



Sum
Of
+ Us

Cutting the crap:

The benefits of
implementing
resource efficiency
in German
supermarkets

Changing Markets



Wuppertal Institute
for Climate, Environment
and Energy



This is a SumOfUs report based on the research by Changing Markets, Wuppertal Institute and Rank a Brand.

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This report looks at the potential for cutting the unnecessary use of resources in consumer goods products that are sold in supermarkets – with a special focus on materials. It focuses on Europe's economic powerhouse, Germany, where several of the major European supermarkets have headquarters and where the level of environmental awareness is already relatively high. The report argues that Germany, starting with its supermarket sector, can take a genuine lead in the circular economy going beyond the rhetoric and resulting in concrete actions and measures to effect transformative change.

EXECUTIVE SUMMARY

Over the past century, humanity has become a dominant geological force on Earth, transforming its environment and climate system. In his short presence on this planet, *homo sapiens* has managed to shift more sediments through mining activities than all the world's rivers combined, warm the planet, put a hole in the ozone layer and acidify the oceans. Overconsumption of finite resources is a big part of this problem: We already use 1.5 times as many resources as the Earth can regenerate and this is projected to increase to 3-5 planets-worth by 2050. If our consumption patterns do not change, the oceans will contain more plastics than fish by 2050 and we will live in a world of extreme weather events and collapsing food production, where resource conflicts and exotic diseases result in millions of premature deaths, with poor and vulnerable populations the worst affected. Such a bleak future can still be averted, but we have to act now to bring our insatiable thirst for resources back within planetary boundaries.

Part of the solution to our unsustainable consumption patterns, which are currently based on extracting and discarding enormous amounts of “stuff” is a shift towards a resource-efficient circular economy. The idea of a circular economy is built on the respect of environmental boundaries, reducing consumption of raw materials, energy, emissions and water. Materials are used for as long as possible to extract maximum value and then recovered at the end of a product's life to create a closed circle of production and consumption. Resource efficiency is a complementary strategy that aims to reduce the amount of materials and other resources needed to manufacture the products in the first place. They are both key elements of a shift towards more sustainable production and consumption. A direct comparison can be drawn with the transition to a more sustainable energy system: while we need to move to a 100 percent renewable energy system as fast as we can, eliminating wasteful use of energy through efficiency measures and technologies makes the transition easier and cheaper, while delivering immediate economic and social benefits.

Numerous studies have highlighted the economic and social benefits of moving towards resource efficiency and a circular economy. A study by the European Commission has shown that setting a resource productivity target of 30 percent for the entire EU by 2030 could boost GDP by nearly 1 percent, and create over 2 million jobs compared to the business-as-usual scenario. A similar study by the UK-government sponsored WRAP initiative showed that moving towards a circular economy has the potential to create 1.2 to 3 million jobs in Europe and reduce structural unemployment by around 250,000 to 520,000 by 2030. Today, more than 3.4 million Europeans are already employed in the circular economy.

Despite the numerous benefits and lip service paid to the concept of a resource-ef-

Part of the solution to our unsustainable consumption patterns, which are currently based on extracting and discarding enormous amounts of “stuff” is a shift towards a resource-efficient circular economy.

This report looks at how the benefits of resource efficiency can be realised by German supermarkets. It concludes that the material reduction potential across the entire range of German supermarket products is about 20 percent. Most of it is achievable just by switching to more efficient products, while part of the solution lies in applying innovative approaches that move from a business model based on ownership to one based on the provision of services.

efficient circular economy by high-level politicians and company executives, progress seems slow and concrete actions and initiatives by market players are patchy. Companies are putting more and more “stuff” on the market despite the fact that more efficient alternatives exist. Indeed, adopting resource-efficient production is a simple, practical and no-regret option. But the lack of knowledge and consumer awareness, the inertia of market players, and regulatory barriers all prevent the potential benefits from being fully realised. A drastic change of approach is needed.

This report looks at how the benefits of resource efficiency can be realised by German supermarkets. It concludes that the material reduction potential across the entire range of German supermarket products is about 20 percent. Most of it is achievable just by switching to more efficient products, while part of the solution lies in applying innovative approaches that move from a business model based on ownership to one based on the provision of services. The switch can be done in several ways, either by adopting products from recycled materials, reducing packaging, or switching to more efficient products, such as compressed or compacted liquids. This would not only be good for the environment, but would also bring a range of other benefits, especially if it were to be rolled out across the entire economy: the report finds that increasing resource efficiency by 20 percent economy-wide would create almost 700,000 new jobs and reduce gross output prices by 4.3 percent by 2030. Lower production costs in manufacturing industries would help German firms become more competitive and result in a rise in exports of almost 5 percent, while imports would fall by 10 percent.

The research has also shown that most supermarkets are not aware of the benefits that resource efficiency would bring. Despite their strong market position – of the top ten European supermarkets, five are German – and the key role that they can play as the gate-keepers between producers and consumers, influencing the type of products that are put on the market, not one of the German supermarkets has any measures in place to address the resource efficiency of the products they sell. This has to change. The report ends with recommendations to the big five supermarkets to immediately replace their least efficient products with better alternatives, reduce packaging, and adopt concrete targets and measures to become more resource-efficient. The resource crisis that we are facing is urgent and supermarkets must immediately start playing their part to address it.

1. INTRODUCTION TO RESOURCE EFFICIENCY AND THE CIRCULAR ECONOMY

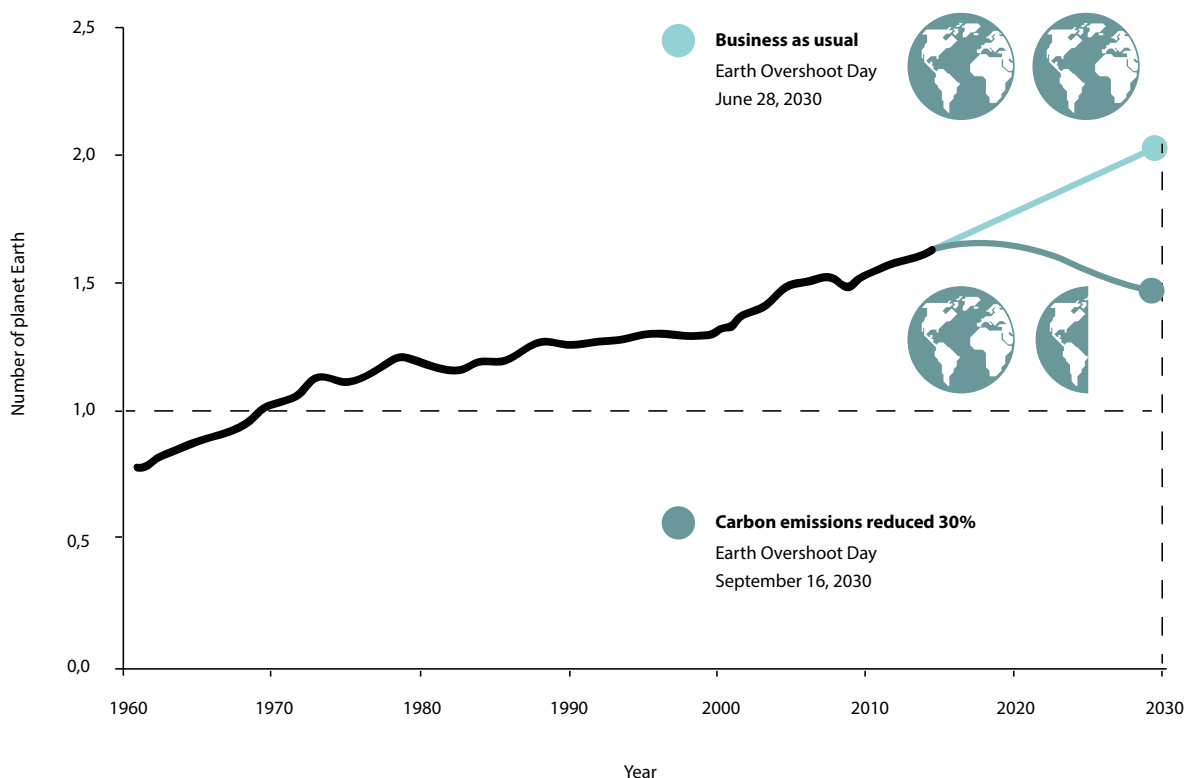
This chapter highlights the urgency of moving from a traditional take-make-consume-dispose approach to consumption towards a resource-efficient circular economy. It looks at current resource consumption and projected growth and shows that the trend has to be reversed in order to stay within planetary boundaries. Developed countries, such as Germany, must take the lead in becoming more resource-efficient. Resource efficiency is complementary to the circular economy and is a prerequisite for moving towards a truly sustainable future.

a. Why Resource Efficiency?

Humanity is currently using 1.5 times as many resources as the Earth can regenerate. If nothing changes, this number is projected to increase to the point where three to five planets-worth are being consumed by 2050 (Global Footprint Network, 2016). The result is resource depletion, collapse of fisheries, extinction of species, deforestation and rapid growth of CO₂ emissions and pollution. This overshoot is happening because we are cutting trees down faster than they grow, emitting more carbon than the planet can absorb and scooping fish up faster than the oceans can replenish stocks. This is clearly unsustainable and as we only have one planet, we must drastically change the way our economy operates, reverse our insatiable thirst for resources and do more with less.

Figure 1:
The need to cut resource use to stay within the planetary boundaries
(Global Footprint Network, 2016)

How many Earths does it take to support humanity ?



Developed countries consume many more resources than other parts of the world. Germany, for example, uses 2.6 times the amount of resources per capita that the Earth is able to regenerate, while per capita consumption in Bangladesh is well with-



