

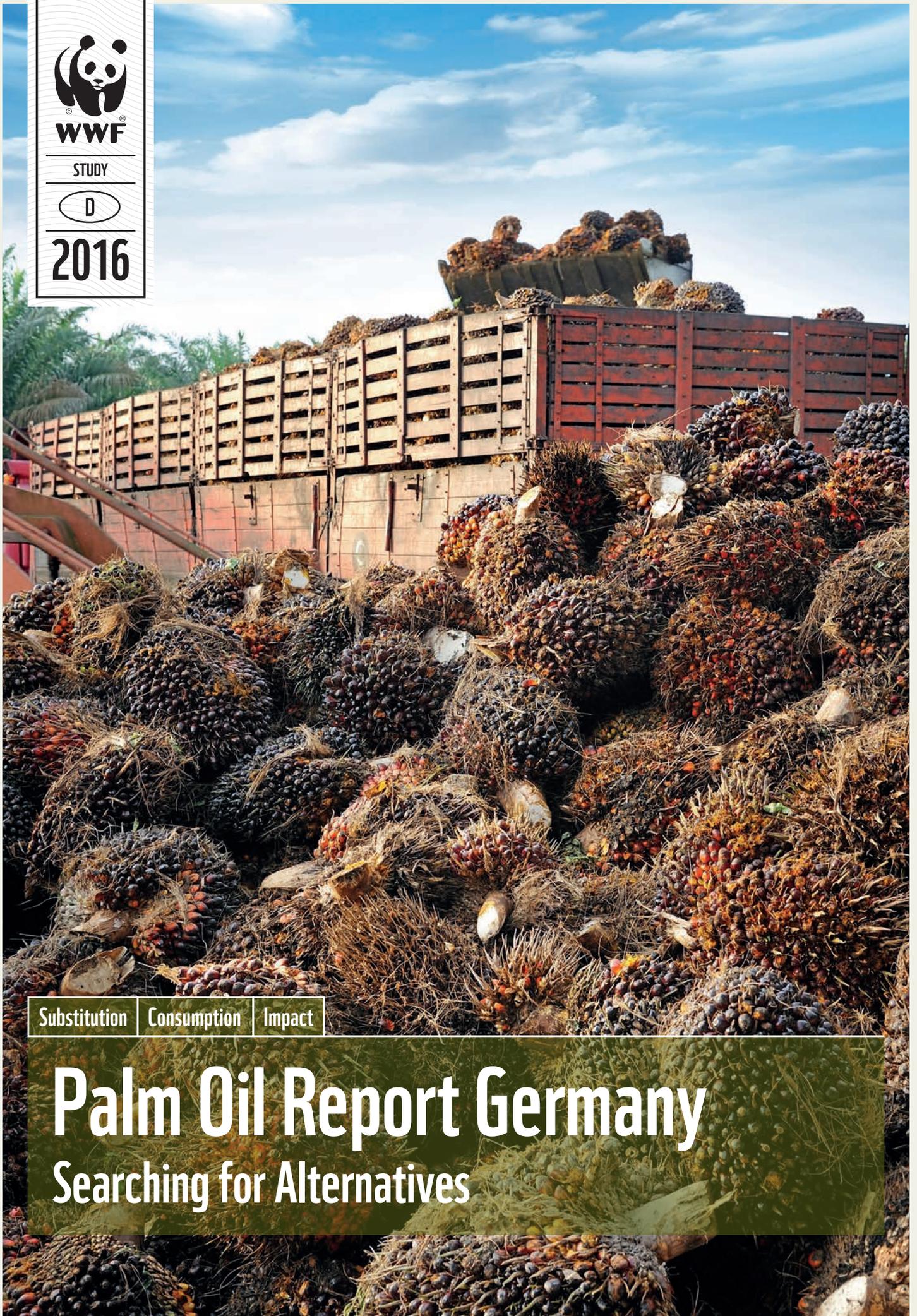


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Substitution

Consumption

Impact

# Palm Oil Report Germany

## Searching for Alternatives

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#### English Summary of the German report

