



Ministry of Infrastructure  
and Water Management

# Behavioural Strategy for Citizens and the Circular Economy

Long-term citizen behavioural strategy and operational approach for achieving  
a circular economy in the Netherlands by 2050



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# Summary

The Netherlands aims to have a circular economy by 2050. A circular economy will make it easier to combat climate change, achieve a cleaner environment in which to live, restore biodiversity and improve the security of supply of raw materials. The Netherlands aims to halve its consumption of primary abiotic raw materials by 2030.

A successful transition to a circular economy will require concerted efforts from everyone: businesses, government authorities and the general public. The Behavioural Strategy for Citizens and the Circular Economy sets out a long-term strategy aimed at changing citizens' behaviour.

This strategy has served as input for the National Circular Economy Programme 2023-2030 (*Nationaal Programma Circulaire Economie 2023-2030*, NPCE) due to be published in February 2023. The strategy aims to facilitate the further implementation and development of the measures in the programme that relate to public behaviour.

## Behavioural Strategy for Citizens and the Circular Economy

Target	Broad target group will opt for circular
Strategy	<ol style="list-style-type: none"><li>1. We will create conditions to ensure that circular behaviour is easy, obvious and fair.</li><li>2. We will make use of drivers and remove obstacles by designing additional measures specifically for each target group, desired behaviour and product.</li><li>3. We will integrate and broaden circular behaviour by also focusing on the development of a sustainable identity. As a result, citizens will make more circular choices more often.</li></ol>
Implementation	We will use the Sustainability Monitor for the Netherlands ( <i>Monitor Duurzaam Leven</i> ) and other studies to regularly update the process. We will develop policy based on knowledge about behaviour.

The behavioural strategy will be used to extrapolate an operational approach for each product and target group. The strategy has already been formulated for clothing and small household appliances. In it, the objectives set down in the NPCE have been assessed in the light of the most recent behavioural insights. This has resulted in recommendations and proposals for *potential* measures aimed at these product groups.

The behavioural strategy comprises the following points:

### 1. Intensify policy, focus on behavioural change

The Integral Circular Economy Report (*Integrale Circulaire Economie Rapportage*, ICER) published by the Netherlands Environmental Assessment Agency (*Planbureau voor de Leefomgeving*, PBL) in 2021 concludes that the focus in recent years on circular economic policy has laid firm foundations for the future, while noting that there has been little if any change in the excessive use of raw materials since 2010. PBL recommends that policy be intensified. A circular economy will require government authorities, market players and citizens to opt for circular choices across many more areas and on a wide scale. This calls for a change in behaviour. To a large extent, public behaviour is determined by the supply provided by businesses and government authorities. But the opposite also applies: because consumers are opting for circular choices to a limited extent only, businesses have little to gain from applying circularity to production. In many cases, achieving a circular supply will require system changes. For this reason, this behavioural strategy also explores the possibilities that businesses and government authorities can offer in order to effectively encourage circular behaviour by citizens.

### 2. The government must take the lead in coordinating circular behavioural change among citizens

Government authorities have an important role to play in changing citizens' behaviour. They have the ability to create the right physical, social and economic conditions to make circular choices more attractive and discourage undesirable behaviour. In their actions, citizens and market players take insufficient account of the long-term perspective, which



means that only government authorities have the capability of bringing about these societal changes at the required pace. Government authorities can encourage citizens to adopt circular behaviour by introducing rules, reaching agreement with the market, drawing up frameworks for the business community and developing relevant policy.

### **3. Apply behavioural expertise in the development of circular economic policy**

There is a wealth of knowledge relating to understanding and changing behaviour. For relevant themes and across all policy phases, it is beneficial to make use of behavioural experts. In order to gain a full picture of the situation, existing studies, data and monitors will be used. Additional research will often be required to explore existing behaviour and identify target groups.

### **4. In formulating policy, make it clear what behaviour you expect from citizens and what conditions promote or impede that behaviour**

In ensuring that policy is effective, it is important to be clear about the kind of behaviour deemed desirable and about which factors promote or impede this behaviour among specific target groups.

Efforts to achieve a circular economy will focus on reducing the use of raw materials (narrowing the loop); bringing about changes to the use of raw materials (substitution); improving product design in order to increase lifespan and enable longer use of products and raw materials (slowing the loop) and high-grade processing (closing the loop). For market players, there are various business models that can help enable this, including sharing platforms and Product as a Service (PaaS).

For citizens, this will mean a change to many behaviours relating to consumption, including reducing the number of products purchased, borrowing more, and focusing more on repair. Currently, public openness to circular business models remains limited and citizens will need to become accustomed to and begin to trust them. However, even when citizens ultimately begin using circular business models, an enduring focus on effective behavioural change will be essential.

### **5. Focus behavioural change on as large and diverse a target group as possible**

People often behave in a circular way if they feel that the people around them are also exhibiting circular behaviours. As such, circularity becomes a self-reinforcing social norm. In order to ensure that large numbers of citizens exhibit circular behaviour, simultaneous efforts can be made focusing on several desired circular behaviours among different target groups. This can involve making a choice of behaviour and target group. The best way of choosing a target group and desired behaviour is to base it on the size of the target group willing to change their behaviour, the impact of the behaviour on the circular economy and the target group's capacity for change. The Sustainability Monitor<sup>1</sup> can be used for this purpose.

### **6. Create conditions to ensure that circular behaviour is easy, obvious and fair**

The physical, economic and social conditions are the strongest factors determining behaviour. It is often assumed that citizens' awareness of the sustainability of a product or behaviour and the value that they attach to sustainability is a decisive factor in determining their behaviour and choices. However, systematic studies have shown that the environment or setting in which behaviour is applied has much more of an impact. This is because choices made on an everyday basis, such as whether or not to purchase a new pair of jeans, are often unconscious choices. As a result, focusing (solely) on raising awareness will not result in any different behaviour on a large scale.

The environmental conditions largely determine the opportunity, capability and motivation that citizens have to exhibit circular behaviour. Opportunity concerns the environmental conditions in which circular behaviour occurs and the extent to which it encourages or limits the desired behaviour (e.g. the accessibility of second-hand clothing stores).

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<sup>1</sup> Developed by the PBL, the Sustainability Monitor will subsequently be conducted every two years by Milieu Centraal. This monitor examines the Dutch population's current circular behaviour and willingness to adopt circular behaviour. The monitor also explores the drivers and obstacles for several types of behaviour.



Capability refers to the skills and knowledge required to apply the desired behaviour (e.g. the ability to repair a product). Motivation relates to the motivation for citizens to exhibit the desired behaviour and the barriers they face in doing so (e.g. people thinking it is cool to buy vintage clothing).

The government can use policy as a means of ensuring that the environmental conditions are such that behaviour becomes easy, obvious and fair and non-circular behaviour is discouraged. This can be achieved by means of future and existing policy instruments, including Ecodesign, e-labels, tax-related legislation and Extended Producer Responsibility.

When it comes to making more circular choices, fairness is a key condition for citizens, alongside ease and obviousness. Citizens regard policy as being fairer if they feel that other citizens, government authorities and market players are making maximum efforts to achieve a circular economy. Government authorities themselves must set a good example and create the right environmental conditions for circular entrepreneurs while also introducing restrictions aimed at phasing out practices that pollute the environment.

Undesirable behaviour must be made more difficult and unattractive and sustainable alternatives made more appealing. Applying coercive/prohibitive measures only or focusing solely on subsidies or other incentives is largely ineffective and quickly leads to opposition. Create a norm, be consistent in applying it, but make the desired behaviour easier at the same time and communicate about this.

## 7. Make use of drivers and remove obstacles

As soon as citizens are in a position where it is easy to apply circular behaviour (because the physical, economic and social environmental conditions that facilitate this are in place), behavioural knowledge can be used to provide additional motivation to a specific group of citizens. In order to ensure that a behavioural strategy is effective, it is important to identify the drivers and obstacles that have an influence on the desired behaviour of a specific target group. Scientific literature and target group research can be used to cast light on these factors. These insights can then be applied in the formulation of additional policy interventions.

## 8. Identify ways of integrating and broadening behaviour

Creating the right environmental conditions and focusing on motivations and objections will ultimately bring about effective behavioural measures. In addition to that, interventions aimed at integrating this behaviour and spreading it more widely are also necessary. Integration can help ensure that people exhibit the desired circular behaviour more often. Broadening can ensure that the desired behaviour leads to more circular behaviour across multiple product categories. One way of achieving this is the internalisation of a sustainable identity. Further research is needed into this and other techniques that can facilitate it and accelerate the transition to a circular economy.

## 9. Monitor behaviour and make regular adjustments to the behavioural strategy

This behavioural strategy creates a roadmap to a circular economy in 2050 and for interim targets envisaged for 2030. Where possible, effective behavioural interventions have been developed based on scientific sources and working methods used by behavioural experts. The results of the Sustainability Monitor for the Netherlands were published in 2023. The behavioural strategy can be regularly updated based on this Monitor and future behavioural studies focusing on citizens and the circular economy. Specific measures can also be added.

## 10. Apply the behavioural strategy at product level

Measures will always be more effective if it is possible to clearly define the specific target behaviour and target group. This is why it makes sense to apply the behavioural strategy at product level. This makes it possible to define clearly and specifically which target group and which target behaviour have the most potential for success. This will not be possible if behavioural policy is developed at a higher level of abstraction. The Behavioural Strategy for Citizens and the Circular Economy has made a start on this by identifying relevant clusters for two product groups.

A more detailed breakdown is also desirable for other clusters and the general working procedures described below can be used for this purpose.