BOX 1: MOVING FROM A LINEAR TO A CIRCULAR ECONOMY: THE EXAMPLE OF PLASTICS

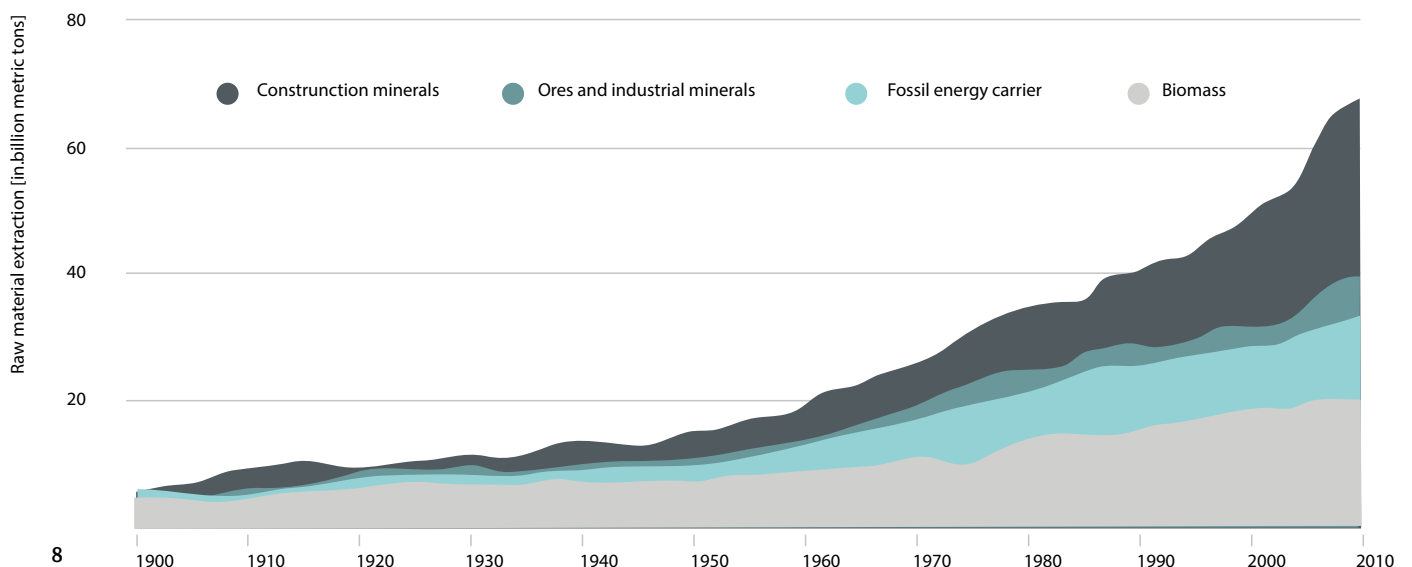
In January 2016, the Ellen MacArthur Foundation and McKinsey published the first comprehensive assessment of global plastic packaging flows and found that most plastic packaging is used only once. This means that 95 percent of the value of plastic packaging material, worth €73-110 billion annually, is lost to the economy. In addition to this, plastic packaging generates negative externalities, such as marine pollution, equivalent to €37 billion. Given projected growth in consumption, under a business-as-usual scenario, the oceans are expected to contain more plastics than fish by 2050. What is more, the plastics industry will consume 20 percent of total oil production and 15 percent of the annual carbon budget.

Source: Ellen MacArthur Foundation, 2016

in the boundaries of what our planet can sustain (WWF, 2014, p. 36-37). In effect, Germany operates an ecological deficit by importing raw materials and using the resources of other nations. In absolute terms, the ecological footprint of the world's top five countries by population (China, United States, India, Brazil and Russia) makes up about half of the global total, but per capita consumption shows a different picture with the highest ecological deficits operated by Kuwait and Qatar (*ibid.*). The over-use of resources by rich people has a disproportionate impact on the poor, who cannot pay for their resources to be imported from elsewhere. The less wealthy members of society are usually the ones who suffer the most from resource conflicts and wars, leading to migrations, famine and premature deaths.

Figure 2:
Growth in Global Materials Use
(Krausmann et al. 2009)

Growth in global materials use



In order to reverse this trend, we have to move away from the traditional take-make-consume-dispose approach towards a **circular economy** that respects environmental boundaries and reduces consumption of raw materials, energy, emissions and water. Innovations such as eco-design, the sharing economy and new business models that focus on reuse, repair and recycling will help to eliminate waste by closing the consumption loop. In the circular economy the use of resources is minimised, as they are used for as long as possible to extract maximum value and then recovered to regenerate materials at the end of a product's life. This is far from being a reality at the moment and it will be never 100 percent possible as some materials, for example most plastics, cannot be reused or recycled indefinitely.

This is why we must also drastically reduce the amount of resources we use. Optimisation of resources is called **resource efficiency** and is complementary to the circular economy concept. Being resource-efficient involves cutting resource use from the top of the value chain (basically making products with smaller amounts of resources) while at the same time moving towards more sustainable consumption patterns. Figure 2 shows how the use of material resources has grown over the 20th century, a trend that must be reversed. This approach does not represent an alternative to the circular economy, but should be seen as a necessary enabling tool to bring consumption back within the Earth's limits. Several Major Economy-led initiatives have sought to put resource efficiency and the circular economy squarely on the political agenda, but despite declarative support at the highest level, concrete actions and initiatives by market players are patchy. Companies are putting more and more "stuff" on the market despite the fact that more efficient alternatives exist. Indeed, adopting resource-efficient production is a simple, practical and no-regret option. By cutting waste across the economy, we can make reuse, recycling and waste reduction easier and cheaper to achieve.

This report has a special focus on how to achieve resource efficiency in the consumer goods products that are sold in our supermarkets - with the primary focus on the consumption of materials. Other resources, such as the use of water and land, are taken into account to the extent possible, as is the reduction of CO₂ emissions associated with the consumption on these goods. It focuses on Europe's economic powerhouse, Germany, where several of the major European supermarkets have headquarters and where the level of environmental awareness is already relatively high. The report argues that Germany can take a genuine lead in cutting its resource use and boosting a circular economy that goes beyond the rhetoric into concrete actions and measures, beginning with its supermarkets.

b. Circular economy and resource efficiency: multiple benefits

A circular economy is an alternative to a traditional linear economy, where resources are used only once and then disposed of. The ultimate goal is to create an economy based on natural substance life cycles and minimum resource use that will not be detrimental for other nations or for future generations (UBA, 2015). The circular economy concept also builds on the waste hierarchy principle, which is defined in EU legislation and ranks different options for dealing with waste. The best and no-re-

The best and no-regret option is to prevent waste by reducing the amount of materials that enter the economy in the first place. This can be done either by cutting consumption, reducing the amount of materials in consumer goods, making sure that these materials are recyclable and reusable so that they have a second life, and finally reducing unnecessary packaging.

WASTE HIERARCHY

Waste hierarchy ranks different options for dealing with waste. It emphasises the importance of preventing waste and increasing resource efficiency.

PREVENTION

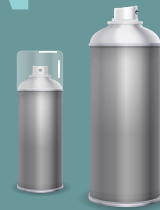
for example:



REDUCE
CONSUMPTION



REDUCE
MATERIALS
IN CONSUMER
GOODS



REDUCE
PACKAGING

REUSE

RECYCLING

ENERGY RECOVERY

DISPOSAL



gret option is to prevent waste by reducing the amount of materials that enter the economy in the first place. This can be done either by cutting consumption, reducing the amount of materials in consumer goods, making sure that these materials are recyclable and reusable so that they have a second life, and finally reducing unnecessary packaging. This report will focus on the first part of the waste hierarchy: cutting the use of resources before they enter the economy. One study has shown that 90 percent of the raw materials used in manufacturing become waste even before the product leaves the factory, while 80 percent of products made get thrown away within the first six months of their life (Perella, 2015). Putting a stop to waste at this stage of a product's lifecycle would bring us significantly closer to achieving a circular economy. The next step would be to reuse or recycle the products after we have stopped using them, followed by energy recovery. Only in cases where no other options exist should the product end up in landfill.

The benefits of moving from a linear to a resource-efficient circular economy are multiple. First, it is critical in terms of reducing the use of the "virgin" resources, i.e. resources that have not been used before, and in reducing dependence on imports. Europe, for example, is far from being self-sufficient, as it imports six times more materials and resources than it exports (EC, 2014, p.10-11). Access to raw materials is crucial for EU industry and 30 million jobs depend on the access to materials from outside the EU, some of which are considered as being critical. Secondly, as shown in a study by the Ellen MacArthur foundation (2015, p.15), the circular economy could lead to welfare gains, raising the disposable income of European households by as much as 11 per cent compared to the current trajectory while at the same time greatly benefitting the environment, with CO₂ emissions dropping by as much as 48 percent by 2030 and 83 percent by 2050 (compared to 2012 levels). And finally, by moving to a circular economy, Europe could create up to 3 million new jobs by 2030. According to WRAP (2015), there are already 3.4 million people employed in the circular economy, including in the repair, waste, recycling and rental sectors, across the EU. Unlike a lot of primary production, resellers and recycling firms are typically based geographically close to the market where their goods are sold, which is the reason why the circular economy creates so many local jobs (Ellen MacArthur Foundation, 2012).

Adopting resource efficiency as a guiding principle of production also brings sig-

BOX 2: CIRCULAR ECONOMY AND JOBS

By 2030, the expansion in circular economy has the potential to create 1.2 to 3 million jobs in Europe and reduce structural unemployment by around 250,000 to 520,000. According to the lower estimate, Germany would create the most jobs (328,000), with the UK in second (210,000) and Italy (154,000) in third. Already now more than 3.4 million Europeans are employed in circular economy.

Source: WRAP, 2015

BOX 3: THE EU CIRCULAR ECONOMY PACKAGE

The European Commission published a proposal for a legislative package on the circular economy in December 2015, but unfortunately it did not include any concrete measures on resource efficiency. The package has also been subject to criticism because the targets are less ambitious than those put forward previously in a proposal that was abandoned by the Juncker Commission as part of its "better regulation" agenda. For recycling of municipal waste, the new target is 65 percent, rather than 70 percent, which was the figure put forward in the previous package, and for packaging waste it is 75 percent rather than 80 percent - all by 2030. The Commission also failed to come forward with a specific resource efficiency target, despite the multiple benefits a target of this nature would bring. The proposal is now with the European Parliament and the Council and it remains to be seen how it will be translated into clear market signals for business actors in different sectors.

Source: Euractiv, 2015

nificant benefits. In fact, numerous studies show that the adoption of resource efficiency measures would bring economic benefits to companies that implement them almost immediately. Across industry, the net benefits for business from improved resource efficiency could be in the range of 3 percent to 8 percent of annual turnover (based on the economic opportunities for businesses in three sectors: food and drink manufacturing, fabricated metal products, and hospitality and food services) (EC, 2014, p. 12). On the macroeconomic level, setting a resource productivity target of 30 percent for the entire EU by 2030 could boost GDP by nearly 1 percent, and create over 2 million jobs, compared to the business-as-usual scenario (EC, 2014, p. 15).

c. Barriers to the resource-efficient circular economy

Despite the multiple benefits that resource savings bring, they will not happen automatically. We already consume 1.5 times more than the Earth can sustainably provide, so it is clear that the economy is unable to self-correct to limit consumption to a level that is on a par with environmental boundaries. Government intervention, innovation and pioneering behaviour by responsible companies will be key to ensuring that we move in the right direction. The obstacles standing in the way of a resource efficient circular economy are: entry barriers for innovative projects and products, such as regulatory barriers in terms of take-back of products and packaging; lack of information about savings potential and future demand for innovations; and finally, incumbent market players blocking the way to new market entrants (EC, 2014, page 11). Lack of knowledge is also an issue: a recent survey of nearly 300 small businesses across England, France and Belgium found almost 50 percent had not heard of the circular economy concept (Perella, 2015). These barriers should be overcome through rapid action by all market players and regulators. This report will focus on how this can be done for the consumer goods sector in Germany.

2. IS GERMANY REALLY EFFICIENT? OVERVIEW OF POLICY AND PRACTICE.

The German economy is highly export-oriented with a strong focus on the manufacturing industry, such as the automotive and mechanical engineering sectors. However, the ability to produce products for export depends on the availability of raw materials and most of these have to be imported from outside Germany. As a result of this and growing concerns about sustainability, resource efficiency and decoupling the country's dependence on imported resources appear to be key priorities for the Federal Government, which has put in place a resource productivity target and a number of measures relating to waste management in the framework of German circular economy legislation. However, in practice consumption of resources is still on the rise and Germany is the fifth country in Europe in terms of per capita waste creation. A significant quantity of waste is also incinerated, which is not in line with the European waste hierarchy (see introduction), but seems to be a default option due to incineration overcapacity and perverse price incentives.