“Auf der Ölspur – Berechnungen zu einer palmölfreieren Welt“

#### About this report

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## Palm Oil Report Germany – Searching for Alternatives

The world is hungry for palm oil and this craving brings with it significant adverse impacts: Vast expanses of rainforests are cut down for palm oil production, endangered species such as the orangutan are driven from their habitat, and land-use rights are being ignored. Oil palms are now grown on an area of over 17 million ha, which is equivalent to half the total area of Germany. The bulk of new palm oil plantations are still being established on forest land. In Indonesia for example the area under oil palm plantations grew faster between 2011 and 2013 than in the years prior, despite the introduction in 2011 of a moratorium for new palm oil concessions on forest land and peatland in Indonesia. In view of these negative impacts of palm oil production there have been repeated calls for a palm oil boycott.

This sounds like an easy answer – but first we should ask what could be gained from replacing palm oil with other vegetable oils. The aim of the present study is to explore the impacts of palm oil consumption in Germany and to explain the effects resulting from the substitution of other plant based oils for palm oil. This study used the German palm oil consumption but most results and recommendations can also be applied elsewhere.

### 98% of German palm oil consumption traced

In a first step, the study determined the sectors in which imported palm oil is used in Germany. For the first time it has been possible to trace 98 % of the German consumption of palm oil for one year. Armed with such good data, the second step involved an assessment as to which vegetable oils are technically suited to replace palm oil. As a third step this study examines the impacts of palm oil consumption in Germany and its substitution, based on the land consumption associated with the different oils, as well as the resultant greenhouse gas emissions and loss of biodiversity.

The study deals exclusively with the – mostly negative – environmental impacts of palm oil and alternative vegetable oils respectively. It does not analyse the social problems that are similarly associated with palm oil production. However, the social issues are given consideration in the conclusions with regard to private, economic, and political action. The analysis shows that the one-to-one substitution of palm oil with other tropical plant oils would not meet the desired objectives. Soya and coconut oil grow in similar or ecologically similarly sensitive regions, and therefore the replacement of one oil for another would not solve the problem but only shift it elsewhere and, in part, even exacerbate it. More land would be required, more greenhouse gas emissions would be generated, and more species would be endangered.

Biodiversity would only suffer less if palm oil was replaced with oil produced from oilseed rape or sunflowers grown in Europe. Moreover, in contrast to the monoculture palm oil plantations, domestically produced rapeseed oil and sunflower oil would also offer the potential to widen regionally existing narrow crop rotations without resulting in social conflicts as they are generated elsewhere.

### Palm oil worldwide and in Germany

**The substitution of palm oil with other tropical oils does not solve the problem.**

At present, approximately 60 million tonnes of palm oil and palm kernel oil are being produced worldwide on more than 17 million hectares of land, figures that are set to rise even further due to population growth, the increasing use of palm oil in consumer goods the demand for which is steadily growing, and due to greater demand as a feedstock for energy generation.

The success of the oil palm is due to the fact that it produces very high yields per unit area. At a global average of 3.3 tonnes of oil per hectare the oil palm produces a higher per-hectare yield than any other oilseed crop and is thus the most efficient in terms of its land footprint. For comparison, a soybean crop produces only 0.4 tonnes of oil per hectare, While coconuts and sunflower seeds yield just under 0.7 t/ha and oilseed rape yields just over 0.7 t/ha. But that is not the only reason for why the industry is banking on this oil. Palm oil is also cheap and has a range of unique characteristics. For some products, it would be very difficult to find technical substitutes for palm oil.



### Comparison of global yields by crop plant Oil yields in tonnes per hectare (t/ha)



source: WWF 2016, based on data from FAPRI (2014) and FAO (2015; 2012).