# 1. Introduction

The Netherlands aims to have a circular economy by 2050<sup>2</sup>. A circular economy contributes to efforts to combat climate change by reducing CO<sub>2</sub> emissions, increasing biodiversity, improving air, water and soil quality and increasing security of supply of raw materials. The Netherlands has set itself a guiding target of halving the use of primary abiotic raw materials by 2030. This will require concerted efforts by government authorities, market players and citizens. This behavioural strategy explores how public behaviour can be changed in favour of a circular economy. Unlike communication, applying behavioural insights is not a tool, but forms the basis for effective policy.

As indicated in the Circular Economy Implementation Programme 2021-2023 (*Uitvoeringsprogramma Circulaire Economie 2019-2023*), there is a need for an integrated communication strategy aimed at increasing knowledge and support among consumers and producers, with clearly-defined perspectives for action and making use of behavioural insights. In its *first Integral Circular Economy Report (Integrale Circulaire Economie Rapportage)*, the PBL's primary recommendation is to apply the circular economy strategy at product-group level. These points reflect the need to develop a targeted behavioural strategy for citizens and the circular economy.

## 1.1 Target and result

This behavioural strategy is a stand-alone document outlining a long-term strategy and an initial proposal for an operational approach aimed at changing public behaviour in relation to the circular economy. The document supplements (and is not intended to replace) the efforts by behavioural experts in developing, implementing, evaluating and adjusting policy. The results have been used in developing the National Circular Economy Programme (NPCE) being prepared for publication in February 2023 and can be used in the further elaboration and development of the policy measures required. The behavioural strategy comprises:

- an overarching behavioural strategy with operational interventions (Chapter 3);
- a more detailed breakdown at product cluster level, including target behaviours and necessary incentives together with the resulting *potential* policy interventions (Chapter 4);
- a preliminary implementation plan listing all proposed actions and measures (Chapter 5).

## 1.2 Scope

This behavioural strategy is all about changing public behaviour, through encouragement, towards a circular economy. In the context of a circular economy, public behaviour is a wide-ranging topic. It covers such areas as how people live, travel, eat and buy and use products. This behaviour strategy focuses on products. In this context, products are defined as all objects that citizens take with them when moving house.

To a large extent, public behaviour is determined by the supply provided by businesses and government authorities. In many cases, achieving a circular supply will require system changes. For this reason, this strategy also explores the possibilities that businesses and government authorities can offer in order to effectively encourage circular behaviour by citizens.

The NPCE has been used in the detailed breakdown of this behavioural strategy and its practical application at product cluster level.

The target group used for this behavioural strategy will be 'citizens' (or 'the public') rather than the target group 'consumers'. Ultimately, citizens will need to consume less and more sustainably but they will also have to adopt a more sustainable approach to products during their use, for example by having them repaired. When citizens no longer consume, but merely use products, they therefore also become a target group.

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<sup>2</sup> See [National Circular Economy Programme 2023-2030](#)



## 1.3 Working method

This behavioural strategy has been developed by the Sustainable Environment and Circular Economy Directorate at the Ministry of Infrastructure and Water Management (IenW) in collaboration with Anjo Travaille (Bovenkamers), the Behavioural Insight Team and behavioural experts from the Rijkswaterstaat Water, Traffic and Environment Service (RWS WVL), Circular Economy and Waste Department.

This is the first time that a specific behavioural strategy for citizens and a circular economy has been compiled. Where possible, effective behavioural interventions will be developed based on scientific sources and working methods used by behavioural experts. A generic strategy has been compiled focusing on citizens and a circular economy. Generic measures have also been developed. For two product clusters, strategies have been compiled and measures developed. In 2023, the results of the Sustainability Monitor for the Netherlands<sup>1</sup> will be published. The behavioural strategy can be regularly updated and specific measures added based on this monitor and future behavioural studies focusing on citizens and the circular economy. Public understanding of specific circular behaviours is expected to continue to grow, possibly also for different product groups, making bespoke interventions increasingly possible.



## 2. Current status of circular economy policy and behaviour

Dutch policy in the field of the circular economy has developed quickly since 2016. This is particularly the case when it comes to encouraging citizens to make sustainable choices. These developments provide a logical framework for the basic principles and strategy outlined in Chapter 3.

### 2.1 Central government circular economy policy

The policy ambitions for a circular Netherlands were laid down in 2016 in the government-wide programme Circular Dutch Economy by 2050 (Nederland Circulair in 2050). The National Raw Materials Agreement (Grondstoffenakkoord) was subsequently concluded in 2017, transition agendas were compiled in 2018, followed in June 2018 by the publication of the government's response to the transition agendas, outlining details of central government policy. The Circular Economy Implementation Programme 2019-2023 was published in 2019 and most recently updated in 2021. This was followed by the commencement of work on the National Circular Economy Programme due to be published in early 2023.

#### Circular economy targets require more intensive policy

The ICER, published by PBL in 2021, shows that the focus on circular economic policy has laid firm foundations for the future. At the same time, the ICER makes it clear that there has been little or no change in the consumption of raw materials since 2010. Linear businesses have increased in number and there have been relatively few new circular businesses. The new circular businesses that have emerged focus primarily on recycling. Around 80% of waste is currently being recycled. This mainly involves low-grade recycling. PBL recommends that circular economy policy be further intensified, partly by developing concrete targets for each transition theme.

The Ministry of Infrastructure and Water Management is eager to formulate more specific objectives for the use of raw materials that include circularity target and targets concerning the impact of raw material use. The circularity targets will contribute to efforts to combat climate change and improve environmental quality, biodiversity and security of supply. The four 'buttons' relating to the use of raw materials play a role in formulating and prioritising circularity targets (see Figure 1):

- **Reducing raw material usage:** using fewer (primary) raw materials by abstaining from the production or purchase of products, sharing products or making them more efficient; ('narrowing the loop');
- **Substituting raw materials:** replacing primary with secondary raw materials or sustainable bio-based raw materials.<sup>3</sup> (in high-value applications), or with other, more generally available raw materials with a lower environmental impact;
- **Extending product lifespan:** making longer and more intensive use of products and components through reuse and repair will slow demand for new raw materials ('slowing the loop');
- **High-grade processing:** closing the loop by recycling materials and raw materials. This will not only reduce the amount of waste being incinerated or dumped, but also ensure a higher-grade supply of secondary raw materials as well ('closing the loop').

In a circular economy, products which are needed are produced, distributed and consumed in closed-loop systems: the value of natural resources, materials and products is maintained for as long as possible and they are used or reused carefully, so that the end of the useful life of products and materials is delayed as much as possible. When their end of life is ultimately reached, materials are recycled as well as possible and residual waste streams are processed with due regard for the risks for people and the environment.

#### NPCE and priority product chains

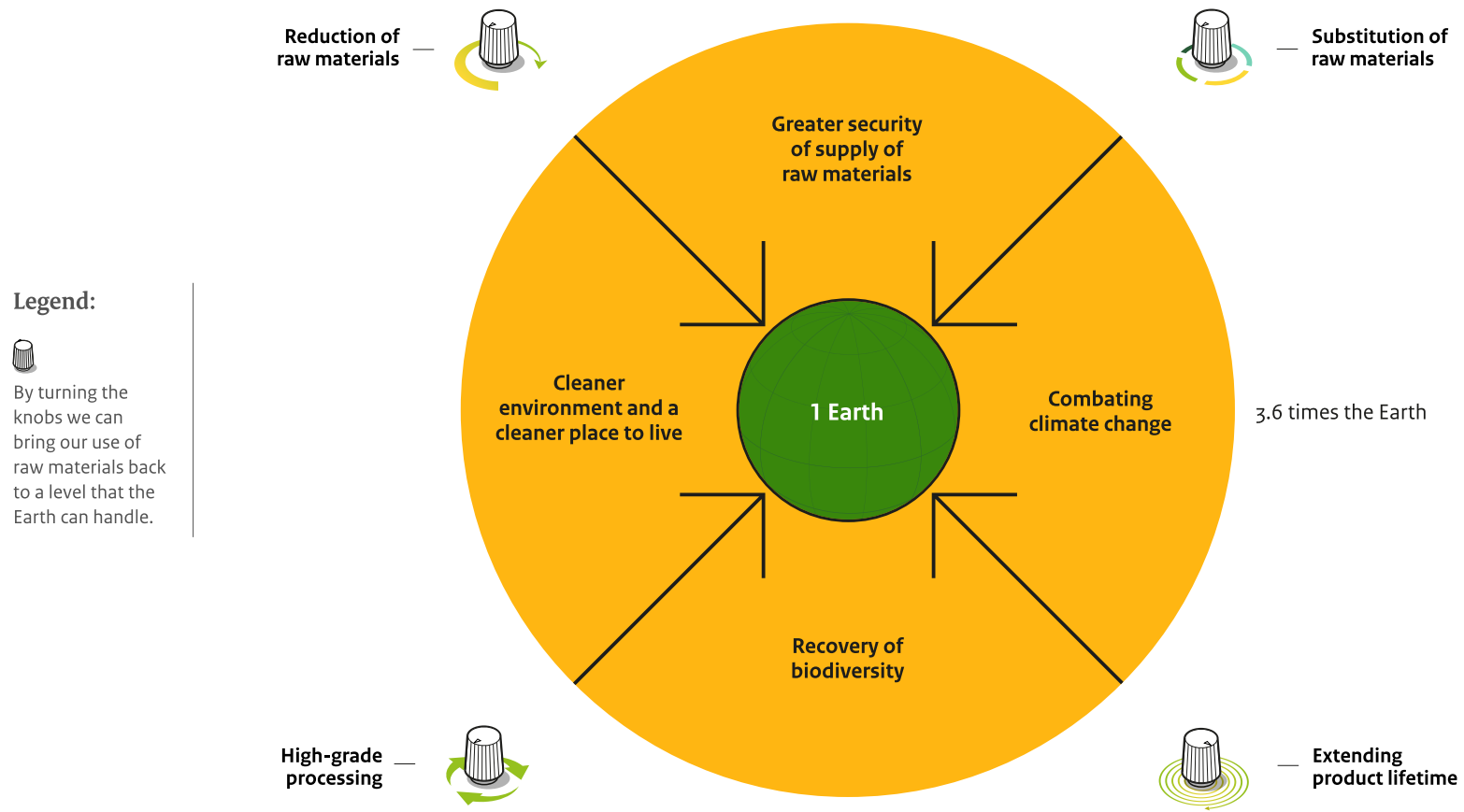
In the NPCE, product chains have been selected that have the most impact on the climate, biodiversity, environmental quality and security of supply. These are shown in Table 2. More specific targets have been formulated for each target group together with measures designed to achieve these targets.