Germany is seen as a world leader when it comes to resource efficiency and waste policies: it is one of the few countries in the world with a resource productivity target, it has an aim to decouple waste generation and resource use from economic growth, and it is seen as a European leader in waste management with 48 percent recycling, 18 percent composting, and 34 percent incineration rates for municipal waste. By way of comparison, the average EU recycling rate is 40 percent. Taking into account non-municipal waste streams, the total recycling rate in Germany reaches nearly 70 percent - mainly due to the high rates for construction and demolition waste.

However, a closer look at the facts about resource use and waste per capita reveals that Germany is not performing that well: absolute resource consumption per capita is more than 50 tonnes per year per capita, which is well above the fair and sustainable 6 tonnes per person per year that was calculated by international scientists to stay within the earth's limits (*Rat für Nachhaltige Entwicklung*, 2011). In Germany, resource consumption relating to Fast Moving Consumer Goods (goods that are purchased frequently from supermarkets) alone is already more than 10 tonnes per person (Wilts et al., 2016, p. 34). In comparison: material use per capita for the African continent is only 5 tonnes per person per year on average (UBA, 2013, p.2). Using smaller quantities of materials is not just about the environment, it is also an issue of equity and environmental justice.

Municipal waste generation was 617 kg per year per German citizen in 2013, which is well above the EU average of 481 kg per year (Eurostat, 2015). This makes Germany the biggest waste generator in the EU, and if looked at waste per person, the fifth biggest. For the amount of packaging waste per capita, Germany even has the dubious title of European champion. In order to unravel this contradiction, it is necessary to look at how resource efficiency and waste treatment are dealt with in German policies, and how these policies are implemented in practice.

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a. German policy and legal framework

Historically, waste infrastructures were established in order to ensure the disposal of waste in a cheap, reliable and – starting in the 1970s – an environmentally friendly way. Waste was seen as a potential threat to human health and it was therefore regarded as the responsibility of the public authorities to handle it – either by disposing of it in landfill sites outside cities and towns or burning it in waste incineration plants. This regime of waste disposal with all its embedded technical infrastructure, governance structures and behavioural patterns was and still is focused on one purpose: preventing society from drowning in waste (Wilts et al, 2016, p.8). It is only in recent years that waste has become considered as a resource and governments have tried to transform the way it is dealt with by introducing the principles of waste hierarchy and circular economy. The means that the focus is slowly shifting away from waste management towards resource optimisation instead.

Germany's resource efficiency policies

Germany's resource efficiency policy framework is based on three pillars, namely its: National Sustainability Strategy, Raw Materials Strategy and Resource Efficiency Programme (ProgRes). The target of doubling resource productivity by 2020 (compared to the 1994 baseline) has been embedded in Germany's National Sustainability Strategy since 2002. It is measured by the amount of resources needed to create one euro of Gross Domestic Product (GDP).

Germany has a target of doubling resource productivity by 2020, but this target is not binding and the way it is measured fails to lock in lower resource consumption.

While the existence of a resource efficiency target is an important step, the target is not binding and the way it is measured fails to lock in lower resource consumption. First of all, most experts and civil society representatives have been critical about the fact that resource use is measured relative to GDP and not in absolute terms (see e.g. BUND, 2015, p.3 and NABU et al., 2013). This approach does not address overconsumption, because resource use can still grow in step with rising GDP. It would be better to measure it in absolute terms, and in relation to the population (per capita). Secondly, the target is measured in terms of domestic materials consumption and does not correctly address the import of the materials on which Germany is reliant. Using this methodology, imports and exports are recorded as the actual weight of the traded goods when they cross country borders instead of the weight of materials extracted to produce them, which would be a more accurate way of looking at resource consumption. The total amount of raw materials needed to produce manufactured products is several times greater than the weight of the products themselves. Using the indicator that only measures domestic consumption per unit of GDP, Germany is the 8th most resource-productive country in the EU – just above the EU average. However, when using a more comprehensive type of measurement per capita, a completely different picture emerges, making Germany one of the countries with the highest total material use per inhabitant (Wilts, 2016, p.35).

Even with weak accounting, the German government is set to miss its resource efficiency target by almost 20 percent (BMUB, 2015, p.23). This is no doubt related to the lack of any kind of binding measures for specific sectors of the economy. To understand this better, we have to look in more detail at Germany's National Resource

Efficiency Programme (ProgRess), which was adopted in 2012 to help meet the government's resource productivity target. It aims at sustainable extraction and use of natural resources and a reduction of the associated environmental burden. The focus is on information tools to enable key actors to recognise and realise resource efficiency potentials. The main focus of ProgRess I has been on voluntary initiatives and platforms, such as the VDI Centre for Resource Efficiency (VDI ZRE) which also acts as the agency of the "Resource Efficiency Network", aiming to ensure integration of resource efficiency in business practices. The drafts of ProgRess II are currently under discussion and will likely be decided upon by the government in early 2016. While welcomed for the policy continuity and multi-disciplinary approach they offer, the new proposals have been criticised for failing to set a quantitative target for the period after 2020 and for again relying solely on soft measures. Indeed, more concrete and market-based measures such as product-specific indicators and targets as well as tax reforms have already been dropped.

German resource efficiency laws

In addition to the non-binding ProgRess initiative, the main binding piece of legislation for dealing with waste and resources is the *Kreislaufwirtschaftsgesetz* (circular economy law). It lays down the principles of the circular economy and waste hierarchy, and enshrines the prioritisation of waste prevention over reuse, recycling, (energy) recovery and disposal. Nevertheless, to date neither this law, nor any German or EU regulation, contains a target for the prevention or reuse of waste. Prevention of waste through increased resource efficiency and "designing waste out" of products remains voluntary. This means that the economic benefits that better use of resources could bring, are not being reaped.

Unlike the non-binding goals it sets for waste production and reuse, the *Kreislaufwirtschaftsgesetz* does set concrete targets for recycling, laying down that at least 65 percent of paper, metal, plastic and glass, and at least 70 percent of construction and demolition materials should be recycled by 2020 (§ 14 KrWG). Currently, Germany recycles and composts 65 percent and incinerates 35 percent of municipal waste, while sending municipal waste to landfill is close to zero. With these numbers, Germany is regarded a frontrunner in Europe, where the average is 42 percent recycling and composting, 34 percent landfill and 24 percent incineration.

Another important waste law is the Packaging Ordinance (*Verpackungsverordnung*). This law determines how packaging waste is dealt with. It uses market-based instruments such as a deposit system for bottles (see also Box 4). It also forces producers and retailers to take back packaging waste and pay for waste treatment. It therefore places the responsibility for the waste treatment of packaging with the producer (also referred to as extended producer responsibility). Via a system called the *Grüne*

German Resource efficiency programme: From ProgRess I (2012) to ProgRess II (2016)

Focus in ProgRess I : 2012 - 2015

- **20 strategic approaches - e.g. consumption** - public awareness, resource efficiency as criterion for trade and consumer, certification systems for raw materials, public procurement

Focus in ProgRess II : 2016 -2019

- **10 action approaches** - Supply of raw materials, resource-efficient production, resource-efficient products and consumption, resource-efficient circular economy, sustainable construction and sustainable urban development, resource-efficient ICT, overarching instruments, synergies with other policy areas, support of resource policy at local and regional level, strengthening of resource policy at EU and international level
- **In total 124 qualitative proposals for measures** when the waste policy and the construction relates programme was expanded.

Table 1: Development of German Resource Efficiency Programme



BOX 4: BOTTLE REUSE IN GERMANY: THE IMPACT OF DISCOUNTERS AND COCA COLA

Germany has the most developed system for reusing and recycling bottles and cans in the world. Under the scheme, single use containers are recycled – if returned to the store – (Einweg) and reusable containers are refilled (Mehrweg). There is a mandatory deposit for both Einweg and Mehrweg for beer, water and soft drink containers but it is not mandatory for fruit juice, milk and wine. Mehrweg bottles are much more resource-efficient, as they can be refilled up to 50 times (glass) and 25 times (plastic). Germany's Packaging Ordinance has a target of increasing their use to 80%. However, owing to changes in the system in recent years, including labelling, German consumers are increasingly confused about what gets reused or recycled. At present only 50% of bottles are Mehrweg, which is likely to decline further with Coca Cola's recent decision to shift to Einweg. The goal of the packaging ordinance will continue to remain out of reach unless the benefits of Mehrweg over Einweg become more clear for consumers (e.g. legally binding labelling scheme) and producers (extra levy on Einweg containers besides the deposit). Supermarkets can have a direct impact by selling only Mehrweg containers for beer, water and soft drinks. Large discounters, such as Aldi and Lidl currently refuse to sell Mehrweg bottles, thereby undermining the system.

Source: DUH, 2015

Punkt (green point), producers pay in advance for the waste (reuse, recycling or incineration) treatment of their packaging. This should make packaging more resource-efficient as the producers pay according to the volume of waste generated. In the early years of the scheme, packaging volumes did indeed drop but in recent years the use of packaging has been on the rise again (BUND, 2015, p. 37). The *Grüne Punkt* system has been criticised as it enables producers to buy their way out of their responsibility, has free riders and *de facto* does not involve producers in the waste treatment process but leaves the burden on municipalities. These issues are not properly tackled in the draft of the *Wertstoffgesetz* (valuable materials law), which is slated to replace the *Verpackungsverordnung* soon.

b. German waste paradox?

Germany remains a high generator of waste for several reasons. The first is that its policies do not go far enough: they are rarely binding on companies and the incentives are not formulated in such a way that they reward the uptake of the most resource-efficient products or respect the waste hierarchy. Companies are simply encouraged and not obliged to reduce the amount of resources they use. A more ef-

fective approach would be to introduce a legally-binding resource efficiency target accompanied by market incentives, such as differentiated taxes or fees according to the amount of resources used, and reusability and recyclability of the product placed on the market (e.g. via VAT).

There are other problems with existing policies and laws. First of all, the method used to calculate recycling volumes has been criticised on the grounds that it leads to unrealistically high recycling rates in Germany. This is because the total amount brought to recycling plants is counted as recycled material, regardless of how much of it is lost during the recycling process. Secondly, Germany is one of the few countries where “backfilling” (*Verfüllung*), i.e. putting waste in old mines is defined as “recycling”. Finally, part of the claimed progress in terms of resource productivity and waste reduction by the German government is based on the relocation of waste-intensive industries. Waste related to German consumption is increasingly generated abroad, often in countries with much lower environmental standards and less developed waste infrastructures (Wilts and von Gries, 2014).

