synthetic Rubbers – 2018 Report*. For each country, the GBS tool computed the terrestrial biodiversity footprint of 1 ton of natural rubber. When production yield was not provided by Michelin, the latest average yield documented by the FAO for the country was used. The methodology used to assess the biodiversity impact of crop commodities detailed in the GBS's first technical paper (CDC Biodiversité, 2017) was then applied.

C RESULTS AND DISCUSSION

Dynamic footprint varies significantly from one country to another (Figure 19). For instance, the dynamic footprint of rubber cultivation is **136 times higher in the Democratic Republic of Congo** (1 500 MSA.m²/t) **than in Indonesia** (11 MSA.m²/t).

This is explained by very different land use dynamics. As illustrated in Figure 20, in countries which are still at an early stage of their economic development such

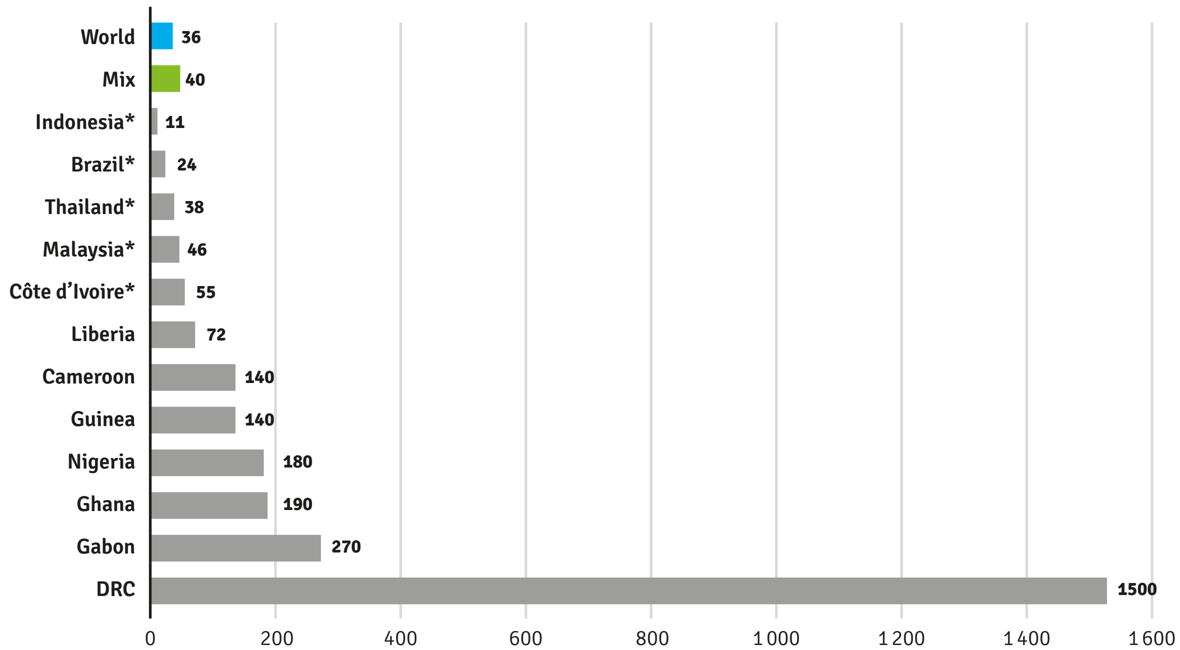


Figure 19: Dynamic footprint of natural rubber cultivation (MSA.m2/t) **per country in the study's sample purchase** (source: GBS calculations, December 2018)**. *: country where the yield from the LMC report was used.**

Figure 20: Land use evolutions expected in GLOBIO's central scenario for the Democratic Republic of Congo and Indonesia from 2010 to 2050

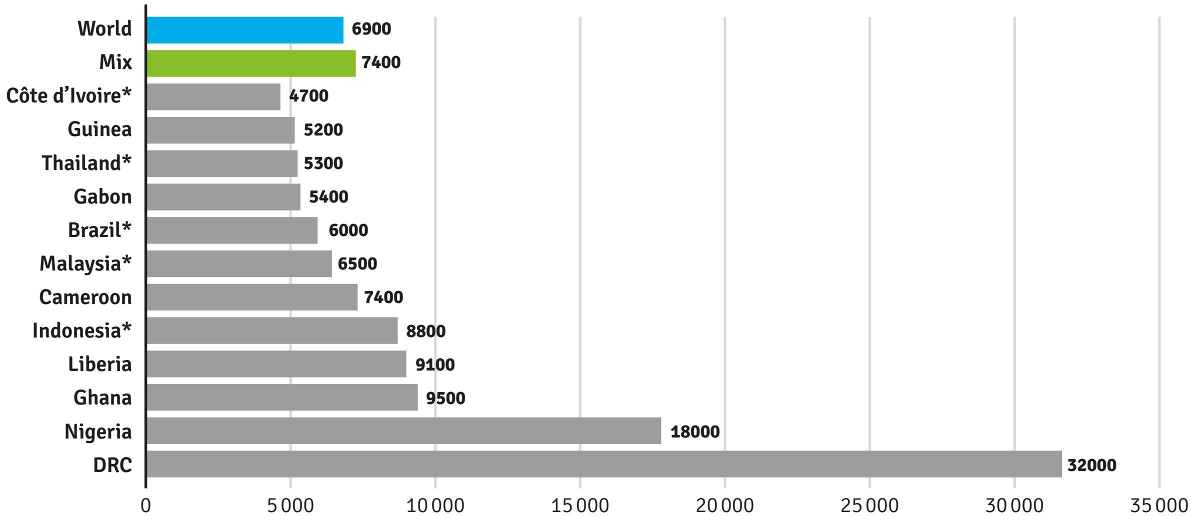


Figure 21: Static footprint of natural rubber (MSA.m2/t) per country in the study's sample purchase (source: GBS calculations, December 2018)