3 The application of bio-based raw materials is based on the Sustainability Framework for bio-based raw materials (*Duurzaamheidskader biograndstoffen*) ([Government Approach to Climate Policy \(Kabinetsaanpak Klimaatbeleid\)](#) | [House of Representatives of the States General](#)).





Figure 1: Framework for circular economy targets



**Table 1: NPCE and priority product groups**

NPCE/Priority product chains	Product group
Plastics	Plastic packaging
	Plastic in construction
	Agricultural/horticultural plastic
Consumer goods	Packaging and disposable products
	Textiles (including clothing)
	Electrical and electronic equipment
	Furniture
Construction	Viaducts and bridges (starting with viaducts)
	Roads surfaces (starting with asphalt)
	Housing
	Offices
	Other usage functions
Manufacturing	Capital equipment
	Circular window films
	Circular solar PV systems
Manufacturing and Construction	Circular climate control systems

## 2.2 Development of circular economy policy and efforts to influence public behaviour

There is nothing new about attempting to influence public behaviour. In fact, it has been happening ever since products were being put on the market and policy was being developed. What is new are explicit efforts by government authorities aimed at influencing behaviour that focuses on the circular economy. Developments have moved at a rapid pace: ranging from additional efforts aimed at providing information about and protecting freedom of choice (2019) to smart choice architecture resulting in citizens making desirable choices (including unconsciously) relating to the circular economy (2022) (IenW, Circular Economy Implementation Programme 2019-2023).

### 2019: Informing consumers about the circular economy

The Circular Economy Implementation Programme 2019-2023, published in 2019, includes a circular economy consumer strategy (IenW, 2019). This aims “to involve consumers and suppliers/producers more actively in circular forms of consumption”. In practice, this does not mean that the choice of a particular product changes; what changes is the way in which the transaction between producer and consumer is configured. The objectives of the consumer strategy include: informing consumers about alternatives to buying new products; actively encouraging consumers to explore alternatives; generating greater understanding of behaviour relating to choices.

### 2021: Encouraging consumers to consciously opt for a circular economy

In 2021, Behaviour and Communication is one of the ten overarching themes of the transition agendas. However, other overarching themes, including producer responsibility, legislation and regulation or education and the labour market, also have an influence on the behaviour of government authorities, market players or citizens, just like the action points arising from the transition agendas and other policy measures relating to the circular economy.

Chapter 4.8 of the implementation programme, entitled Behaviour and Communication, highlights the importance of gaining a greater understanding of underlying drivers and barriers in order to achieve effective behavioural interventions. This involves making use of insights relating to capability, opportunity and motivation. The implementation programme states that this should result in consumers becoming increasingly able to make conscious choices for circular facilities, products and services.



### 2022: Aiding citizens to primarily unconsciously opt for a circular economy

The Infrastructure and Water management Policy Programme (*Beleidsprogramma Infrastructuur en Waterstaat*, IenW, 2022) states that ‘By means of public campaigns and information, the Ministry will also indicate how we can make it easier for citizens and consumers to make circular choices. This means that measures will also be required to make the desired circular behaviour more attractive than the current linear behaviour.’ This also opens up the way for unconscious influence by making desirable choices easier and undesirable behaviour more unattractive.

Effectively identifying citizens’ drivers and barriers relating to the circular economy, as mentioned in the Circular Economy Implementation Programme in 2021, may indeed be a precondition for effective policy. But the main evidence shown by behavioural research is that citizens are more likely to be mobilised by influences that appeal to other motives than consciously opting for sustainability and the circular economy. This is in line with psychological theories that have often been shown to be true in the past (e.g. Elaboration Likelihood Model, Foote, Cone & Belding involvement grid). If people are strongly engaged in a subject, they are open to information about it and this information then guides their behaviour. If they feel less engaged in a subject, as we see in the case of the circular economy, behaviour is guided by environmental factors. Encouraging citizens, via the environment, to make unconscious choices for the circular economy proves more effective. According to the theory, if people apply specific behaviour just once, this improves their attitude towards it, making them open to information. As a result, behavioural change can ultimately lead to increased awareness as to why a circular economy is necessary and important. These behavioural insights form the basis for this Behavioural Strategy for Citizens and the Circular Economy.

## 2.3 Public behaviour in relation to a circular economy

With the right behaviour, citizens can have a substantial impact on the circular economy (Vringer, 2005). The most recent IPCC report points out that behavioural change by citizens can reduce existing CO<sub>2</sub> emissions by 40-70% (PBL, 2022). Currently, individual citizens vary widely in their circular economy behaviour. Some citizens are already behaving as is desirable from a circular economy perspective. Six in every ten Dutch citizens occasionally share or borrow products (Milieu Centraal, 2019). Over one-third of citizens sometimes purchase second-hand clothes (D&B, 2020). Citizens also separate

around 60% of their household waste (Statistics Netherlands, 2022). Despite this, the public are only making sustainable choices to a limited extent. Certainly not enough to achieve their share in the targets set for a circular economy by 2030 and 2050.

To a large extent, public behaviour is determined by the supply provided by businesses and government authorities. In many cases, achieving a circular supply will require system changes. For this reason, this behavioural strategy also explores the possibilities that businesses and government authorities can offer in order to effectively encourage circular behaviour by citizens.

### Circular behaviour is all about purchasing, using and discarding products

For the general public, a circular economy will bring about significantly different behaviour when it comes to acquiring, using and discarding products. We refer to this new way of dealing with products as circular behaviour. This reflects the wider circularity targets above (Chapter 2.1).

**Purchase:** Citizens purchase fewer products, delay purchases by using an existing product for longer, borrow products from other citizens or acquire a product by means of a circular business model. For market players, there are nationwide discussions about a range of potential circular business models: such as sharing platforms, servitisation and product management by the producer to enable it to be traced, reused and recycled. Currently, public openness to this remains limited and citizens will need to become accustomed to and begin to trust it. The products that citizens purchase or obtain are second-hand, refurbished or made from recycled and/or alternative raw materials (e.g. biotic).

**Use:** In a circular economy, citizens will be more economical with products (i.e. through effective maintenance) and have them repaired because they keep products for longer and own fewer of their own. Citizens will also share products they own with other citizens.

**Discarding:** Citizens will return products to the producer or retailer and material flows will be separated and returned for reuse or recycling.

Several of these behaviours are of relevance for each product category. With clothing, for example, options include buying less or buying second-hand. The lifespan of clothes can be extended by washing them less and repairing them. The garment can also be returned to the retailer or placed in the clothing recycling container.



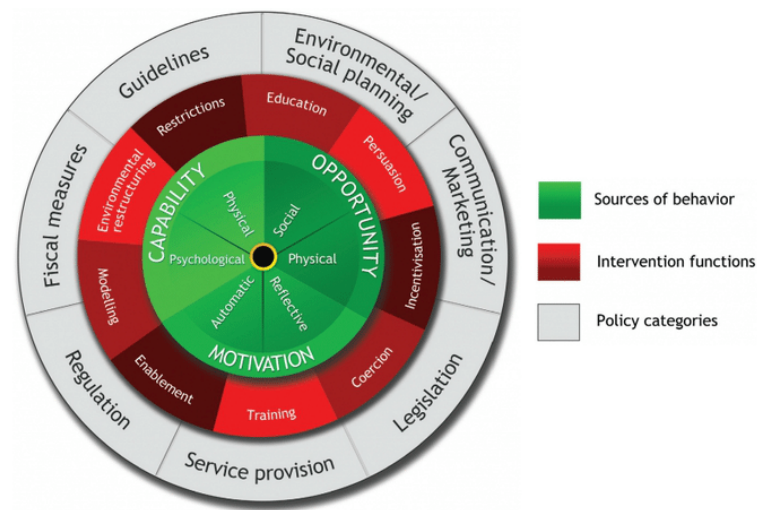
### Behaviour is based on capability, opportunity and motivation

Various models exist for interpreting behaviour. A method that enjoys widespread support and is often applied is S. Michie’s Behaviour Change Wheel (BCW, 2011). According to the BCW, there are three factors that determine whether people apply the desired behaviour:

- 1 Capability (citizens must have the right skills and knowledge, for example to use an online platform to borrow tools from your neighbours);
- 2 Opportunity (citizens must have an opportunity to apply the behaviour, for example somewhere you can buy second-hand clothes);
- 3 Motivation (citizens must be motivated to apply the desired behaviour, for example separating batteries for disposal makes you feel good).