Another issue is the overcapacity of incineration facilities, which convert waste to energy. In 2013, 68 waste incineration facilities with a capacity of almost 20 million tonnes were available in Germany for the treatment of residual waste. Moreover, 5.4 million tonnes of incineration capacity are available in 35 refuse-derived fuel power plants (Prognos, 2014). This leads to total incineration capacity of 300 kg per German resident. Considering the average generation of waste of 617 kg per capita, this means the available capacity for the incineration treatment option is almost 50 percent. While this figure only takes into account municipal waste, it clearly shows that there is significant overcapacity, which makes burning waste cheap. In some cases, it can be cheaper to burn waste in an incineration facility rather than respecting the waste hierarchy, as recycling can be more expensive (Wilts et al., 2016). In addition to this, the *Kreislaufwirtschaftsgesetz* puts the burning of waste with a high heating value (that is, waste that delivers a lot of energy when burned) on an equal footing with recycling this waste. For these reasons, Germany continues to incinerate a significant share of recyclable materials.

In conclusion, despite its extensive legal and policy framework on waste and resource management, Germany still does not use resources as efficiently as it could. This contradiction can be explained by the misleading way in which recycling rates are calculated, the (re)location of industries related to German consumption abroad, overcapacity of waste incineration and finally the lack of binding measures, including a binding target for companies and market-based instruments such as a higher tax on raw materials or resource-inefficient products, to incentivise a reduction in the use of resources right at the beginning of the production process.

Germany remains a high waste generator, because its policies do not go far enough: they are rarely binding on companies and the incentives are not formulated in such a way that they reward the uptake of the most resource-efficient products or respect the waste hierarchy.

RESOURCE EFFICIENCY POLICY FRAMEWORK

EU POLICY FRAMEWORK

RESOURCE EFFICIENCY FLAGSHIP OF THE EUROPE 2020 STRATEGY

CIRCULAR ECONOMY PACKAGE

Will set inter alia targets and incentives on recycling and landfill

DIRECTIVES

e.g Waste Framework Directive, Ecodesign Directive, Directive on Waste, Directive on Packaging Waste, Directive on Landfill, Directive on Electrical and Electronic Waste

GERMAN POLICY FRAMEWORK

NATIONAL SUSTAINABILITY STRATEGY

Sets inter alia resource productivity target

ProgRess I

Programme on Resource Efficiency sets voluntary guidelines to reach the resource resource productivity target

Raw Material Strategy

ProgRess II

Extension of ProgRess I

Policy framework is input for legal framework

LAWS

Kreislaufwirtschaftsgesetz

(Circular Economy law)

Establishes the waste hierarchy in theory and sets recycling targets

Wertstoffgesetz

ORDINANCES

Verpackungsverordnung

(Packaging Ordinance)

Determines inter alia producer responsibility for packaging and bottle reuse system

Other Ordinances

e.g. Elektrogeräteverordnung (Electronic Appliances Ordinance)

3. SUPERMARKETS UNDER THE MICROSCOPE

This chapter zooms in on the German consumer goods market, and looks specifically at Fast Moving Consumer Goods (FMCG), which can be bought at supermarkets. The German FMCG market is characterised by five big supermarkets which control almost the entire market. Discounters make up nearly half of the market, with German consumers demonstrating a distinct preference for low-cost goods. However, in recent years, consumers have increasingly purchased quality and more sustainable products, such as organic and locally sourced food. Resource efficiency is, however, still an undervalued issue - as results from a recent Rank a Brand study show - and action from supermarkets is lacking on this front.

a. Daily shopping habits in Germany

Products available for purchase in supermarkets are also called Fast Moving Consumer Goods (FMCG). In 2014, this market was worth nearly €124 billion in Germany alone (Nielsen, 2016 and IKW, IRI, 2016). It can be divided into two groups: food and non-food products, such as personal hygiene, cleaning products, etc. Turnover relating to food products was €106 billion and €17.9 billion for personal hygiene and cleaning products (*ibid.*).

Although Germans spend a relatively small share of their money - about 14 percent of their consumption expenditure - on food and drink products, 37 percent of materials consumed by households are consumer goods (*Statistisches Bundesamt*, 2016 and Wilts et al., 2016). The majority of these materials (60 percent) are needed for food and drink production (Wilts 2016, p.32), which means that FMCG, and especially food and drink products, are very resource-intensive. Demand for consumer goods has increased by more than 50 percent from €280 billion to €437 billion from 2004 to 2014 (Metro, 2014, p.96). The companies involved in these sales are also making more money: food-based revenue has increased by 20.2 percent in the last 10 years, although this is partly down to higher food prices. Non-food based revenue went up by 8.2 percent.

On average, German consumers made 153 trips to stores to buy FMCG - that is almost every other day. The majority (44 percent) of the trips were to discounters, the remaining were to big convenience stores (19 percent), smaller convenience stores (15 percent), supermarkets (12 percent), and drugstores (10 percent) (Nielsen, 2016).

Discounters offer a limited assortment of products, low prices and very few services. It is not a coincidence that the concept was invented in Germany; German consumers love to get a good deal. At the same time, German consumers display a high awareness of sustainable production and consumption: 86 percent of Germans are 'somewhat' to 'highly' familiar with sustainability, and out of this group 77 percent find it important that products and services are produced in a sustainable manner. Awareness of resource efficiency is somewhat smaller: only 15 percent of people think of 'saving resources' when asked about sustainability (GfK, 2015a). Recent research also

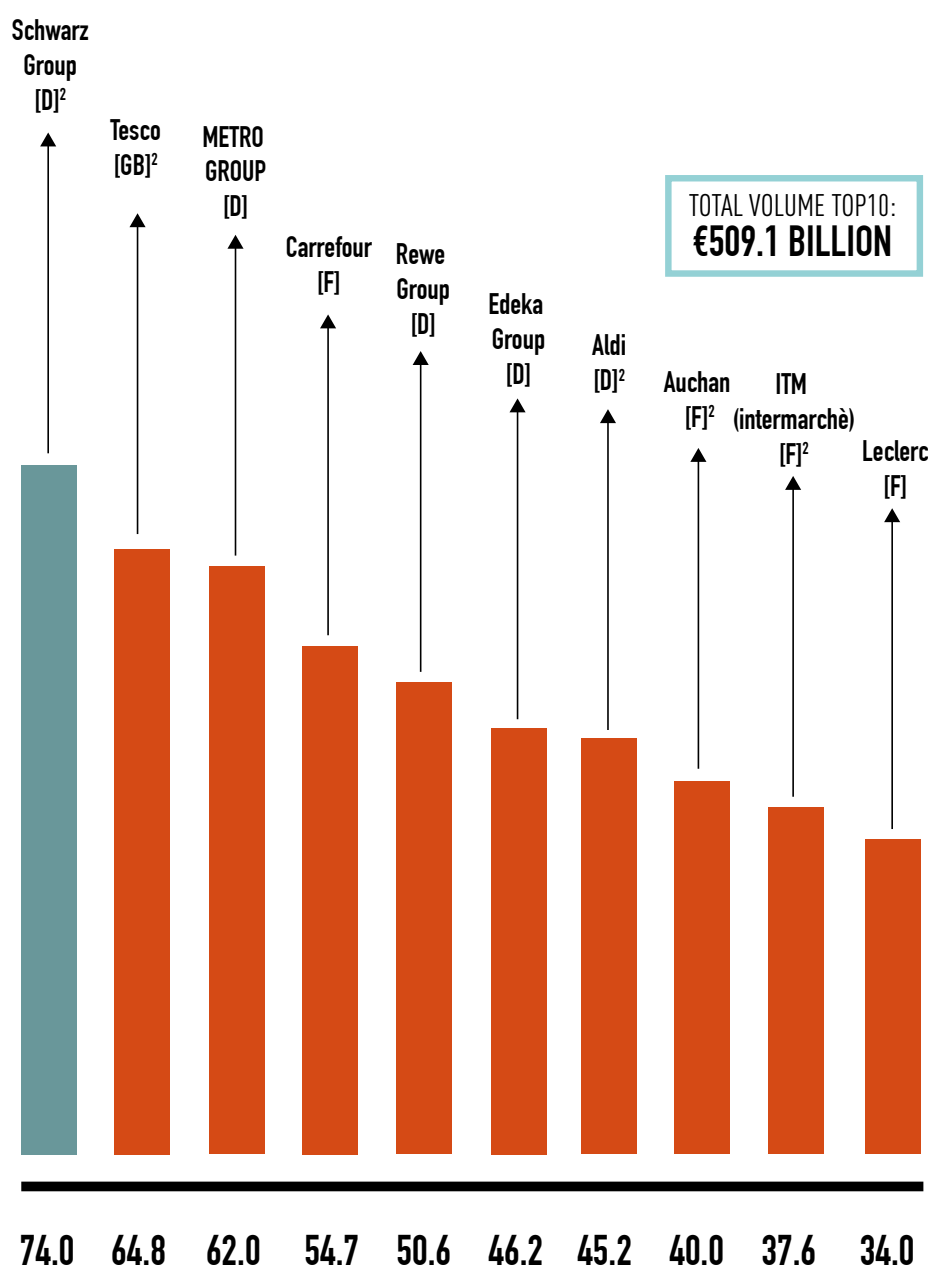
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shows that consumers are increasingly interested in quality in addition to price (GfK 2015b and WDR, 2015). Organic products seem to be highest on their agenda: from 2000 to 2014 the market for organic food grew by 277 percent (Statista, 2014). While organic products can be more resource-efficient, this is not always the case: a lot depends on how they are produced. Nevertheless, growing demand for organic food shows increasing consumer consciousness about how products, and especially food, are produced. Fair trade products are also increasing in popularity, with 26 percent growth in 2014 alone (Euractiv, 2015).

THE 10 LARGEST FOOD RETAILERS IN EUROPE, 2013

NET SALES IN € BILLION



b. German supermarkets

German supermarkets are extremely powerful. They control the entire German FMCG market and there is almost no foreign competition: the 10 largest food retailers in Germany are German (Metro, 2015, p. 110). German supermarket chains are also dominant on the European market. Out of the 10 largest European food retail groups, 5 are German: Schwarz Gruppe, Metro Group, REWE Group, Edeka Group, and Aldi (Metro, 2015, p. 136). Lidl, part of the Schwarz Gruppe, has the largest international presence with shops in 26 countries.

Retailers hold an important 'gate-keeping' position between producers and consumers: they decide which products are sold in their stores and they can inform and influence consumer choice. Because of their size, German supermarkets have enormous purchasing power and influence over suppliers. As German supermarkets also sell own-brand products, they have direct responsibility over these products. Moreover, they are responsible for a gigantic environmental and material footprint globally through their supply chains. Any decisions that they make with regard to sustainability go well beyond German borders.

c. German supermarkets and sustainability

While fair trade and sustainable products are more in demand and supermarkets are increasingly communicating with their customers on these themes, concrete and tangible measures are lacking in many areas. According to Rank a Brand's 2015 ranking of supermarkets, all supermarkets report some environmental measures, although Aldi Süd and Lidl's only activity in this regard is to use recycled paper for their marketing leaflets. Most of the supermarkets report on energy efficiency, fish, animal well-being and palm oil the most. With the exception of Aldi Nord, all supermarkets in the ranking also report on at least one climate change measure. But most supermarkets have almost no commitments or reporting on resource efficiency, packaging, renewable energy and fair trade issues. The next section takes an in-depth look at the resource efficiency measures implemented by German supermarkets. Rank a Brand study is focused on how supermarkets communicate about

BOX 5: SUPERMARKET INITIATIVES IN OTHER COUNTRIES: COURTAULD COMMITMENT IN THE UK

In the UK, a group of over more than 40 major retailers, brands, manufacturers and suppliers have signed a voluntary agreement aimed at improving resource efficiency and reducing waste within the UK grocery sector. The agreement is government-funded and supports the UK government's policy goal of a 'zero waste economy' and the country's target to reduce greenhouse gas emissions. Although NGOs have criticised the agreement on the grounds that it is voluntary with no firm targets for the amount of waste to be cut, the government claims that waste has been cut by 2.9 million tonnes and packaging has been reduced by 10 percent. The third phase of the Agreement also included a target to reduce grocery ingredients, product and packaging waste in the grocery supply chain by 3 percent by 2015.