**If native European rapeseed oil and sunflower oil were to be substituted for palm oil, global biodiversity would suffer less.**

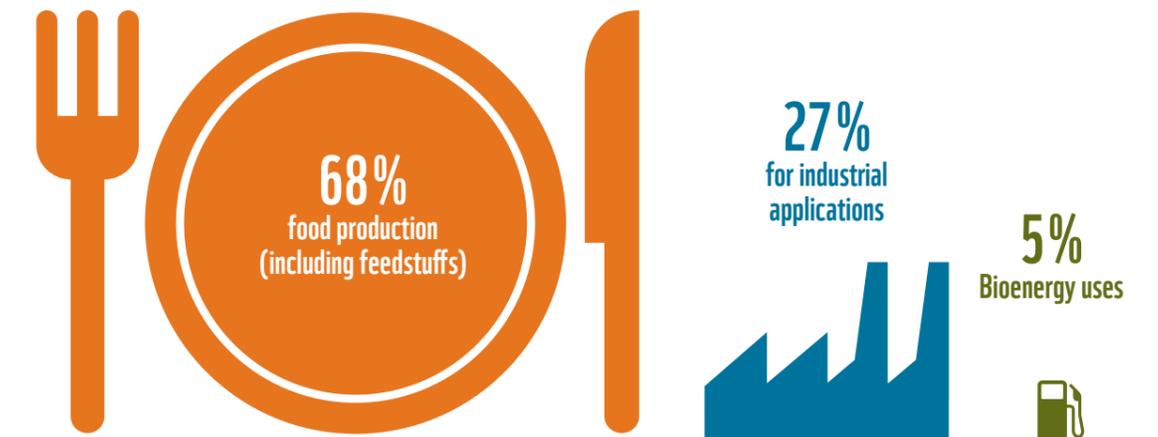
Ninety-nine percent of all palm oil exports are produced in Indonesia and Malaysia. The European Union accounts for 15% or 5.5 million tonnes of palm oil imports and is thus the third largest importer after India (22%) and China (19%). A total of 1.82 million tonnes of palm oil reaches Germany if all import pathways are considered, i.e. direct imports, net imports via European ports such as Rotterdam, and palm oil contained in imported processed products.

Globally, the most important use of palm oil is in food products (68%), followed by industrial applications for cosmetics, detergents, cleaning products a.o. (27%) and as an energy source (5%).