The BCW is one of the tools used in identifying desired behaviour in this behavioural strategy, including the more detailed examination focusing on the development of effective interventions.

Figure 2: Behaviour Change Wheel (Michie, 2011)



### Conscious and unconscious choices

In his book *Thinking Fast and Slow* (2013), Daniel Kahneman shows that people use two systems to make choices. The rapid System 1 ensures that most of our day-to-day decisions can be made unconsciously based on routine. The slow System 2 helps us to make conscious, considered decisions. When it comes to subjects with a short-term impact on the relevant person, they will generally make a conscious choice (at least in part). This happens when buying a car or choosing a new job, for example. For many of the day-to-day aspects involved in the circular economy, people mainly make automatic and unconscious choices. This happens, for example, when you decide to buy new or second-hand trousers. Appealing to unconscious choices is also more effective. This can be done by making the desired behaviour easier, for example.

Conscious, considered choices are generally more affected by arguments, knowledge and information. These can be applied at what are referred to as moments of change. These are moments when automatic unconscious choices are temporarily interrupted. When moving house, for example, people will actively seek out ways in which to dispose of waste. This makes them open to information about waste separation in their neighbourhood. Knowledge and arguments can also be used effectively in providing a rationale for (unconscious) choices made. This is referred to as post-rationalisation (Hertwig, 2017).

It is often assumed that sustainability is an important motivation for people changing their behaviour. Although citizens do indeed see sustainability as important and gain satisfaction from doing sustainable things, studies have regularly demonstrated that sustainability is not a decisive factor for a large group of citizens. This means that raising awareness cannot result in different behaviour on a large scale (D&B, 2020; Populytics, 2022, etc.) Instead of that, the focus needs to be on specific drivers and barriers for each target behaviour. If young people enjoy purchasing second-hand clothing because the garments are unique, they become more motivated if the communication emphasises the unique nature of the clothes rather than simply communicating about the benefits for sustainability. In addition to this, there can also be communication about sustainability in order to ensure that the group of people with strong sustainable values is also targeted and to increase public support for sustainability policy.



'Knowledge-attitude-behaviour' has long been the motto applied for encouraging behaviour using communication and information. This sequence is mainly effective when the target group has a strong engagement with the subject. If engagement is low, the reverse sequence is more effective. In that case, it is not information, but actually emotional impulses (easy, attractive) that direct the behaviour. You start by influencing behaviour (using these impulses) then change the attitude and with it the need for knowledge/skills. This is very much in line with the Elaboration Likelihood Model (Kitchen et al, 2014) and the Foote, Cone & Belding involvement grid (Cheong et al, 2021).

### **In practice, circular behaviour is not easy and not obvious**

As professor of Dynamics of Innovation Systems at Utrecht University, Marko Hekkert has an explanation for the slow transition when it comes to a circular economy. He refers to it as the circular paradox: a circular economy is a solution for countless problems (such as climate change, loss of biodiversity, nitrogen crisis, supply risks) and yet we are not moving in large numbers towards a circular economy. This is caused by habit patterns and established interests and the complex and large-scale nature of the desired system transformation.

Hekkert's conclusions reflect those reached in the Convenience Gap Project: there are numerous practical obstacles preventing circular behaviour by citizens. There is an issue with a so-called 'convenience gap'. Discussions with IKEA, second-hand shops, Ahrend and others have shown that bridging the convenience gap will need to be one of the key components of any approach aimed at encouraging the sale of second-hand furniture (Groene Brein, 2022).

Various studies have shown that circular choices are not especially compatible with the way people currently behave or what they desire. People's primary drive is to achieve greater convenience and more possessions, whereas the circular economy requires greater effort and delivers less comfort, such as repairing products or buying fewer of them (Hekkert, 2022).

Circular business models are also not reflective of what citizens actually want. The majority of the public would prefer to pay for products in one go rather than monthly instalments and, given the choice, would rather purchase new products. This applies particularly to the older age groups. It is relatively less important to the younger age groups, although, even here, a majority feel that the condition of the product on purchase is important. The main reason for this is that new products are deemed to be of better quality. This shows that citizens currently have difficulty imagining that circular business models can deliver the same quality and guarantees as linear business models. If they can gain this trust, they will be more likely to make use of these kinds of business models. (Populytics, 2022).

In 2021, in one of its key insights, Acceleration House (*Versnellingshuis Nederland Circulair!*), the subsidy scheme for circular chain products, states: For the masses, the transition lacks legitimacy: there is not yet a clear roadmap to a circular transition by 2030 and 2050. A lot of existing, linear policy also remains intact. The development of new norms is proving a slow process. Currently, circularity is voluntary. Research also shows that the term 'circular economy' is relatively unknown by citizens. Despite this, people say that they consider the underlying objectives to be important and there is support for more sustainability measures<sup>4</sup>.

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4 Focus group research on Ministry policy areas (IenW, 2022)



# 3. Basic principles, strategy and detailed breakdown

The Basic Principles, Strategy and Detailed Breakdown for encouraging citizens to contribute to a circular economy are set out in sequence below. The Basic Principles (3.1) are key points that are largely accepted by experts but are partly new to a wider audience. In combination with details of how the behaviour comes about (see 2.3), the basic principles lead logically to the strategy. The Strategy (3.2) forms the heart of this report. The strategy describes how government authorities, including central government, can achieve the desired behaviour from citizens in the most effective way. The Detailed Breakdown (3.3) concerns operational issues that arise logically from the strategy.

## 3.1 Basic principles

### 1. Using behavioural knowledge about citizens relating to the circular economy is necessary and legitimate

The government aims to achieve a fully circular economy by 2050. In a circular economy, government authorities, businesses and citizens will adopt a responsible approach to raw materials and achieve a cleaner, healthier world for today's and future generations. This will require a radical shift from the current linear economy to a society in which sustainable alternatives, reuse and recycling are the norm. This will call for concerted efforts from government authorities, businesses and citizens alike. To achieve a circular economy, citizens will need to change their behaviour, for example by buying second-hand products or sharing. Citizens will not change their behaviour automatically; to achieve that, interventions will be necessary that have an impact on the choices people actually make.

#### Government action required in the long-term interest

In 2012, the Netherlands Scientific Council for Government Policy (WRR) reported that, since the 1980s, the Dutch government has prioritised 'less government, more market' (WRR, 2012). This has ultimately resulted in a market economy that is reaching its limits for all kinds of different reasons. It concludes that central government has an 'overarching responsibility' for public interests, such as sustainability. This means that the government has a role to provide incentives and facilitate and, where necessary, to take action by drafting legislation and regulations.

Businesses focus primarily on making a profit and do so by responding to consumer 'demand'. Just like businesses, citizens also find it difficult to act based on a long-term perspective that reflects such interests as clean air, a habitable planet and the recycling of raw materials, even though they consider these to be important motivations. Citizens will not quickly create market 'demand' for a circular economy on a wide scale. They find it time-consuming and complicated working out which products are circular and which are not. For the human brain, the idea that this could destroy the planet is difficult to fathom. Citizens are also encouraged to buy attractive, new and cool products in order to keep in with their social group. There is therefore a clear need for the government to intervene on sustainability issues.

#### No objections to the influencing of behaviour by government authorities

In '[Met kennis van gedrag beleid maken](#)' (Policy-making using Behavioural Expertise), the WRR points out that there are no normative objections in principle to the influencing of behaviour by government authorities, providing that this does not concern controversial issues, there is sufficient transparency and the usual aspects of the rule of law are also taken into account. In its publication '[De verleiding weerstaan, Grenzen aan beïnvloeding van gedrag door de overheid](#)' (Resisting temptation: limits on influencing behaviour by the government), the Netherlands Council for Social Development (RMO) explores the issue of whether governments are justified in influencing behaviour and using nudges (influencing without prohibition or financial incentives) and when this can be applied. The RMO argues that this is always justified if a government acts based on the parliamentary decision. Put simply, there are few moral or legal barriers preventing the application of behavioural knowledge about citizens in the context of a circular economy. Indeed, government authorities are expected to contribute to the process of resolving society's problems effectively.

### 2. Changing citizens' behaviour by government authorities is nothing new

Government efforts to direct the choices made by citizens are nothing new. Governments have been doing this for years, for example by imposing a maximum speed limit, providing tax incentives for solar panels or public information about healthy eating. Policy is almost always concerned with guiding people's behaviour. There is always an element



of influence in the formulation, timing, conditions, standard, content and the person or body presenting the choices. For example, citizens can use a sticker on their letterbox to indicate that they do not wish to receive advertising materials. Some municipalities have now switched this around: citizens who wish to receive advertising materials have to place a sticker on their letterbox and anyone else will automatically receive no more printed advertising. Put simply, in their policy choices, government authorities will always have an influence on citizens' behaviour when it comes to the circular economy.

### 3. Governments can influence behaviour by configuring the right environmental conditions

Various behavioural studies have shown that the choices people make are closely related to the way in which the system is structured, especially when it concerns issues that really matter personally to them. A deposit payable on a plastic bottle, for example, encourages recycling. People are also more likely to purchase a Fairphone if people around them are also using one. Much of citizens' behaviour is determined by the physical, economic and social environment. It is this environment that elicits the behaviour from people. The term choice architecture is used to refer to the way in which choices are presented. By using a smart choice architecture, governments and market players can configure the living environment in such a way as to make circular behaviour easier and more obvious. Undesirable behaviour becomes (physically, economically or socially) more difficult than the desired behaviour.