Source: WRAP, 2015b

BOX 6: REPORTING ON MATERIAL USE

There is increasing demand for corporate sustainability reporting. Next to financial indicators, non-financial statistics on social and environmental performance (such as CO2 emissions and labour standards) are increasingly valued by consumers, investors and civil society. From the beginning of 2017, the EU Directive on disclosure of non-financial and diversity information will require all large public-interest entities, like the five big German supermarket chains, to disclose key non-financial performance indicators using one of the recognised reporting standards. There are several internationally recognised standards, such as the Global Reporting Initiative (GRI) on environmental sustainability, ISO 26000, and the UN Global Compact on social responsibility. Germany has established its own Sustainability Code (Nachhaltigkeitscodex), which fulfills the EU criteria.

The GRI and the German Sustainability Code require companies to report on total material use and resource use respectively. However, even though guidelines on measuring resource and material use already exist, none of the German supermarkets has been willing or able to report on these to date.

Source: GRI, 2013, EC, 2016, Rat für Nachhaltige Entwicklung, 2015

What do supermarkets do on resource efficiency?

GENERAL SUPERMARKET RANKING 2015

 **ALNATURA®**

 **denns**
BIOMARKET

 **BIO COMPANY®**

 **REWE**

 **PENNY.**

 **real-**

 **Netto**
Marken-Discount

 **EDEKA**

 **Kaufland**

 **ALDI**

 **ALDI**
MARKET

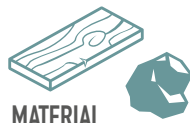
 **LIDL**

 **KAISER'S**

 **SPAR**

Resource efficiency related questions

Do supermarkets have a policy on...


MATERIAL
EFFICIENCY OF
PRODUCTS

1


(FOOD) WASTE

2


TRANSPORT
PACKAGING AND
CARRIER BAGS

3


PAPER
PACKAGING

4

?	YES	?	?
?	?	?	?
?	?	?	?
?	YES	?	?
?	YES	?	?
?	YES	?	?
?	?	?	?
?	?	?	?
?	?	?	?
?	?	?	?
?	?	?	NO
?	?	?	?
?	?	?	?
?	?	?	?
?	?	?	?
?	?	?	?

(1) Does the brand (company) have an effective policy to reduce the overall resource/material use embedded in the products it sells?

(2) Does the brand (company) have clear objectives to minimize (food) waste, by reducing, re-using and recycling, and does the brand annually report the results?

(3) Does the brand (company) have clear objectives to minimize the environmental impact of its shipping packaging and carrier bags, by reducing, re-using, recycling and responsible sourcing of packaging materials, and does the brand annually report on these results?

(4) Does the brand have an environmental policy for the use of paper for primary and secondary product packaging and hygiene products of its store brands? Are all those paper materials recycled and / or certified?

BOX 7: EXAMPLE OF EFFECTIVE REGULATION: A CHARGE ON PLASTIC BAGS

In 2015, England became the latest European country to introduce plastic bag charges in an effort to minimise its impact on the environment, reduce litter and protect wildlife. From 5th October 2015, a 5 pence (7 euro cent) charge has been placed on polyethylene bags. Wales, Scotland and Northern Ireland already had a charge and it has made a significant impact. Wales began charging 5p for carrier bags in 2011, which has resulted in a 71% reduction in their usage since then. Since the introduction of the charge in England, there has been an almost 80% drop in the number of bags taken home from supermarkets, according to the biggest UK retailer, Tesco. It is estimated that 100 billion plastic carrier bags are used across Europe per year, with 8 billion ending up as litter. Supermarkets could also make a much bigger difference by phasing plastic bags out altogether, while regulators could also encourage charges on product packaging to incentivise products with less packaging.

Source: The Telegraph, 2015, European Commission, 2015

their policies and actions. For the purpose of this report we have assumed, if a supermarket does not communicate about their actions, they do not take any actions.

d. In depth: Supermarkets' resource policies

Rank a Brand's analysis shows that resource efficiency, and especially material resource efficiency, is not yet on the radar of German supermarkets. No supermarket has an effective policy to reduce the overall material resource use embedded in the products it sells. None of the German supermarkets are even measuring material use in the products that they put on the market. Even REWE and Real, which write their sustainability reports according to the Global Reporting Initiative guidelines – see Box 6 – that stipulates a metric on total material use as part of its reporting requirements, do not report on total material use. The only reference to material efficiency is a weak acknowledgment by REWE that it should report on this criterion, but it has not yet managed to do so. REWE sells goods under the Pro Planet label, which is designed to make it easier for consumers to choose sustainable and fair products. The

Pro Planet process has five steps including a “hotspot analysis” in which resource use and four other criteria are researched. This is a start, but it does not require a benchmark or target related to absolute resource and material use reduction for each labelled product. Moreover, the label has not yet been adopted across all product groups.

In addition to the lack of an overarching policy to reduce resource use, supermarkets also score badly on other resource efficiency aspects. Only four out of 14 supermarkets (REWE, Alnatura, Penny and Real) have a policy and report yearly on how they minimise waste and food waste, by reducing, re-using and recycling it. For shipping, packaging and carrier bags, none of the brands report annually on the steps they are taking to minimise their environmental impact by reducing, re-using, recycling and sourcing packaging materials responsibly. What is more, none of the supermarkets use only recycled or certified paper for primary and secondary product packaging and own-brand hygiene products.

4. CUTTING THE CRAP IS A GOOD PLACE TO START

Using ten product examples, this chapter will demonstrate the resource efficiency potential for each product and how to reach it – from compression to repairability. Calculations by the Wuppertal Institute show that on the basis of these examples, the material reduction potential across the entire range of supermarket products is about 20 percent. A large part of this potential can be realised immediately, if supermarkets were to stop selling the least efficient products. Supermarkets should also take action to demand information from their suppliers and introduce concrete targets on reducing materials and resources in products they place on the market. This would not just good for the environment, but would also bring a range of other benefits, especially if it were to be rolled out across the economy. Increasing resource efficiency in Germany by 20 percent would create almost 700,000 new jobs and lower costs by 4.3 percent by 2030. Lower production costs in manufacturing industries would help make the German economy more competitive: exports would rise by almost 5 percent, while imports would fall by 10 percent.

a. The potential for reducing material use in the supermarket sector

The Wuppertal Institute has examined a range of products sold in supermarkets from deodorant to apples, to investigate their material reduction potential. On the basis of these findings, the resource savings potential across the entire range of supermarket products is estimated at about 20 percent.

There are a number of ways of reaching this savings potential, which are related to the different steps in the waste hierarchy. These range from reducing materials in goods while keeping their functionality, reducing packaging, extending the lifetime of products and using more recycled materials to inventing new business models. Each of these methods is explained using concrete product examples below - together with the estimated material and resource savings they can bring. It is important to note that while the relative benefits of options that rank lower down the waste hierarchy (e.g. recycling, energy recovery and landfill) are well studied, the environmental and economic impacts of re-use and repairability, are not as well understood. Resource savings through product innovations and new business models are not predictable in advance, but on the basis of existing examples an estimation is made.

5 WAYS TO REDUCE MATERIALS IN SUPERMARKET PRODUCTS:

- **Reduce materials through product innovation: compression and concentration**

A first and obvious approach is to reduce the resource requirements of the product while keeping or even improving the functionality of the product. This requires product innovation. Examples are the compression of deodorants and concentration of detergents. Such solutions can be considered as a first and often rather incremental approach to more resource-efficient products, and resource savings are in the range of 10-15 percent for such product innovations (Wilts et al., 2016, p.37).

- **Reduce or eliminate packaging**

Many food and non-food products available in supermarkets are sold in plastic and paper packages, which are often superfluous. Moreover, the packaging is often 'complex', which means it consists of different materials, which makes recycling and waste separation difficult. Consumers are rarely presented with the option of buying packaging-free products. As seen in



Chapter 2, the Germans are the European champions of packaging waste per capita (see also chapter 2). While packaging can prevent the generation of food waste, the use of plastics is not necessary for all goods. This is especially true in the case of fresh products like fruit, where the use of plastics can be reduced or eliminated. What is more, a recent survey shows that 76 percent of Germans prefer packaging-free fruits and vegetables (NABU, 2015). Packaging saving potentials vary per product group, but if the entire FMCG industry were to move to the "best in class" solutions, packaging could be reduced by up to 80 percent. Of course packaging is only one element of the product and the resource reduction which comes from reducing or eliminating packaging will only affect that part of the product (for example, producing an apple is usually more resource intensive than producing the packaging around it) (Wilts et al. 2016, p.38).

- **Extend the lifetime of a product by reuse and repair**

Extending the lifetime of products leads to resource and waste savings because fewer new products are needed if existing products can be used for longer. In FMCG, reuse mainly exists in relation to soft drink bottles. Despite its environmental benefits, the share of reusable bottles in Germany has dropped from 70 percent to 50 percent in recent years (Deutschlandfunk, 2014).

Repairing goods has gained more traction of late, e.g. through initiatives such as "*Murks, nein Danke*". Yet currently, the repair of goods such as lap-

tops and smartphones is almost impossible owing to their complex design, and lack of publicly available information on how to fix them.

Research (e.g. Bakker et al., 2014 and James, 2014) shows that the benefits of reuse and repairability are clearly product- and context-specific but nevertheless significant and resource savings are estimated to be in the range of 20-50 percent.

- **Use more recycled materials**

Increasing the use of recycled materials, reduces the need for extracting new materials from the Earth. Moreover, recycling normally requires less energy than the extraction of resources. Recycled toilet paper is an established example of recycled materials available on the FMCG market. However, even though the share of recycled paper is rising overall, its use in hygiene products dropped from 77 percent in 2001 to 51 percent in 2012 (Greenpeace, 2013).

The resource savings from using recycled materials differ depending on the type of material: for paper, the use of water and wood could be reduced by more than 50 percent (IPR, 2015). For plastics, depending on the specific products and plastic types, savings are in the range of 10-50 percent. Especially high savings can be achieved by using recycled metals, with resource reductions of up to 80 percent. On average the overall resource saving potential for FMCG related to recycling can be estimated to be in the range of 20-50 percent (Wilts et al., 2016, p.39).

- **Adopt new, more sustainable business models**

New business models that build upon circularity and reuse, such as the “product as a service” model, are becoming increasingly popular. This means that the supplier remains the owner of the product, and the customer only leases the service. This stimulates design geared towards optimal reuse and recycling. For instance, instead of buying a lamp, it is also possible to buy a monthly lighting service. The supplier provides lighting equipment, and takes care of the materials and product, including disposal. Supermarkets can play an important role here, and this fits the trend currently witnessed in the retail sector towards offering more services to customers. The more the focus switches from products to services, where the producer keeps the property rights over the product, the higher the potential for environmental improvements. On average, resource savings are estimated to be in the range of 20-50 percent (Tukker, 2004).