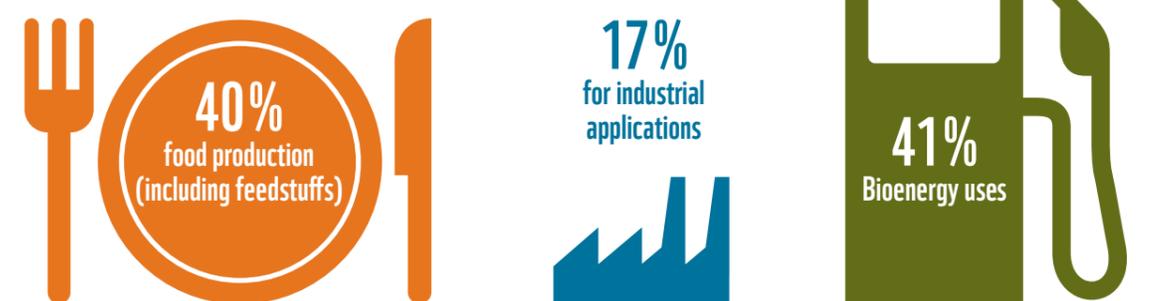


### Palm oil uses globally and in Germany

#### Globally



#### Germany

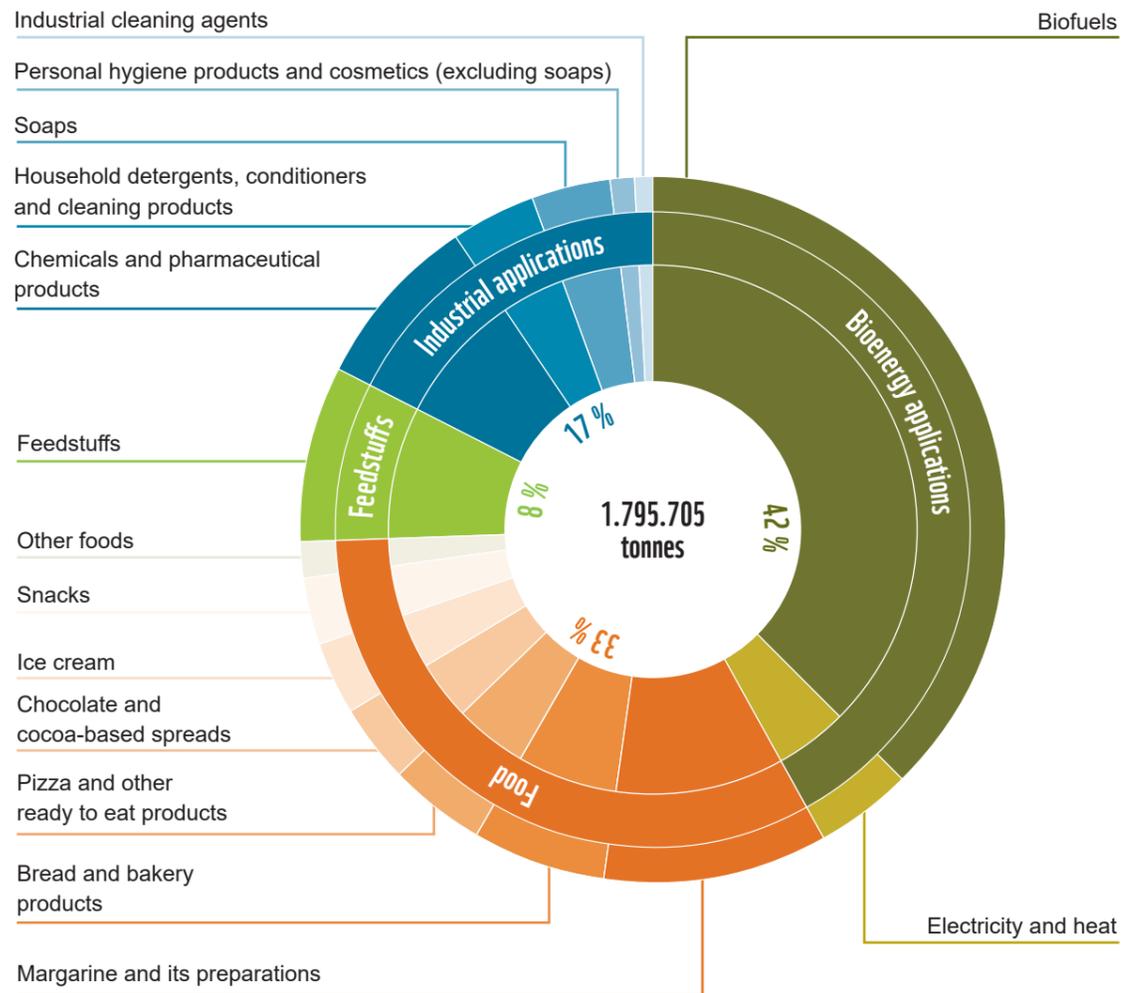


2% unaccountable uses

Source: own calculations with data from FNR (2014a,b,c)

For Germany this breakdown is different. A detailed analysis shows that the biggest proportion (41%) is used as a feedstock for bioenergy generation, while 40% are used in food production (including feedstuffs) and 17% for industrial applications. Especially when it comes to the use of palm oil for bioenergy, Germany differs massively from the global average (5% worldwide). The primary reasons for the high share of palm oil in Germany are the biofuel sector and the market introduction of hydrotreated vegetable oils (HVO). The 509,000 tonnes of oil imported in 2013 to this end consisted exclusively of palm oil.

**WWF** Consumption of palm oil for individual consumer goods or groups of consumer goods in Germany in 2013



source: WWF 2016, Auf der Ölspur

**Technical substitution options**

The present study determined in which of the sectors the substitution of other vegetable oils for palm oil would indeed be technically feasible and follows with a detailed examination of the impacts of these alternatives.

The market analysis shows that palm oil could primarily be replaced by soy oil, rapeseed oil, sunflower oil and coconut oil – and indeed the substitution is already being made in places. From a technical perspective, some sectors also lend themselves to the substitution of other oils such as, for example, jojoba oil or shea butter. However, disadvantages of the latter in terms of applicability, affordability and/or acceptance are so overwhelming that they cannot reasonably be considered as substitutes.