Applying coercive/prohibitive measures only or focusing solely on subsidies or other incentives is largely ineffective and quickly leads to opposition. They both need to be presented side-by-side: establish a norm, be consistent in applying it, but make the desired behaviour easier and more attractive and be consistent in communicating about this.

#### **The government is uniquely placed to configure the right environmental conditions**

The Future Consult publication entitled *Circular Consumer 2050 (Circulaire Consument 2050, 2021)* presents three scenarios aimed at managing the transition towards a circular economy by 2050, highlighting different roles for government, the market and citizens. Government authorities are uniquely placed to create the physical, economic and social environmental conditions for managing the circular behaviour of the market and citizens. If this is done in the right way, citizens will easily conform to this circular living environment. Government authorities can encourage citizens directly by using

existing and new instruments. They can also encourage citizens indirectly by making arrangements with market players about the supply that they provide to citizens, either by means of agreements or legislation. This serves a dual purpose: on the one hand, it is important for businesses to change and become more sustainable in order to contribute to a circular economy and on the other hand the supply they are offering will influence public behaviour.

### 4. Focus behavioural change on as wide and diverse a target group as possible

Research shows that people will behave more sustainably if they think that the people around them see sustainability as important (Bouman, Steg & Zawadzki, 2020). Seeing other people buy things from *Marktplaats* and bringing their own coffee cup can trigger them also to make circular choices themselves, often without consciously linking it to a circular economy or sustainability. As such, circularity becomes a self-reinforcing social norm, resulting in increasing numbers of citizens exhibiting circular behaviours and increasing numbers of circular behaviours per person.

In order to create a social norm, it is most effective if it is simultaneously applied to several desired circular behaviours in different target groups that vary in terms of background and living situation. For example, people with varying degrees of affluence or level of education, different living situations, different places of residence, different family make-ups, etc. In order to ensure that many citizens become involved, the focus is on different themes and desired behaviours, ensuring that every citizen can contribute in some way. For one person, this may be borrowing tools from the neighbour, for another swapping clothes, another may use their own cup when buying a drink and for another it may be about completely separating household waste. For each behaviour, there needs to be a focus on specific drivers and obstacles that effect the target group and research conducted on how that target group can be most effectively reached.

The best way of choosing a target group and desired behaviour is to base it on the size of the target group willing to change their behaviour, the impact of the behaviour on the circular economy and the target group's capacity for change.



## 3.2 Strategy

Table 2 is a graphic representation of the strategy for eliciting, maintaining and reinforcing circular choices by citizens.

**Table 2: Summary of Behavioural Strategy for Citizens and the Circular Economy**

Behavioural Strategy for Citizens and the Circular Economy	
Target	Broad target group will opt for circular
Strategy	<ol style="list-style-type: none"> <li>1. We will create conditions that ensure that the circular choice is easy, obvious and fair.</li> <li>2. We will make use of drivers and remove obstacles by designing additional measures specifically for each target group, desired behaviour and product.</li> <li>3. We will integrate and broaden circular behaviour by also focusing on the development of a sustainable identity. As a result, citizens will make more circular choices more often.</li> </ol>
Implementation	We will use the Sustainability Monitor for the Netherlands and other studies to regularly update the process. We will develop policy based on knowledge about behaviour.

### 1. Behavioural change by making circular behaviour easier, more obvious and fairer

Values are important predictors of circular behaviour. People with biospheric (i.e. caring about nature and environment) and altruistic (focusing on helping others) values have a greater tendency to exhibit circular behaviour than people with egotistical (focusing on personal resources) or hedonistic (focusing on pleasure and comfort) values (Langley, Bouman and Steg, 2020). All four values matter to everyone, but the value that matters most and therefore has most influence on behaviour differs for each individual.

In encouraging circular behaviour, knowledge about which behaviours or products are circular will be enough for those people who are more likely to act based on biospheric and altruistic values. People in whom egotistical or hedonistic values predominate are more likely to pursue the behaviour that is easiest, most obvious and fairest.

Since the aim is to encourage as many citizens as possible to exhibit circular behaviour, the strategy focuses on making the desired behaviour easier, more obvious and fairer while also making the undesired behaviour less attractive and, where necessary, impossible.

#### Easier and more obvious

In the current situation, circular behaviour often calls for additional effort. A sustainable product is more expensive, for example, and repairing a product takes more effort than buying a new one. This convenience gap prevents many people from opting for circular alternatives.

Circular behaviour can be made easier and more obvious. For example, it is easier to buy second-hand products if there is increased access to online and physical second-hand marketplaces and shops. It is also easier to reduce the use of paper if the default for printed advertising is for people not to receive any printed advertising in the post unless they specifically ask for it and if e-books are promoted more than physical books. In addition, effectively collecting bulky waste becomes more convenient if cargo bikes are made available for its disposal.

#### Focusing on making circular behaviour easy, obvious and fair is also suitable for citizens who are already motivated to act in a circular way

There is also a group of people who already take an interest in the circular economy and are willing to make an effort to act in a circular way. For them, making the desired behaviour easier and more obvious helps to bridge the gap between intentions and actual behaviour, referred to as the intention-behaviour gap. This document does not include any separate strategy for this group in view of its small size and also because making desired circular behaviour easy and obvious is also an effective approach for this group.

#### Making undesired behaviour more difficult

Whilst it is necessary to make the desired behaviour easy and obvious, this is not enough in itself. Ultimately, people find it easiest to continue what they are already doing. This is why also making the undesired behaviour more unattractive is necessary in order to achieve the right behavioural change. By way of illustration, it needs to be less attractive to buy new outfits every month and more attractive to properly maintain clothes that you already own.





## Fairer

Focus group research shows that fairness is also an important factor for citizens in a circular economy (Mare, 2022). People consider it to be unfair, for example, if they separate their waste and still have to pay the same waste tax as someone who does not separate their waste. Citizens have a general tendency to dislike free riders. These are people who ignore the norm and are rewarded for it. If there are many free riders, this reduces the chance of a change in behaviour. Fairness is not only a factor between citizens themselves, but also between citizens and market players and government. In the case of separating waste, it is fair that companies also separate their waste and that efforts are made to ensure that separated waste streams are properly processed. Citizens must be able to rely on the government and market players also taking responsibility. Citizens see something as fair if, for example, procedures work properly, the desired behaviour actually contributes to a more circular economy, the results are clearly communicated and if government authorities and market players keep to the agreements and at least match citizens' efforts to achieve a circular economy. If citizens have any doubt about this, the desired circular behaviour can soon come to an end and it will take a long time before they are willing to change their behaviour again. If, for example, you introduce the separation of waste but the separated processing of the waste is not properly organised, large numbers of citizens will simply stop separating waste. Reinforcement, reliable environmental labels and claims of sustainability that have proven to be true can all contribute to this sense of fairness.

## 2. Focus on specific motivations for and objections to each target behaviour

All of the desired circular behaviour has to be made easier, more obvious and fairer. This is a strategic point for all desired circular behaviour. Specific behavioural knowledge can be used to make circular choices more attractive for citizens. Above all, this requires an understanding of specific motivations and objections. This can be done for specific target behaviours that require careful research in advance. In order to be effective in tackling behaviour, it is important that any approach focuses on the (environmental and personal) factors that have an effect on the desired behaviour. These factors are outlined in scientific literature and can be identified by means of target group research. This makes it possible to put together a targeted intervention.

To take one example: it is desirable for citizens to wash their clothes less frequently. This saves water and energy and makes the clothes last longer. Reducing the number of washes is something that happens behind closed doors. The easy, obvious and fair approach is possible in this context to a limited extent only. Behavioural research

has shown that saving water and energy are not strong motivations for reducing the number of washes. The intervention cannot be targeted at that. Citizens have only limited knowledge of how to keep clothes fresh without putting them in the wash. This presents an opportunity. Research has shown that people find the idea of wasting less time washing clothes extremely appealing. Washing clothes less is seen as an increase in comfort. This makes it a very promising angle from which to approach communication and interventions. Only if you have this specific knowledge of motivations and objections is it possible to opt for an approach that is appropriate for the target group and the attempt to achieve the desired circular behaviour.

## 3. Internalise a sustainable identity to embed and broaden circular behaviour

As well as encouraging citizens to make more sustainable choices, the behavioural strategy also envisages that sustainable circular behaviour will subsequently continue to be maintained. It is also hoped that people will begin to adopt other sustainable behaviours of their own accord. One way of achieving this involves the internalisation of circular behaviour and the adoption of a sustainable identity (Udall et al., 2021; Truelove, 2021). One technique for this is 'post-rationalisation'. After eliciting new behaviour, you compliment citizens on their *sustainable* conduct. They may have been completely unaware that they were acting sustainably but now feel good about it afterwards. This method could then help ensure that citizens start adopting other sustainable behaviours, referred to as a spillover effect (Van Baaren & van Leeuwen, 2020). Post-rationalisation appears to have the potential to encourage citizens to adopt increasing numbers of sustainable behaviours, but studies into this technique have yet to result in any clearly-cut guidelines that can be widely applied. However, post-rationalisation can also lead to compensatory behaviour: 'I've been so sustainable so far already, it's fine to do a bit of extra shopping' (licensing effect). In some target groups, it can also invoke resistance: 'I don't want to do everything sustainably.' Research will be needed in the years ahead into how and when this technique can be effectively applied.