10 EXAMPLES OF MATERIAL EFFICIENCY SAVINGS PER PRODUCT

	CONVENTIONAL OR RESOURCE-INEFFICIENT PRODUCT	RESOURCE-EFFICIENT ALTERNATIVE	WHAT DOES IT SAVE?
REDUCE MATERIALS THROUGH PRODUCT INNOVATION			
DETERGENT	 BIG DETERGENT	 CONCENTRATED DETERGENT	Material savings through less ingredient and less packaging can reach up to 50%
DEODORANT	 LARGE DEODORANT	 COMPRESSED DEODORANT	20% aluminium savings and 50% propellant savings (equivalent to 25% of product-related CO2 emissions) savings per can
USING MORE RECYCLED MATERIALS			
TOILET PAPER	 WHITE TOILET PAPER	 RECYCLED TOILET PAPER	Producing recycled paper enables a 70% reduction in input materials, cuts energy use by 60% and water use by 70%, and causes less waste and fewer CO2 and other emissions in production
BUCKETS	 BUCKET	 BUCKET	100% virgin material savings and total resource savings of around 20%
ADOPTING NEW, MORE SUSTAINABLE BUSINESS MODELS			
JEANS	 JEANS	 JEANS	The leasing concept enables an 80% reduction in materials. Water use associated with the production of leased jeans is only 10% of the water use associated with the purchase of a new product.
LED LIGHTING	 'OLD' LIGHT	 LED LIGHT	When selling light as a service, the supplier is inclined to use LED as its the most efficient equipment. LED lights can be used 25 to 30 times longer than an incandescent light and 3 times longer than compact Fluorescent Lamps (CFL). Material savings are in the order of 60-90%
REDUCE OR ELIMINATE PACKAGING			
FRUIT	 PACKAGED APPLE	 APPLE	Up to 80% materials can be saved if only "best in class" solutions are used
CERIAL	 BOX	 CEREAL IN BULK	The use of bulk bins can reduce packaging by up to 70%
EXTENDING THE LIFETIME OF A PRODUCT BY REUSE AND REPAIR			
SODA/WATER BOTTLES	 EINWEG	 MEHRWEG	Reusable bottles get refilled up to 50 times (glass) or 25 times (PET plastic). Up to 70% of the input materials and 40% of CO2 emissions can be saved by using reusable bottles
LAPTOP	 LAPTOP	 LAPTOP	Needs further research but estimated to be in the range of 20-50%

b. Cut the crap!

Four concrete steps each supermarket should take

There are a range of actions that supermarkets can and should take to reduce the overconsumption of resources from their position at the interface between supplier and consumer. The German supermarket sector, with its control over the market and sales of over €100 billion is in a particularly powerful position. More than a third of German households' material consumption can be traced back to products purchased from supermarkets, so it is clear that the sector must shoulder its responsibility and occupy a central role in bringing German resource consumption back to a level commensurate with the Earth's limits. In fact, the responsibility of German supermarket chains extends far beyond Germany's borders and touches on broader issues related to ecological protection, global equity and environmental justice. In light of this, German supermarkets are urged to implement the following measures to address their material footprint:

1. Immediately stop selling resource-inefficient products for which better alternatives exist.

Supermarkets have to take responsibility for reducing the resource intensity of the products they sell, even where they do not directly manufacture them. This is also called choice-editing (see also Box 8), which, in the case of supermarkets, refers to the fact that there is a choice to sell (or not to sell) certain products on the basis of certain criteria. The 10 concrete examples above show that there are a range of resource-efficient products on the market already – and these are just the tip of the iceberg. This does not mean less consumer choice, as even with more resource-efficient products, consumers can still have access to a wide range of different brands and product quality. It simply means that consumers will be presented with more (and easier) opportunities to make responsible resource-efficient purchases without having to overthink their trips to the supermarket. In other sectors, first movers have already removed resource-inefficient products from their stores. An example of this is IKEA's decision to no longer sell inefficient lighting.

BOX 8: BANNING THE LEAST EFFICIENT PRODUCTS: THE IKEA EXAMPLE

IKEA decided to ban halogen and 'energy-saving' compact fluorescent bulbs from September 2015 onwards. When discussing the move, Steve Howard, Ikea's Chief Sustainability Officer said that if a product lasts 25-30 times longer than incandescent lights and 3 times longer than Compact Fluorescent Lamps and saves 85% of the energy while maintaining light quality then "that's the right thing for the customer". Because the life span of LED lights is much higher than other forms of lighting, this is not just an energy but also a resource saving measure. This example shows that resource efficiency business opportunities are out there and the major market players such as Ikea can play a leading role in shifting a large share of the market.

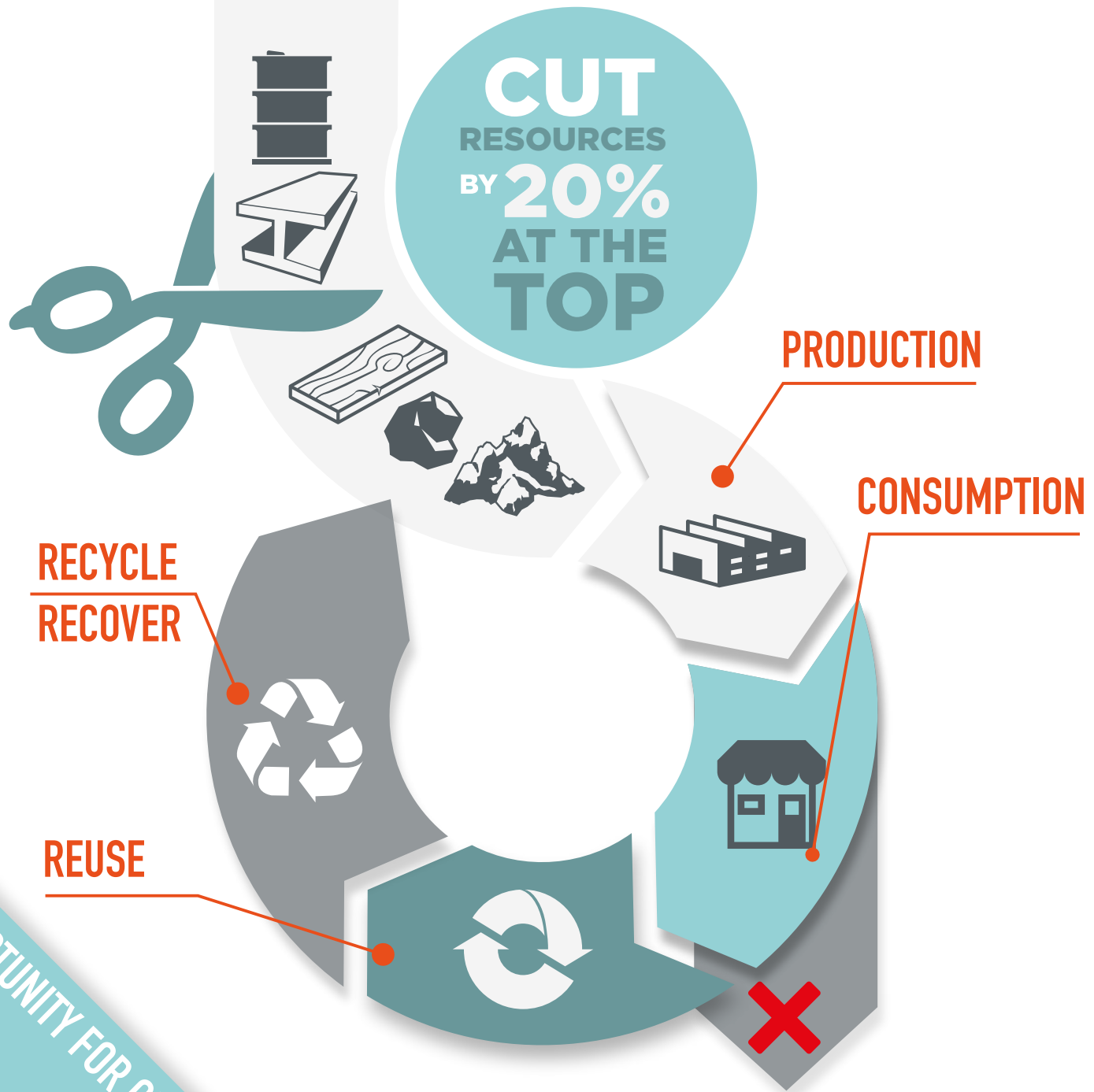
Source: The Guardian, 2015

2. Demand information from suppliers on the resource impacts of products (including packaging) and pass this information on to consumers.

Supermarkets have an important role in accessing and disseminating information: they have the ability and the power to demand information from suppliers and to provide consumers with information to help them make purchasing decisions. The

CIRCULAR ECONOMY

just closing the loop is not enough



OPPORTUNITY FOR GERMANY

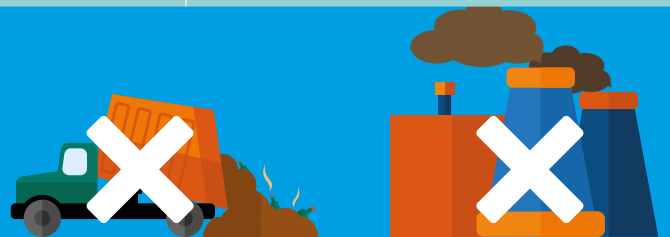
INCREASED
RESOURCE
EFFICIENCY BY

20%

BY 2030

ELIMINATE LANDFILLING WASTE

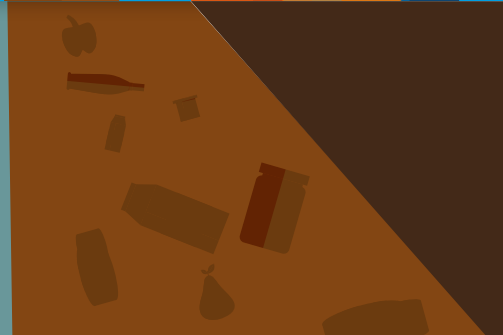
ELIMINATE INCINERATING WASTE



ALMOST
700.000
NEW JOBS

4%
LOWER
PRICES

10%
LESS
IMPORTS





Rank a Brand study shows that supermarkets do not measure the resources or materials embedded in the products they sell (see infographic X). As they saying goes, it is difficult to manage what you do not measure. Therefore, supermarkets should start asking their suppliers what and how many resources were used to make the products they purchase, and if possible to provide a life-cycle assessment of the products. If they have this information, it will be easier for supermarkets to decide which products they want to sell (see point 1) and for consumers to decide which products they want to buy. Supermarkets' current failure to do this goes against the recommendation of the GRI and the German Sustainability Code (*Nachhaltigkeitskodex*), which require companies to measure the materials embedded in their core business. For supermarkets, consumer products are their core business and they should therefore be measuring the resources embedded in these (see box 6 for more information).