Generally, the replacement of palm oil with other vegetable oils is easiest to achieve in the food sector. From a purely technical perspective any other vegetable oil could replace palm oil for most of the uses. The exceptions are chocolate and snacks. Given that coconut oil is similar to palm oil in its characteristics and would not first need to be hydrogenated, it can be considered a suitable alternative in chocolate production. For the deep-frying of snacks, sunflower oil would be the best alternative to palm oil. The palm oil content in livestock feed could best be replaced by a combination of rapeseed oil, soya oil and sunflower oil – and it could be minimised by lower meat consumption (see WWF's demands).

**The substitution of palm oil in industrial applications is technically difficult.**

The substitution of palm oil in the industrial sector would be more difficult to achieve. Coconut oil is the prime alternative, given its similar fatty acid profile, and it is currently the only technical alternative for soaps, detergents, conditioners and cleaning products, personal hygiene products and cosmetics.

**Bioenergy & waste fats**

The bioenergy sector takes a special place when it comes to palm oil substitution. The high proportion of biofuels made from hydrogenated palm oil could be replaced by waste vegetable oils, such as used deep frying fats or other technical oils. However, the supply of waste fats is not unlimited and they are already being utilised by the chemical industry. The importance of prudent resource use and the inevitability of reductions are coming to the fore in this area. Only when all options for reductions in energy usage have been fully exploited should biofuels based on waste and residues be considered as alternatives for meeting the demand for fuel.

In the bioenergy sector, the priority must be on savings and increases in efficiency.

### Impacts of palm oil substitution

The 1.82 million tonnes of palm oil used in Germany in 2013 occupy 397,781 ha of cropland primarily in the producer countries Malaysia and Indonesia, but also in Papua New Guinea, Latin America and Africa.



### Potential impacts of palm oil substitution in the German market with a mix of alternate (tropical) oils



source: WWF 2016, Auf der Ölspur

This area could be „freed up“ if in Germany palm oil was to be replaced with other vegetable oils. But this is only one side of the coin. The other vegetable oils also require cropland and, as was described above, much more cropland than oil palms. If the „business as usual“ pathways were followed and if palm oil was to be replaced by rapeseed, sunflower, coconut and soya oil, Germany would need five times as much cropland: 1.85 million ha instead of 397,781 ha.

The already existing pressure on natural areas such as forests, wetlands and savannahs would be exacerbated by palm oil substitution. While in Indonesia 175,000 ha would no longer be needed to satisfy the German demand, 364,000 ha would need to be devoted to the production of coconut oil. In contrast, the pressure on land in Europe would be less high given that the majority of substitute oils are being produced in tropical regions. While in Europe an additional 275,000 ha of land would be needed to produce sunflowers and oilseed rape, this increase is relatively minor given that the current amount of cropland devoted to the production of these two types of vegetable oils amounts to 11.3 million ha.

**The already existing pressure on natural areas to be converted to cropland would be exacerbated by the substitution of palm oil.**

Based on the land requirements, the associated greenhouse gas emissions and biodiversity losses were calculated. When lands outside of Europe are converted to cropland it is often natural areas that are being destroyed and in the process greenhouse gases are released and biodiversity is lost.

Despite the fact that the study used rather conservative figures (so-called carbon release factors), the greenhouse gas emissions resulting from land use change for the purpose of palm oil substitution would total 309 million tonnes. This equates to approximately a third of the German annual emissions. The majority of these emissions would be generated in Asia since the bulk of the saved palm oil would be replaced with coconut oil production.