Boosting is another technique for embedding circular behaviour. This not only involves guiding people towards the desired behaviour, but also increasing their capacity to make the right choices (Hertwig and Grüne Yanoff, 2017). This can take the form of transferring specific knowledge or acquiring new skills and will therefore not be of relevance for every circular behaviour. Putting an energy label on products is an example of boosting, providing people with easy to understand information that enables them to easily make the most energy-efficient choice.



#### 4. Using data and behavioural monitoring to assess and adjust the behavioural strategy

The Behavioural Strategy for Citizens and the Circular Economy has been developed based on generic behavioural insights and behavioural studies on the subject of the circular economy. Where necessary, improvements to it will be made in the years ahead based on new insights and behavioural monitoring. In this, an important role will be played by the Sustainability Monitor (expected in 2023) and the regular updates that Milieu Centraal will provide for this (from 2025). This will enable the latest insights concerning environmental impact and citizens' capacity for change to be taken into account.

The process of monitoring will also need to take account of opposition within society. Society will gradually start to look different. Not everyone will find it easy to accept this change. Opposition may emerge among certain groups and especially among people with a strong attachment to regularly buying a lot of new products or clothes. The changes may also result in increased polarisation in society. Ideally, any such developments will be incorporated within the Monitor in order to ensure that they can be taken into account in all communication and policy concerning the circular economy.

### 3.3 Detailed Breakdown

#### 1. Add behavioural expertise to the circular economy policy programme

The active use of behavioural knowledge in the context of the circular economy will have organisational consequences. It means that behavioural experts will need to be involved in the implementation of the NPCE and its update every two years, as well as in the further development of the transition agendas and practical details of interventions. Expertise from the Behavioural Insights Team (BIT), RWS and other external behavioural experts can be used for this purpose. For the same reason, a behavioural expert has been appointed in the Sustainable Environment and Circular Economy Directorate itself.

#### 2. Prioritisation based on citizens' 'capacity for change'

The decision to make use of a behavioural strategy also has an impact on how policy is prioritised. With regard to prioritisation in terms of the circular economy, the PBL's main recommendation is to focus on product groups that have the greatest impact on the climate, biodiversity, pollution and security of supply (PBL, 2021). While these may be important criteria, an additional criterion should be added: the extent to which the

target groups behaviour can be changed by interventions and how much effort this will require. This is because the impact is partly determined by the capacity for change. Explicitly taking the capacity for change into account in the prioritisation process makes it possible to gain a greater insight into the actual impact of measures. It also helps to clarify whether there is sufficient understanding of the behavioural aspects relating to a particular theme or whether further behavioural research will be needed. When addressing the circular behaviour of citizens, a proper assessment will therefore need to be made of public capacity for change or citizens' willingness to adapt their behaviour. This is currently being explored as part of the PBL Sustainability Monitor.

#### 3. Break down the social costs of non-sustainable behaviour into individual costs

For individual citizens, sustainable behaviour can often be more expensive, more difficult or require more energy than non-sustainable behaviour. Yet the costs to society of sustainable behaviour are lower. For individual citizens, for example, food that has been produced sustainably is more expensive than industrially produced food. But the social costs of industrially produced foods are greater than their sustainably produced equivalents. If the social costs were properly applied to the products and services, referred to as true pricing, people would be more likely to opt for the choice with the lowest cost to society. This is in line with the strategy of easier, more obvious and fairer.

In the first ICER published by PBL (2021), this principle is also mentioned in the context of businesses. Existing legislation and regulations should no longer be disadvantaging circular companies at the expense of linear businesses, but actually doing the opposite. Primary raw materials tend to be cheaper than recycled. Establishing a level playing field for businesses is one way of ensuring that sustainable products and services are no more expensive or more difficult to access than products and services that pollute the planet. It will also make businesses more likely to opt for the most sustainable options.

#### 4. Apply more coercive measures to encourage citizens

Making behaviour that contributes to the circular economy easy, obvious and fair does not mean that no obligations should be placed on citizens. Legislation and regulations, enforcement and the restriction of certain choices can often be effective ways of influencing behaviour that help to bring about the desired result. In the ICER (2021), the PBL calls for a less voluntary approach and more coercive measures. For most citizens, sustainability, the climate and raw materials are not top-of-mind subjects. They are



subjects on which most citizens do not wish to expend very much effort. In cases like these, it makes sense to consider a form of influence with slightly more coercion. The use of coercive measures also has potential for changing market supply. For example, they could include a mandatory percentage of second-hand products in shops or the banning of certain products, such as single-use plastics.

### **5. Use existing legislation and agreements with the market to create the desired circular economy environment**

Making the desired behaviour easy, obvious and fair also involves the physical, economic and social environmental conditions that businesses create. There are instruments and possibilities available for influencing the supply offered by market players as a means of enabling citizens to adopt a circular approach to products more easily. For example, making it compulsory for producers to apply modular design, offering more sustainable products or providing waste return systems will cause citizens to make circular choices. Existing instruments can be used or further improved. Examples of these include the Ecodesign Guidelines, e-labels and fiscal measures and agreements based on Extended Producer Responsibility (EPR).

### **6. Research the opportunities for using education and happiness**

Learning about the circular economy is part of the Ministry of Infrastructure and Water Management's ambition to embed knowledge and skills about the circular economy across all levels of education in order to ensure that students are equipped for the future and can make a valuable contribution to the transitions that the Netherlands faces. In 2021, with the support of the Netherlands Enterprise Agency (RVO), the Ministry of Education, Culture and Science, the Ministry of Agriculture, Nature and Food Quality, the Ministry of the Interior and Kingdom Relations, the Ministry of Economic Affairs and Climate Policy and the Ministry of Infrastructure and Water Management launched the inter-ministerial working party for Sustainable Schools. This working party seeks to collaborate across areas relating to sustainability, young people and education. Within the working party, it is acknowledged that an integrated approach will be required in order to take full advantage of the potential that education offers in the transition to a sustainable and circular economy. The Whole School Approach (WSA) is an instrument that can contribute to this. The WSA is an integrated approach that supports schools in how to implement their sustainability goals in a broad sense. A connection is made between the educational vision, the manner of operation, the curriculum, competencies

and the area surrounding the school. In addition, the WSA concerns sustainability education in a broad sense, from creating awareness and citizenship via knowledge and practical skills to scientific research and innovation. The WSA is used across the world as an instrument for incorporating the Sustainable Development Goals within education.

Adding Emotional Intelligence (Goleman, 2013) and Happiness Studies (Dijksterhuis, 2015) to the educational curriculum can achieve positive societal effects. Research has shown a strong link between happiness and sustainable behaviour (Zawadski, Steg & Bouman, 2020). Integrating happiness within education may potentially prove useful in developing more desirable circular behaviour by citizens. Happiness or satisfaction do not necessarily arise from material things, fashion and status, but primarily result from social contacts (connection), significance for your (social and physical) environment, autonomy, pleasure without impeding the pleasure of others and pride. This is in line with efforts to encourage citizens to reduce their consumption. Further research will be required in order to explore whether promoting emotional intelligence and happiness will be worth pursuing as part of a long-term strategy towards the circular economy.

### **7. Breakdown of behavioural interventions for each product cluster**

In its ICER in 2021, the PBL points out that the most effective way of tackling the effects of the use of raw materials is at product group level. The NPCE lists the priority product chains as Consumer Goods, Plastics, Circular Manufacturing Industry and Circular Construction Economy. In the context of citizen behaviour, it primarily concerns Consumer Goods in the following product groups: textiles; electrical and electronic equipment; furniture; packaging and disposable products. The priority product chain Plastics, and specifically the plastic packaging product group also plays a role. These product groups are the responsibility of the Ministry of Infrastructure and Water Management. The priority product chain Biomass and Food, product group food is also included. The subject of Biomass and Food is the responsibility of the Ministry of Agriculture, Nature and Food Quality.

The suggestion made by the PBL makes good sense in view of the fact that it is important in the behavioural sciences to look at the desired behaviour of specific target groups. In identifying what constitutes potentially promising target behaviour for each target group of citizens, it is necessary to look at an even lower level, at product cluster level. Chapter 4 of this behavioural strategy focuses on the product clusters clothing (part of the textile product group) and small household appliances (part of the electrical and electronic equipment product group).



## 8. Breakdown of behavioural interventions outside the product groups

The previous point looked at the breakdown of specific product groups. However, the existing product groups do not cover all public behaviour within the context of a circular economy. This is why, in addition to the breakdown within product groups, it is also important to formulate general principles that are always applicable.

It is important that any approach focuses on the (environmental and personal) factors that have an effect on the desired behaviour. The interaction between people and their environment is key to this. Potential solutions may be found in reconfiguring these physical, economic and social environmental conditions. The following steps are important in identifying effective measures:

- 1 Determine the target, target group, target behaviour and type of behaviour involved (automatic or planned);
- 2 Identify the relevant factors (e.g. motivation, objections, opportunity, capability of achieving desired behaviour);
- 3 Determine which factors have the potential to be applied and which behavioural techniques will be effective in this situation and for this type of target behaviour;
- 4 Develop measures based on the techniques;
- 5 Measure and evaluate the effect of the measures and make adjustments accordingly.

These procedural steps are applied by several behavioural experts in more or less the same form, for example in the Ministry of Infrastructure and Water Management's own DOE-MEE tool (2022) and in the Dutch Council for the Environment and Infrastructure's Behaviour game (RLI, 2022).

## Choosing the right target behaviour

Target behaviour literally describes the desired behaviour of the target group. It is about what a person does, rather than what they think, feel or believe. This behaviour must be so specific that you could almost take a photograph of the act. In other words, not: 'citizens use less packaging', but; 'citizens take their own refillable packaging for (breakfast) cereals to the supermarket'.