3. Set targets and policies for reducing the resource impacts of the products they sell.

Supermarkets should adopt a resource efficiency target to reduce the total material resource consumption of their businesses via concrete measures, which at a minimum should include the two points above as concrete measures but also requires analysing supply chains, identifying hot spots of resource intensity and taking measures to address the causes of this for each product group. A 20 percent material resource efficiency target is realistic as the product case studies and Wuppertal research shows. Such a target should be binding and should include commitments to reduce food waste, packaging and materials in products. It should also include transparent indicators and regular reporting on progress.

4. Come up with new, more sustainable business models.

While leasing concepts might be more difficult for FMCG, there are still ways in which supermarkets can reinvent their role. The supermarket should become an active provider of services, such as it currently already is for taking back reusable bottles. These kind of models need to be extended to ensure that resources are reduced and stay within the circular economy.

BENEFITS OF IMPLEMENTING 20 PERCENT MATERIAL EFFICIENCY ACROSS THE ECONOMY

Resource and material efficiency is not limited to goods purchased at the supermarket. To get an idea of the broader implications beyond the the FMCG sector, we looked at the benefits of an economy-wide shift to 20 percent more resource efficiency by 2030. The study by the Wuppertal Institute (Wilts et al., 2016) shows that this comes with positive environmental benefits and remarkable macroeconomic effects.

Increasing resource efficiency will create more jobs, reduce dependency on foreign goods and lower prices for industry and consumers. If resource efficiency increased by 20 percent across the German economy, this would create 683,900 new jobs by 2030. Moreover, lower production costs in manufacturing industries contribute to higher competitiveness on the international market and higher value creation in Germany by 2030, even when upfront costs are taken into account. The average price of goods sold by industry (either to business or to consumers) will fall by about 4.3 percent and exports will rise by almost 5 percent, while imports will fall by more than 10 percent.

Higher resource efficiency also stimulates the economy. As more people have jobs and prices decrease due to efficiency gains, people can buy more - this is called the rebound effect. In the case of 20 percent resource efficiency, consumption increases by almost 10 percent by 2030. The rebound effect reduces total resource savings, but nonetheless leads to an absolute saving of resources, especially of materials. Material productivity increases by almost 40 percent and CO2 emissions drop despite the rebound effect.

The supermarket sector is just one part of the entire economy, and as we have seen, an economy-wide increase in resource efficiency would bring considerable benefits. However, because the FMCG sector is especially resource and material intensive, the effects would be felt particularly strongly in this sector.



5. CONCLUSIONS AND RECOMMENDATIONS

This report has shown that a move towards a circular economy with reduced resource intake can bring multiple environmental and economic benefits, while at the same time addressing global injustice with regard to resource consumption. Fixing this imbalance is a critical step in the move towards a more sustainable economic system. It also offers a great opportunity. 20 percent higher resource efficiency could bring Germany almost 700,000 new jobs, lower CO₂ emissions, reduce gross output prices by 4.3 percent and decrease import dependency by 10 percent (Wilts, 2016). But the transition has to start immediately and it has to be well managed.

The good news is that there is no need for delay when it comes to reaping the rewards of a less wasteful economy. A wide range of resource-efficient products are available and can easily be brought to market, as illustrated by the products which are already on sale in German supermarkets. The examples cited in this report show that 20 percent resource efficiency in supermarket products is realistic. In some countries, such as the UK with the Courtauld Commitment, the supermarket sector has already set targets, albeit voluntary ones, for higher resource efficiency. In Germany, such sectoral targets are missing. In other sectors, there are also examples of companies doing the right thing by no longer selling inefficient products: for example, Ikea decided to completely phase out the sale of inefficient lighting in its stores, leading to significant global energy and CO₂ savings. Moreover, the product examples in this report are just the tip of the iceberg – product innovation and efficiency is possible across the board.

Despite the key role that supermarkets can play in supplying efficient products to consumers, they have yet to shoulder their responsibility. The Rank a Brand study has shown that not one German supermarket currently has a policy to reduce materials in the products they place on the market. Commitments on reducing (food) waste and packaging are a start, but this is not enough. Among the big five supermarkets, which control about 90 percent market share and also play an important role beyond Germany, only REWE Group and Real have a policy on waste, and only REWE has acknowledged that it should start measuring the materials embedded in the products it sells. For the other big supermarkets, the issue is completely off their radar and does not appear in any of their sustainability reports or commitments. This has to change. With the circular economy package going through the European Council and Parliament, and Germany revising its resource efficiency policies under the ProgRes initiative, it is time to move from nice words to concrete actions.

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RECOMMENDATIONS TO REALISE THE RESOURCE EFFICIENCY POTENTIAL

To begin harvesting the benefits of resource efficiency, a coordinated approach by all actors and sectors of society is required. This report has focused on what supermarkets can do to accelerate resource efficiency and these recommendations are set out in detail in Chapter 4. However, supermarkets operate within a wider economic system, so it is important to keep system change in mind, when formulating recommendations for actions. A favourable policy framework would benefit all progressive companies regardless of the sector they operate in by establishing a level playing field right across the economy.

RECOMMENDATIONS FOR POLICY-MAKERS:

1. Adopt a binding absolute resource efficiency target at national level with binding sectoral targets and market-based measures for different sectors, including the consumer goods sector. It is time to embrace resource efficiency and put the waste hierarchy into practice through binding measures. The EU Circular Econ-

omy Package should establish a European-wide target, with national binding targets below this. At the German level with the revision of Progress, an economy-wide binding target, as well as sectoral targets for resource efficiency should be included. These sectoral targets should be supported by market-based tools such as tax reductions for the most efficient products and higher VAT for resource-inefficient products. The combination of a binding target with such measures will create a level playing field, where good actors are rewarded and laggards obliged to catch up

BOX 9: EU ECODESIGN DIRECTIVE

The EU Ecodesign Directive provides consistent EU-wide rules for improving the environmental performance of energy-using products such as household appliances, information and communication technologies (such as PCs and servers), and engineering components (such as compressors). The Directive sets out minimum mandatory requirements, which are periodically updated, regulating the energy efficiency of these products. As a consequence, the least energy efficient products are consistently phased out of the EU market. This has made a significant impact in terms of increasing the share of energy efficient products on the European market. By 2020, it will prevent an annual 400 million tonnes of CO2 emissions and save European consumers and businesses €90 billion per year (Ecofys, 2012).

The Ecodesign Directive also has the aim of increasing the resource efficiency of products, but to date, resource efficiency requirements have not been made mandatory. The Circular Economy Package would have been an opportunity to change this. However, while it expresses support for including resource efficiency in the Ecodesign workplans, concrete changes are still lacking. This is a missed opportunity. The Ecodesign framework could create a level playing field for all market players by setting binding minimum requirements for resource efficiency that justify long-term financial investments in this direction.

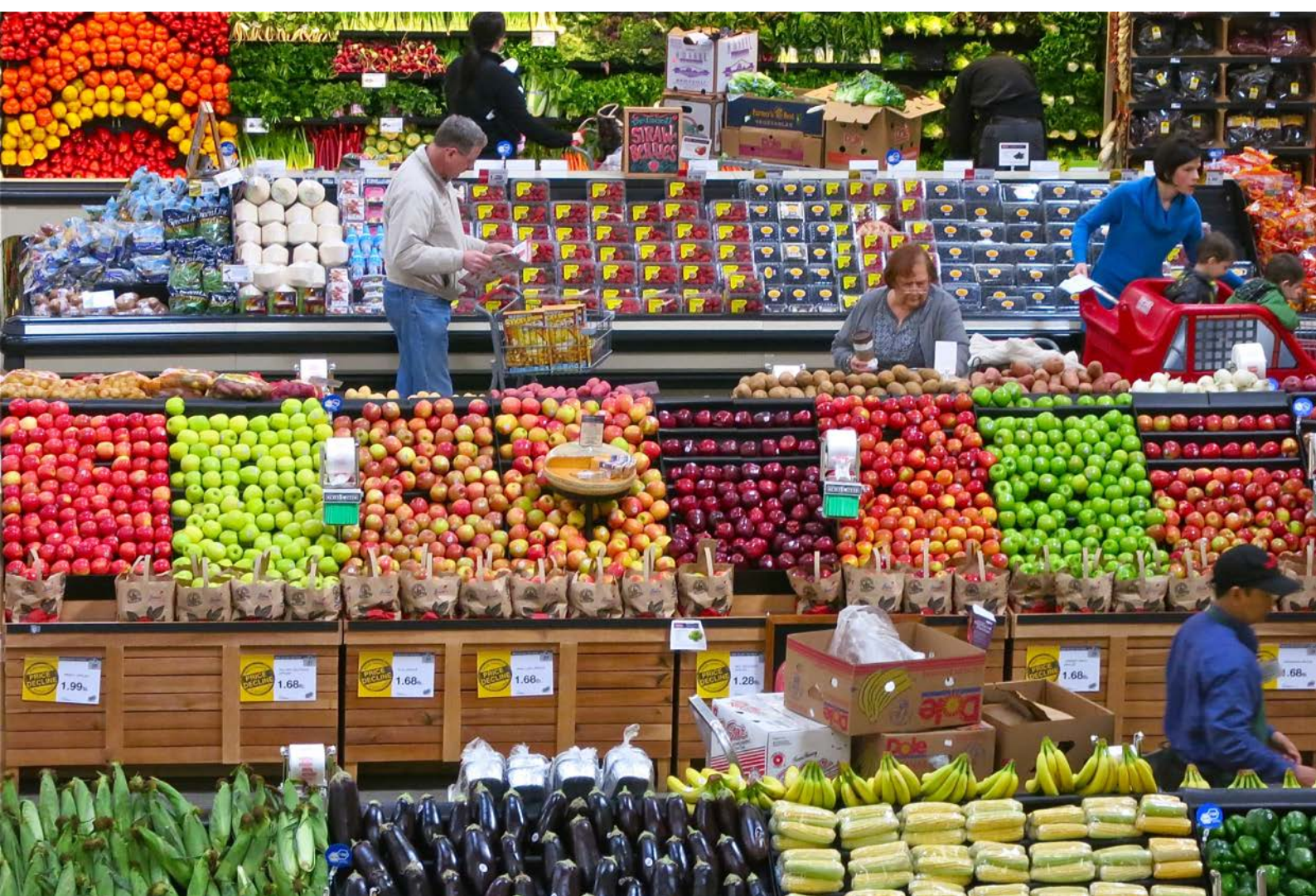
Sources: EC, 2015, EEB 2015.

2. Streamline the methodology used to calculate resource efficiency so that efforts by different actors and countries can be compared. This should take place at EU level, with the Circular Economy Package presenting a useful opportunity to do this. The methodology should take into account all material impacts that are generated outside a country (or the EU) including at the place of extraction.

3. Expand existing product policies, to include measures to reduce resource use and increase resource efficiency. This should ideally happen at EU level, under the existing framework of the EU Ecodesign Directive (see Box 10 for more information). Several actors have called for an expansion of Ecodesign measures beyond en-

ergy use to cover material efficiency as well. This could bring significant benefits, as the least efficient products would progressively be phased out and replaced with more efficient products. Designing waste out of the product at the conceptual stage can also have significant benefits and would send a strong investment signal for innovation.