The recording and calculation of biodiversity indices is a still relatively new area of research and is subject to a degree of uncertainty. The study makes use of two indices of biodiversity change (GEF-Bio and NBI) in order to depict biodiversity change under different land use trajectories. Based on scientific biodiversity data, these indices assign index values to countries that allow for comparisons to be made between countries. For example, Greenland has an NBI value of 0 while Indonesia has a value of 1, i.e. the highest value. All other countries have values lying between these two extremes. The loss of land in a specific country is multiplied by the relevant index value so as to get a feeling for the extent to which biodiversity would be lost. Both methods yield the same result, i.e. that the substitution of a mix of rapeseed, sunflower, coconut and soya oil for palm oil would endanger a significantly greater number rather than a smaller number of species and habitats. The loss of biodiversity resulting from palm oil substitution would equate to the species diversity contained in more than 640,000 ha of tropical ecosystems or more.

**As in many cases only coconut oil could replace palm oil, an additional 309 million tonnes of greenhouse gas emissions would be generated, mostly in Asia.**

## Rapeseed oil scenario

Following on from the assessment of the „business as usual“ scenario, the study considered the potential regional impacts of Germany producing „within its own limitations“ instead of drawing on lands elsewhere. To investigate this example scenario, the effects of the substitution – wherever possible – of domestically produced rapeseed oil for palm oil were calculated. This substitution would theoretically be possible for 1 million tonnes of the palm oil used in Germany.

This option would have similarly negative impacts in terms of land consumption and associated greenhouse gas emissions. While 290,000 ha of land would be „freed up“ in tropical countries, an additional 730,000 ha in Germany would need to be devoted to growing oilseed rape. This would equate to a 50% increase in the area under oilseed rape to a total of 2 million ha. These additional 730,000 ha of cropland are not freely available in Germany. The impacts on species diversity however would be less severe, in part owing to the fact that Germany hosts lower biodiversity than tropical countries.

## Domestic production

While oil palms are a permanent crop that often replaces species-rich tropical forests, in Europe domestically grown oilseed crops, such as for example oilseed rape or sunflowers, could favourably be integrated into regionally existing crop rotations and could widen the crop rotations so that no additional lands would need to be converted. Both in Europe and in South-East Asia there are unused or fallow lands which should be utilised before the conversion of species-rich forests or peatlands to cropland is even remotely considered.

While the social impacts of palm oil production were not considered in the present study, it should be noted that an increase in the domestic production of oilseed crops may even render obsolete social conflicts elsewhere, given that in Germany child labour, minimum wages, the right to form trade unions („freedom of association“) etc. are strongly regulated in law and infringements are sanctioned.

Given that the land base for the production of renewable agricultural resources is limited, all possible savings potentials must be exploited, in particular in the bioenergy and biofuels sector but also in the area of daily private consumption. The abandonment of palm oil as a biofuel together with more sensible consumption of consumer goods such as chocolate,

sweets and snacks, ready-made foods and meat could reduce the current German demand for palm oil by 50%.

**Changes in the transport sector and more sensible consumption could reduce the German demand for palm oil by 50%.**

The increasing global demand for palm oil brings with it an increase in both ecological and social problems. Vast areas of rainforest, habitats of endangered wildlife such as elephants, tigers, rhinos and orangutans, continue to be cut down for new palm oil plantations.

The massive adverse impacts of oil palm cultivation on people and nature show that we urgently need a course change at the ecological, economic and social levels. Not only palm oil cultivation must change but also our consumer behaviour.

The analysis presented here shows that a simple call for a „boycott“ would not be sufficient to avert the negative ecological impacts of our palm oil consumption, since an indiscriminate substitution of other vegetable oils for palm oil would not solve the problems but only shift them elsewhere and exacerbate them. This is particularly true where palm oil is replaced by coconut oil or soya oil. Such a move would increase land requirements, generate higher levels of greenhouse gas emissions, and endanger a greater number of species than at present. Only the replacement of palm oil with rapeseed and sunflower oil produced in Europe would lower the pressure on biodiversity. But the land base needed to accommodate such a change is not unlimited.

**The indiscriminate substitution of other vegetable oils for palm oil would not solve the problems but only shift them elsewhere and exacerbate them.**

The fact is that if we were to abandon palm oil as a biofuel and more sensibly consume goods such as chocolate products, sweets and snacks, ready-made meals and meat, we could reduce Germany's demand for palm oil by approximately 50%. If we could halve our consumption in these sectors we could not only reduce the burden on the environment but we would also more closely adhere to the dietary recommendations issued by the WHO and the German Nutrition Society (DGE), which would be good for our health.