Determining the target behaviour requires knowledge about the environmental impact and the target group's capacity for change. The target behaviour must have a significant environmental impact and citizens must already have some willingness to engage in it.

## Opportunities in collaboration with municipalities, RWS and BIT

In many municipalities, there is relevant experience in the separate collection of a range of raw materials and waste streams. There is plenty of experience in encouraging the public to separate waste by means of price incentives, such as paying for residual waste at the municipal waste collection facility and differentiated tariffs (paying for residual waste based on the amount). Municipalities are also increasingly gaining experience in encouraging behaviours at the higher levels of the R-ladder (such as sharing and borrowing). Ideally, a list of best practices (including at municipalities and RWS) should be drawn up and combined with the behavioural studies that BIT has done on this theme. This will reinforce the knowledge base, ensuring more effective measures can be taken. Investigations are under way to see how we can effectively collect and enable access to this knowledge.



## 4. Behavioural strategy for each product cluster

Chapter 3.3 highlights the need for a detailed breakdown of the strategy for each product group and the specific separate clusters within it. Having a behavioural strategy for each cluster enables you to make use of specific behavioural knowledge, allowing suitable measures to emerge. In this behavioural strategy, the NPCE targets are translated into a behavioural strategy for clothing (cluster within the textile product group) and small household appliances (cluster within electrical and electronic equipment). Breaking it down in this way enables ideas for potential measures to emerge. However, potential measures are not established policy.

In the case of clothing, we can see that there is potential in focusing on the sale and purchase of second-hand clothing and in the case of small household appliances, the proposal is to consider sharing and borrowing. Selling second-hand clothes and sharing and borrowing are potentially useful solutions in several of the clusters. This is valuable because any spillovers from newly acquired behaviour are likely to be within the same type of behaviour (D&B, 2022). This makes it possible to encourage a wide spectrum of desired behaviour among citizens. It also enables us to ensure that there is influencing of behaviour across every product group, making it possible for further experience and knowledge to be acquired. Appendix 2 includes a list of motivations and obstacles for citizens and effective strategies for various potential solutions, based on Milieu Centraal's Consumer Insights (2022).

### 4.1 Product group: textiles; cluster: clothing

For the product group of textiles, the decision was made to focus on the clothing cluster. Textiles have a significant environmental impact and within this product group, clothing is responsible for approximately two-thirds of the impact, according to the advisory roadmap (IenW, 2022). The desired behaviour in the context of clothing is of relevance for every citizen. It is also behaviour that frequently recurs. There has been some good behavioural research in the field of clothing and the circular economy and this is explored in greater detail below.

#### 1. Market

The clothing industry is a global, linear industry. The manufacturing of clothing has a significant environmental impact. Citizens also waste water and energy by washing clothes too frequently and at too high a temperature. Citizens generally quickly discard clothes. As a result, citizens make a significant contribution to the polluting textile industry. The use and discarding of clothing accounts for around 5% of Dutch consumers' total impact (Milieu Centraal, 2022).

Only very few businesses in the clothing industry are on track towards a circular business model (Shopping Tomorrow, 2021). A quarter of all businesses have set KPIs for the circular transition. Less than 40% use sustainable materials. Other actions, including recycling (24%), offering a second-hand range (5%) or the collection of clothing for use or sale elsewhere (14%) are struggling to take off. The main obstacle tends to be establishing a good business case (43%). The quality of products is also inadequate for recycling and there is very little collaboration or transparency within the chain.

In terms of volume, sales of clothing in the Netherlands grew by 28% in 2021 compared to 2020. In 2022, Dutch consumers were buying an average of 34% of their clothing online. One-third of these online orders are returned (FashionUnited, 2022). There is a group of shoppers (10-20%) who regularly order several sizes of the same garment with the plan to return some items (Schermer, 2021). The garments returned are sometimes destroyed (Shopping Tomorrow, 2021).

#### 2. Target behaviours

There are different consumer behaviours for each of the three circularity targets and they can be found in Table 3. The table also makes it clear if there is a specific additional target group that can be targeted with behavioural interventions.



**Table 3: Target group and target behaviours for clothing**

NPCE circularity targets (2030)	Associated consumer behaviours
1. New textiles placed on the market will have a circular design.	<p><b>Target group</b></p> <ul style="list-style-type: none"> <li>Adults with their own households, aged 18-80</li> </ul> <p>Less promising target behaviour</p> <ul style="list-style-type: none"> <li>Purchasing sustainable clothing</li> <li>Purchasing less clothing</li> </ul>
2. Textiles will be used twice as long by consumers compared to 2023.	<p><b>Target group</b></p> <ul style="list-style-type: none"> <li>Men and women, aged 18-40. Purchase a lot of clothing, are already familiar with second-hand clothing and swapping and are most willing to wash clothing less often</li> </ul> <p><b>Promising target behaviour</b></p> <ul style="list-style-type: none"> <li>Purchasing/selling second-hand and swapping</li> <li>Repairing clothing</li> <li>Washing clothing less often</li> </ul> <p><b>Less promising target behaviour</b></p> <ul style="list-style-type: none"> <li>Hiring clothing</li> <li>Washing at lower temperatures, with less detergent</li> </ul>
3. 100% of the textiles where lifespan extension is not possible will be collected and recycled.	<p><b>Target group</b></p> <ul style="list-style-type: none"> <li>Adults with their own households, aged 18-80</li> </ul> <p><b>Promising target behaviour</b></p> <ul style="list-style-type: none"> <li>Separated disposal or sale of clothing for reuse and recycling</li> </ul>

### 3. A closer look at the target behaviours

Below, we take a closer look at the above target behaviours. We highlight the opportunities and consider the obstacles.

#### Purchasing sustainable or less clothing

For textiles to be used twice as long by consumers compared to 2023, citizens will need to be able to use clothing for longer (i.e. sufficient quality for a longer lifetime). The circular design of textiles can contribute to this (see circularity target). After that, citizens need to purchase this kind of circular clothing.

In the current shopping environment, citizens are seduced into buying new clothing. Wearing a lot of different clothes is associated with image and identity, especially among younger target groups (fast fashion). They are especially vulnerable to rapidly changing fashion trends. Currently, the slow fashion market is already on the rise. It involves businesses that focus on good quality, longer-lasting clothing. This often includes clothing that can be effectively combined, enabling it to be worn in many situations. This clothing is often more expensive and currently still only appeals to a small, sustainable target group. One suggestion could be to encourage the sale of sustainable clothing by means of a sustainability label. However, research actually shows that citizens purchase more clothing if it features a sustainability label, a phenomenon referred to as the circular rebound effect (Adigüzel et al, 2020). Restricting clothing advertising and special offers can slightly reduce the sale of new clothing.

When all of the new textiles on the market have been circularly designed, purchasing good quality clothing will be easy and obvious and this behaviour will come about of its own accord. Until that happens, focusing on selling sustainable clothing has no potential. Focusing on people buying less clothing also presents a major challenge, but is worth exploring because of its huge impact.

#### Purchasing/selling second-hand and swapping

More than 50% of people occasionally buy second-hand clothing (Motivaction, 2017, IPSOS, 2020). Around 14% prefer to buy second-hand clothing, which is more than in previous years (I&O, 2022). Research has shown that people who purchase second-hand clothing are driven not by sustainability, but the cool and unique nature of second-hand clothes.



Some second-hand clothing is quickly sold on. Rapid circulation of second-hand clothing increases the environmental impact because of packaging and transport. This applies both to second-hand and new clothing.

If we consider citizens' capacity for change, it makes most sense to focus on purchasing/selling and swapping second-hand clothing rather than new clothes (D&B, 2020) for as long as clothing is not circularly designed as standard. This is why we currently consider the target behaviour of purchasing second-hand clothing to be promising.

### **Repairing clothing**

Other potentially promising behaviours for extending the lifespan of clothing include having clothing repaired. If citizens have their clothing **repaired**, this does not mean that they will not buy anything new because citizens have a strong desire for variety in their clothes. Support for repair and refurbishing appears to be limited (WRAP, 2020). This takes a lot of effort in relative terms and citizens can buy new clothes for the same price (D&B, 2020). According to (unpublished) research by PBL, 48% of citizens say that they do intend to repair worn clothing. When repair becomes cheaper (and clothing more sustainable and expensive), it may be attractive for some people to have some of their clothing repaired. Further research will be required to identify the target groups for which clothing repair is a promising option. Currently, we consider the target behaviour repairing to be a promising subject for further research.

### **Washing clothing less often and at lower temperatures**

**Washing** clothing less often reduces consumption of water, makes clothes last longer and reduces micro-plastic pollution in the water. Based on behavioural research, there would seem to be potential for using social proof and a concrete perspective for action to make people wash clothing less often and leave it out to air, for example. This is because washing less often means less work and therefore more comfort.

Public interventions that focus on washing at low temperatures and reducing the use of detergent do not appear promising because this is at odds with citizens' current views on hygiene: they do not believe that the washing will be properly cleaned (D&B, 2020). One way of achieving this behaviour could involve agreements with the market focusing on packaging in smaller units and washing instructions about the required temperature. We currently consider the target behaviour of washing less frequently to have more potential than washing at lower temperatures.

### **Separated disposal or sale of clothing**

Currently, more textiles end up in residual waste (140 million kg) than the amount that is disposed of separately (75 million kg). According to the Mass Balance published in 2020, approximately 45% of textiles in the Netherlands are separated before collection, with 55% ending up in residual waste. Of the separated textiles, 53% are reused and 33% recycled. Around 84% of the textiles collected in the Netherlands end up being exported (Afvalcirculair, 2022).