4. Adopt ambitious waste collection goals and recycling quotas for specific packaging types, and reconsider calculation methods contained in national waste policy. In Germany this needs to be tackled in the upcoming *Wertstoffgesetz*. At European level, there is a chance with the opening of the Packaging and Packaging Waste Directive to revise “essential requirements” for packaging to include binding requirements. At both levels, Extended Producer Responsibility should include different incentives (e.g. via fees or tax exemptions) according to material type to promote more resource-efficient packaging.





RECOMMENDATIONS FOR SUPERMARKETS

(for more details, see chapter 4):



IMMEDIATELY STOP SELLING INEFFICIENT PRODUCTS FOR WHICH BETTER ALTERNATIVES EXIST.



DEMAND INFORMATION FROM SUPPLIERS ON THE RESOURCE IMPACTS OF PRODUCTS (INCLUDING PACKAGING) AND PASS THIS INFORMATION ON TO CONSUMERS.



SET TARGETS AND POLICIES FOR REDUCING THE RESOURCE IMPACTS OF THE PRODUCTS THEY SELL.



COME UP WITH NEW, MORE SUSTAINABLE BUSINESS MODELS.

The global environmental and climate crisis demands urgent action from everyone and all sectors of society.

This report has shown that there is significant untapped potential in terms of reducing the needless consumption of precious resources in the supermarket goods sector.

It also shows that this potential is not theoretical, indeed, it is already being exploited for a wide range of consumer products. The key to unlocking the full range of possibilities lies with the companies involved.

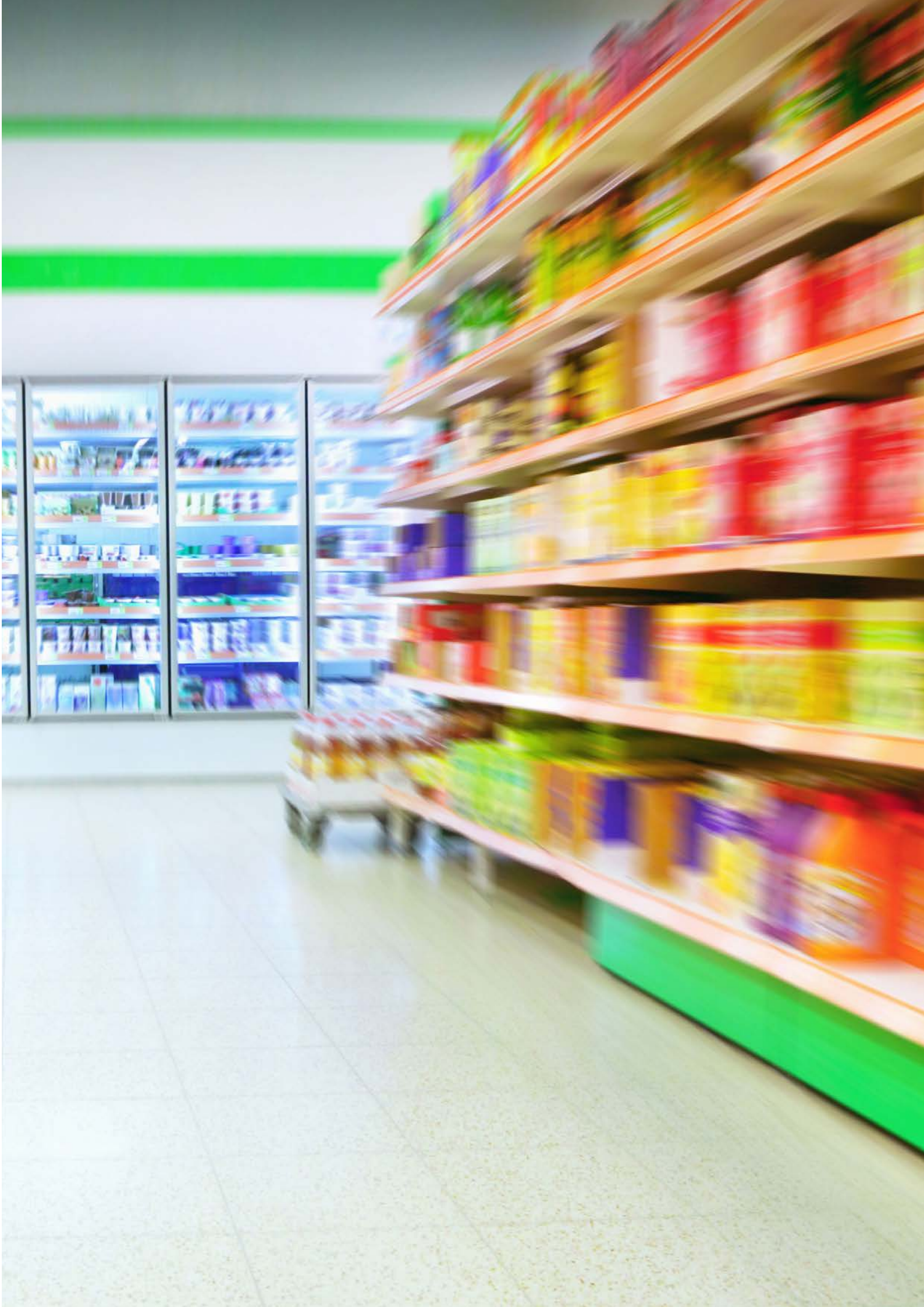
RECOMMENDATIONS FOR PRODUCERS:

1. Start offering resource-efficient products, while phasing out the less efficient ones. This will have multiple benefits, not least savings on production costs because of the reduced volume of materials a producer has to buy. Circular thinking will also enable long-term resilience to adverse economic trends, such as price volatility of raw materials.
2. “Design out” waste by reducing packaging and using materials that can be re-used or recycled.
3. Expand durability of products and start offering repair services for products sold.

RECOMMENDATIONS FOR CONSUMERS:

1. Consumers can start demanding more resource-efficient products and full information on the resource impacts of products from their supermarkets. While on the negative side voluntary measures taken by consumers can be used by companies to delay taking action themselves, they can be a useful start to a trend that puts pressure on supermarkets and producers to supply more efficient products. This can include compressed products, products with less packaging and more sustainable materials, such as reusable glass bottles, and recycled materials.
2. Consumers should also consider new consumption habits, such as those offered by the sharing economy and other new business models. The key to resource efficiency is cutting unnecessary consumption and simply buying less “stuff”: with less demand, consumers can send the most powerful signal of all. What is not put on the market can never become waste.

The global environmental and climate crisis demands urgent action from everyone and all sectors of society. This report has shown that there is significant untapped potential in terms of reducing the needless consumption of precious resources in the supermarket goods sector. It also shows that this potential is not theoretical, indeed, it is already being exploited for a wide range of consumer products. The key to unlocking the full range of possibilities lies with the companies involved. Moving the economy towards genuine sustainability will of course require a massive concerted effort on the part of the private sector, governments and consumers alike. Supermarkets, especially the powerful German ones, occupy a central role at the interface between consumers and producers. This is an opportunity for them not only to shoulder their responsibilities but also to cut costs and distinguish themselves from their competitors. It is also an opportunity for German policy makers to finally implement the waste hierarchy, making Germany a true leader and bringing with it all the economic and societal benefits of being a first-mover country in the transition to a circular economy.

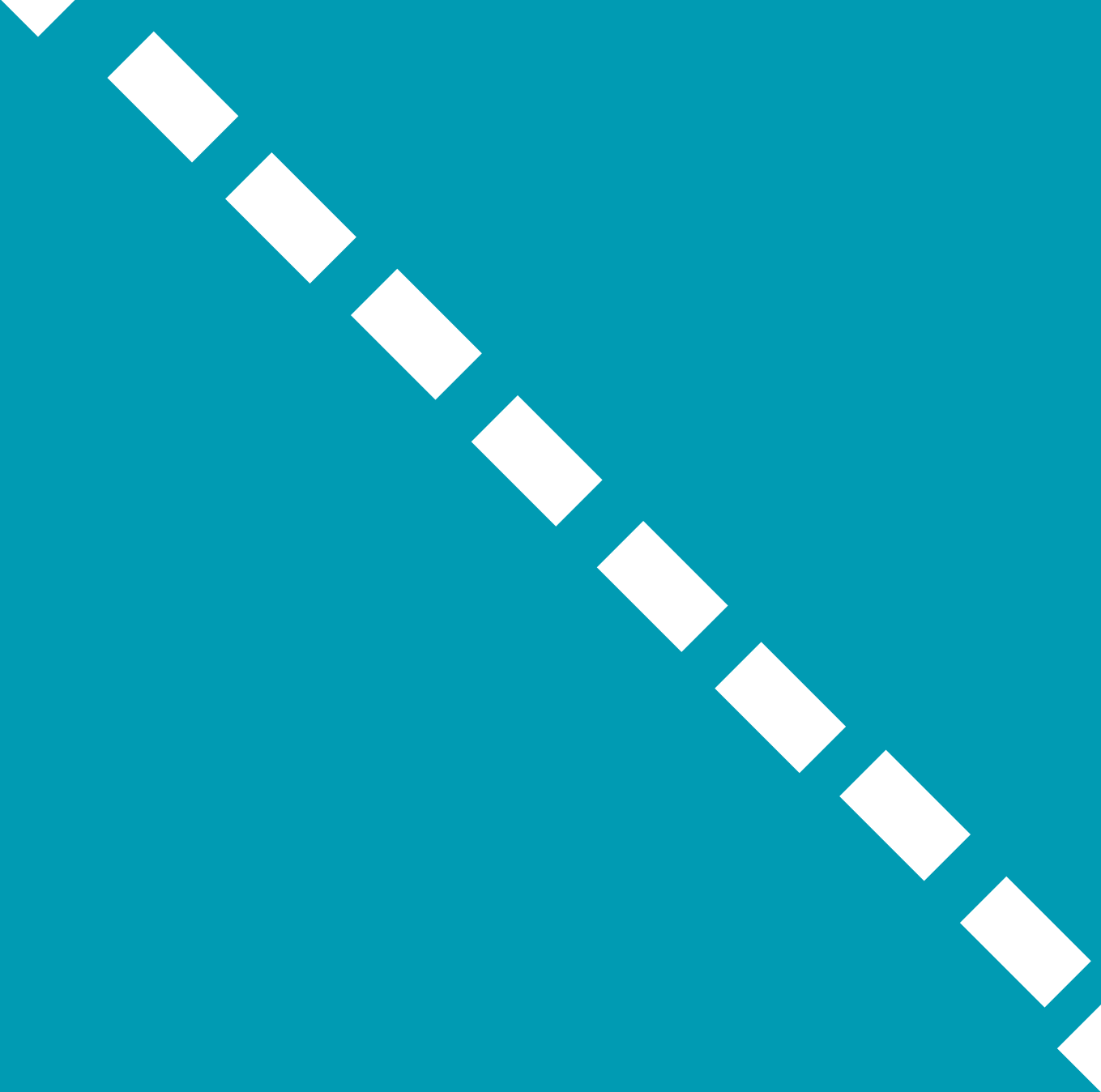


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