But is there an environmentally sound alternative for the remaining 50% of the palm oil consumed in Germany? The analysis has shown that if palm oil was replaced by domestically produced oils such as rapeseed and sunflower oil there would be less of a burden on biodiversity, owing to the fact that Germany hosts lower species diversity than tropical countries. Land consumption would increase however, thus increasing greenhouse gas emissions.

When companies decide to substitute other vegetable oils for palm oil

**The share of current palm oil imports for which appropriate substitute vegetable oils do not exist must in future be produced in a more environmentally and socially sound manner.**

they should, whenever possible, use domestically grown oils. Notwithstanding such substitutions, the alternative vegetable oils will also need to meet strict standards of environmental and social sustainability.

The share of current palm oil imports for which appropriate substitute vegetable oils do not exist must in future be produced in a more environmentally and socially sound manner. All vegetable oils, be they palm oil, coconut oil, rapeseed or sunflower oil should be subject to ambitious environmental and social sustainability standards.

This study examines the land requirements of the various oils as well as the associated greenhouse gas emissions and biodiversity losses. The fact that oil palms are the highest yielding of all oily fruits and therefore the most efficient in terms of land requirements is frequently used as an argument for palm oil. The analysis has shown that there is some truth to this. In addition, for some applications there is no technical substitute for palm oil.

But land requirements must not be the only parameter to be considered. Social, political, and societal criteria must also be taken into account. Therefore, the conclusions also make reference to social components, political framework conditions, and savings potentials resulting from changed consumer behaviour, even if these aspects were not analysed per se. Analyses of the biodiversity of converted and cropped lands or of the impacts of crop production on water and soils would be interesting research fields for further studies with regard to this issue.

## WWF's demands

### Measures to be taken by consumers

Of the various options for reducing palm oil consumption we first list some urgent ones available to consumers. In other words, what can each one of us do in order to help combat the catastrophic ecological impacts of the palm oil boom?

Refraining from the use of palm oil as biofuel and systematic reductions in energy usage. First and foremost this is an issue for policymakers who should advocate the electrification of private transport, a drastic reduction in energy consumption, transport avoidance and efficiency increases. However, each one of us can contribute to palm oil-reduced transport, by using the bike instead of the car, by attending video-conferences instead of going on business trips, by using rail instead of road. The right choices would contribute to a desirable reduction in the demand for palm oil.

#### Conscious consumer behaviour and a balanced diet

More specifically this means:

- » fewer sweet and fatty foods
- » fresh food instead of ready-made products,
- » less meat but better quality meat.

Purchasing certified products: Consumers buying products containing palm oil should check to ensure that the palm oil used is certified, for example under the RSPO standards. If there is no such reference on the product itself, consumers can at least check the most recent WWF Palm Oil Buyers Scorecard for general information on the sourcing behaviour of producers and supermarkets ([http://awsassets.panda.org/downloads/wwf\\_palm\\_oil\\_scorecard\\_2016\\_1.pdf](http://awsassets.panda.org/downloads/wwf_palm_oil_scorecard_2016_1.pdf)). A combination of sustainability standards with organic certification stands for even lower environmental impact. For example, no dangerous pesticides are used in the production of organic palm oil.

There are concrete figures for the degree to which eating habits promote

palm oil consumption. Seventeen percent of the total palm oil consumption in Germany can be traced to processed foods and „luxury goods“ such as chocolate products, snacks, pizza and other ready-to-eat foods. A more prudent consumption of sugar and fats would not only benefit our health but could also significantly reduce the German demand for palm oil. The German Nutrition Society (DGE) advocates a more balanced diet including a “moderate” consumption of sugar and fats. The WHO recommends a reduction in the consumption of free sugar to 5%, equating to approximately 25 g of sugar per day. The average per capita sugar consumption in Germany stands at 31 kg per year, an amount that considerably exceeds both the recommendations. We could save approximately 150,000 tons of palm oil if all of us could manage to reduce our consumption of processed foods and „luxury goods“.