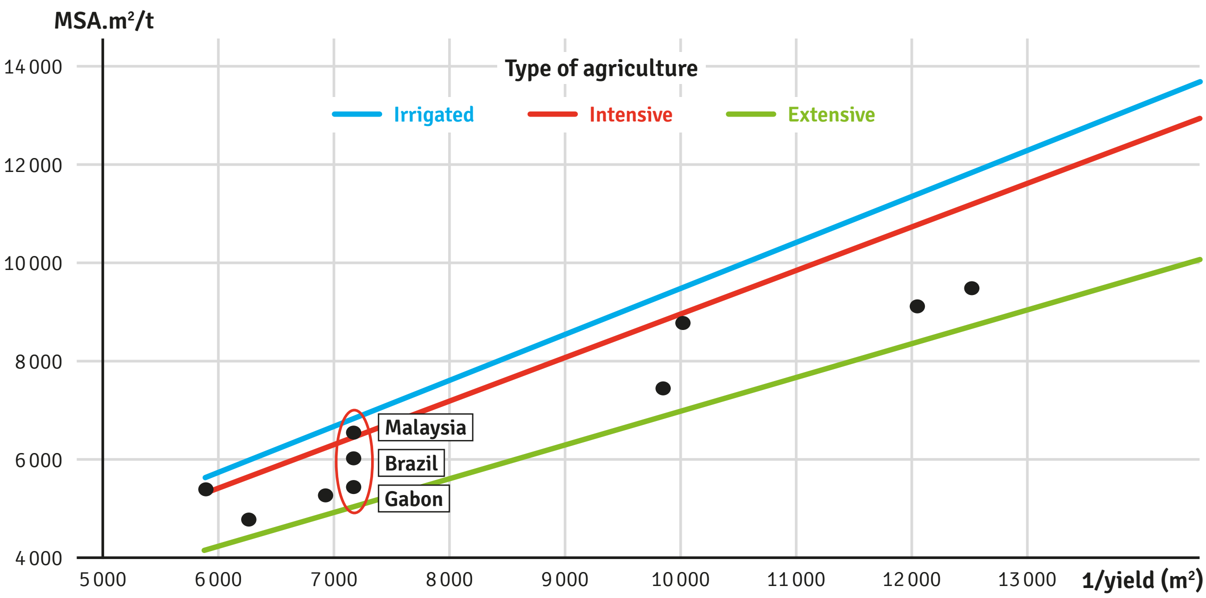


Figure 22: Static footprint (MSA.m²/t) as a function of the inverse of yield for 1 ton of natural rubber

as the Democratic Republic of Congo (DRC), land uses are expected to change in sizeable proportion in the coming years with natural lands being converted to support economic activities, mainly agriculture (including both farmland and cultivated grassland) and forestry. Conversely, in countries more advanced in their economic development such as Indonesia, the conversion dynamic will be subdued and therefore associated biodiversity losses are much lower. If additional pressures such as air and water pollutants or water use were also assessed (they will be integrated in the GBS assessments in the future), the overwhelming share of the land use impacts in the total biodiversity footprint would be relatively smaller.

Static footprint also varies significantly from one country to another (Figure 21).

Currently, the static footprint is only computed for spatial pressures and is thus structurally highly correlated to production yield (see formula in **section 3.5.1**). The other driver for default static footprint is the average intensity of the agriculture in a given country. In Figure 22 for instance we see that Malaysia, Brazil, and Gabon have the same yield (1.4 t/ha) but their static footprints are significantly different (respectively 6 500, 6 000 and 5 400 MSA.m²/t). This is due to the fact that their agriculture intensities differ which is reflected in the average MSA% for agricultural lands which are respectively 9%, 16% and 24%.

D LESSONS LEARNT

This case study is an important step in the development of the GBS tool regarding its “supply chain comparison” use. It could help to better understand what the drivers of biodiversity loss are and how they interact. Testing the tool on this case also quickly showed to the GBS and Michelin teams that in-depth understanding of supply chains was a key element in order to refine the footprint. Indeed, suppliers’ additional information on yield performance would significantly improve the accuracy of the static footprint. Also, suppliers’ information on their actual land use changes would allow to significantly refine the assessments of the dynamic footprint, especially for countries where this pressure is expected to be high such as DRC. Suppliers identification is a challenge for most of the commodities today, hence this study comforts Michelin in pursuing their effort on having a better knowledge about their natural rubber supply with a target of risks mapped for 80% of the volume purchased by the end of 2020. For the time being, these figures could help to assess countries where risks to impact biodiversity are too high. But they can also be used to engage specific suppliers and work with them to ensure that their actual footprint is much lower than the average impact calculated with this approach. The assessment can thus support cooperation with suppliers to move towards more sustainable rubber plantations in high risk countries.