Eight percent of the palm oil imported into Germany is used in the production of feedstuffs for cattle, poultry and pigs. WWF Germany recommends that we eat less and better quality meat instead: 300 g of meat per week – considerably less than half the current average consumption – are good for both health and environment. „Better meat“ is taken to mean, for example, organic meat or regionally produced grass-fed meat. Such meat is largely produced without inputs of concentrate feeds and can thus be recommended as part of a resource-saving and palm oil-free or palm oil-reduced diet (also see the WWF publications „Meat Eats Land“). Half of the palm oil imported for inclusion in livestock feeds (i.e. 4% of total imports) could be saved in this manner.

We could reduce palm oil consumption in Germany to 50% of the current level if we were to stop using palm oil as a biofuel and if we more consciously consumed goods such as chocolate products, sweets and snacks, ready-made meals and meat.

## Measures to be taken by the industry

When companies use palm oil in their production they must also take responsibility for its ecological and social impacts. Some, but by no means all companies rely on the minimum standards for the production of palm oil established by the Roundtable for Sustainable Palm Oil (RSPO), which include for example a ban on the establishment of palm oil plantations in forests of high nature value.

### The WWF calls on all companies using palm oil ...

- » ... to immediately change to 100% certified, segregated palm oil.
- » ... to also make their suppliers aware of their responsibilities and to call for compliance with criteria going beyond the minimum requirements of the RSPO. They should only purchase palm oil from producers
  - » who confirm that their plantations are not being established on peatlands or on sites with high carbon stocks;
  - » who commit to refraining from using at least highly hazardous pesticides (such as pesticides of WHO toxicity classes 1 a+b, pesticides listed under the Stockholm and Rotterdam Conventions, and paraquat);
  - » who immediately publish their plantations' and oil mills' greenhouse gas emissions;
  - » who have established clear emissions reduction targets for plantations and mills;
  - » who exclusively and demonstrably supply their entire palm oil crops (FFBs) from legal sources.
- » ... to get involved with initiatives the aim of which it is to assert additional requirements, such as the Palm Oil Innovators Group ([www.poig.org](http://www.poig.org)) or the Forum for Sustainable Palm Oil (<http://www.forumpalmoel.org/en/>).
- » ... to demonstrate transparency with regard to the use of palm oil and to appropriately label their products.
- » ... to ensure that the alternative vegetable oils used to replace palm oil also meet strict standards of environmental and social sustainability, and to give, whenever possible, priority to domestically produced oils.

## Policy demands

Unfortunately the international palm oil market is still characterised by a high level of intransparency. Moreover, the bulk of the palm oil produced worldwide does not even meet minimum social and ecological standards. Therefore, palm oil imported to Germany is also associated with the destruction of rainforests and with human rights violations.

### Enforce a halt to the use of palm oil as biofuel

The German Federal Government should endeavour to ensure that all palm oil imports into the European Union will be conditional upon compliance with binding ecological and social sustainability criteria (RSPO minimum standards with additional criteria such as POIG or FONAP). To date only the EU Renewable Energy Directive contains minimum ecological criteria for using palm oil in the bioenergy sector.

Furthermore, the German Federal Government should work towards putting a halt to the use of palm oil as a biofuel and strive for consistent reductions in energy consumption. A strong focus must be directed towards supports for the efficient use of biofuels in those sectors for which there are no sustainable alternatives, i.e. in particular in air transport and heavy haulage. In the private transport sector the focus should be on increases in efficiency, on support for public local transport, and on electrification.

The obligation to label palm oil should be extended to all consumer goods so as to allow consumers to make informed purchasing decisions.

Subsidies and project financing should be made conditional upon compliance with ambitious social and ecological sustainability criteria.

Intergovernmental negotiations with palm oil producing countries should be used to call for stricter social and environmental standards in palm oil production and compliance with the rights of small farmers and indigenous peoples, and to offer incentives for the protection of rainforests by way of participative and transparent land-use planning and afforestation programs.