If second-hand clothing is to be sold, it needs to be separated for disposal or sold by citizens themselves. It also needs to be handed in if it is to be recycled. This shows that there is currently too little disposal of clothing at collection points for reuse (RWS waste sorting analyses, 2019) We currently consider the target behaviour of effectively separating or selling clothing to be promising.

## **4. Conclusions**

The behavioural analysis has been used to compile the following list of ideas of potential measures based on target behaviours we consider to be promising.

### **Focus on a wide target group to enable everyone to do more**

The promising target behaviours highlighted above focus on a wide target group. Second-hand clothing is the target behaviour to which the largest group of people appear to be open (strong willingness to change). Sustainable clothing/slow fashion tends to be more expensive, leaving this target behaviour out of reach for some.

### **Make the target behaviour easy, obvious and fair**

**Purchasing second-hand clothing** will become easier when it is mainstream. One way of achieving this is by encouraging retailers of new clothing also to offer second-hand clothes or by raising awareness about and providing space for existing second-hand initiatives. Purchasing second-hand clothing must become easier or at least as easy as buying new clothes. This also applies to finding the right size. Financial measures aimed at making new clothing more expensive than second-hand clothes could encourage people to buy second-hand.



Making **the repair** of clothing cheaper and available in more places will increase its attractiveness, causing more people to consider it.

Handing clothes in separately for **disposal** is a specific behaviour that can be encouraged with the provision of the right knowledge, appropriate accessible facilities and a sense that it is beneficial. Making it easy by means of door-to-door collection, increasing the number of collection containers, collection via clothing and shoe shops and the use of deposits can work effectively. There is still a lot of public confusion about what should and should not be disposed of in the textiles/clothing container. Further research can be conducted to identify best practices for the separate collection of clothing based on the various different situations across the Netherlands.

#### **Focusing on specific drivers and obstacles for each target behaviour**

In the current situation, people buy second-hand clothing for the following reasons: (D&B, 2020) it is cheaper than new clothing; It is cool; the items are unique; it is sustainable (less important than previous factors). There are also various reasons why people do not do this (Galama, 2020; D&B, 2020). These include scepticism with regard to hygiene, quality and the image of wearing second-hand clothes. People can also often struggle to find items they like (in the right size).

Encouraging the sale of second-hand clothing will require focus on the above motivations and barriers. A public campaign that aims to highlight the sustainability advantages of buying second-hand clothing is likely to have little effect. A more effective approach would be to continue the existing campaign that focuses on the drivers for this target group (cool, unique, easy and fresh). This effectiveness could be increased still further by adding a challenge designed to elicit the desired behaviour ('Stoptober' is a well-known example of this kind of challenge). A challenge ensures that positive experiences are created to dispel the current scepticism (difficult, drab, poor quality).

When focusing on reducing the number of washes, communication can be about the potential alternatives, such as airing clothes. Focusing on comfort (washing less often means less work) and reminders in the form of stickers and instructions on detergent packaging is also possible. This could be helpfully backed up by an association campaign (perspective for action = freshness) and a compliments campaign (fewer washes = sustainable).

#### **Embedding and broadening the desired circular behaviour**

As described earlier in the strategy, it is important to ensure that circular behaviour is embedded and broadened. Follow-up research is needed for the development of tools that can help citizens to maintain the desired behaviour and extend it to other target behaviours or product groups.

## **4.2 Product group: electrical equipment; cluster: small household appliances**

For the electrical equipment product group, the detailed breakdown focuses on the small household electrical appliances (SHEA) cluster. SHEA have a relevant environmental impact, amounting to approximately 12% of the total for electrical appliances (in third place in this product group after High-tech communication and Large household appliances according to the advisory route map) (IenW, 2022). Large household appliances are generally collected by the market on delivery of a new appliance. Some research will be required into the behaviour of citizens in the field of SHEA.

### **1. Market**

According to Statistics Netherlands (CBS), consumer spending on electrical equipment is increasing. This is partly the result of the increasing number of inhabitants, fewer people per household and the increasing availability of smart appliances. If this growth continues until 2030, it can make it more difficult to achieve the targets.

### **2. Target behaviours**

There are different consumer behaviours for each of the three circularity targets and they can be found in Table 4. The table also makes it clear if there is a specific additional target group that can be targeted with behavioural interventions. Below, we explain the target behaviours and interpret them from a behavioural perspective.





**Table 4: Target group and target behaviours for SHEA**

NPCE circularity targets (2030)	Associated consumer behaviours
<p>1. In 2030, any electrical and electronic equipment placed on the market will, as standard, be suitable for use in a circular economy.</p>	<p><b>Target group</b></p> <ul style="list-style-type: none"> <li>Adults with their own households, aged 18-80</li> </ul> <p><b>Less promising</b></p> <ul style="list-style-type: none"> <li>Purchasing appliances that have a long lifespan</li> </ul>
<p>2. In 2030, the circular potential of electrical and electronic equipment will be used to the fullest.</p>	<p><b>Target group</b></p> <ul style="list-style-type: none"> <li>Younger age groups have more experience of sharing services and second-hand products</li> </ul> <p><b>Promising target behaviour</b></p> <ul style="list-style-type: none"> <li>Sharing and borrowing</li> <li>Repairing</li> <li>Refurbishment</li> <li>Longer use</li> </ul> <p><b>Less promising target behaviour</b></p> <ul style="list-style-type: none"> <li>Purchasing/selling second-hand</li> <li>Purchasing products with longer lifespans</li> </ul>
<p>3. From 2030, all discarded electrical and electronic equipment which has been collected will be subject to high-grade recycling, with as much material as possible being recovered, particularly critical metals.</p>	<p><b>Target group</b></p> <ul style="list-style-type: none"> <li>Adults with their own households, aged 18-80</li> </ul> <p><b>Promising target behaviour</b></p> <ul style="list-style-type: none"> <li>Separate disposal of SHEA at municipal waste collection facilities and craft centres</li> </ul>

### 3. A closer look at the target behaviours

Below, we take a closer look at the above target behaviours. We highlight the opportunities and consider the obstacles.

#### Purchasing products with longer lifespans

Unlike clothing, SHEA are less sensitive to changing fashions. It therefore appears effective to focus on lifespan and prolonged usage. This is partially a task for the market and technology, offering opportunities for repair, service and service contracts. Rules set by the government can also play a role, in such areas as lifespan requirements, entitlement to repair and making repair manuals available to the public.

Buying products with longer lifespans can be difficult for citizens if the costs involved are higher. Citizen struggle with long-term investments. Manufacturers are largely responsible for the technical aspects of extending product lifespans. This can be supported by means of reliable labelling, tried-and-tested green claims and agreements about sustainable materials, modular production (to enable repair and recycling), sharing information about product repair and possibilities for repair. This will also need to become more of a focus within legislation and regulations and sector agreements (Ecodesign, e-labels, tax-related legislation, EPR, etc.). Making a guarantee mandatory will motivate manufacturers to make products with longer technical lifespans and take responsibility for repair. Currently we consider the target behaviour of purchasing products with longer lifespans to be less promising.

#### Purchasing second-hand consumer electronics

Second-hand consumer electronics do not feature in the top five of second-hand product categories sold. This may be due to a lack of confidence in the quality (Milieu Centraal, 2022). People prefer not to purchase telephones, laptops and tablets as second-hand products because of the fear that they may contain personal data (Populytics, 2022). Buying SHEA intended for personal care, such as razors or toothbrushes, on the second-hand market is not deemed to be hygienic. Developing a strong second-hand market for SHEA does not appear to be easy.



However, there does appear to be an opportunity for refurbished or repaired appliances that have been assessed by an expert. Indeed, consumer electronics are rated highly as refurbished products (Milieu Centraal, 2022). It is important for the public to gain certainty with regard to the quality of circular products in the form of a third-party guarantee and guarantee period. We currently consider the target behaviour of buying second-hand SHEA to have less promise, although there do appear to be some opportunities for refurbished or repaired appliances in combination with increased certainty in the form of guarantees and guarantee periods.

### Repairs

Citizens tend to prefer repairing SHEA rather than buying a second-hand product. This would suggest an approach focusing on making expert repair easier. Craft centres and repair cafés already exist, but are not currently widely known among the public. Repair cafés and similar initiatives should be promoted based less on sustainability and more on the money saved and added convenience. Repair cafés and craft centres will need to appeal to citizens in terms of their opening times, accessibility and flexibility. Online craft centres or producers can also provide demonstrations of how someone can repair appliances themselves. In this, the ease with which the video can be accessed and the quality of its production will be key factors in how much it is used.

Currently, we consider the target behaviour of repair to have potential. The focus will need to be on making repairs easy and repair cafés easy to find.

### Sharing and borrowing

According to Green Behavioural Insights for a Sharing Economy (*Gedraginsichten Groene Deeleconomie*), 60% of Dutch citizens occasionally share and borrow products (Milieu Centraal, 2019). Different studies show different percentages, but it would appear that more than 50% of people regularly share or borrow. Tools tend to be shared and borrowed the most (more than 60%), along with small electronic appliances (more than 40%) (Motivation, 2019). Most people prefer to share with or borrow from people they know (friends, family or neighbours). Less than 5% of people share or borrow via strangers (e.g. via platforms and social media). Small household electrical appliances (e.g. kitchen appliances, hair straighteners, drills) are occasionally shared or borrowed by 35-46%.

Young adults and the higher educated are the most open to sharing and borrowing products. Apps can also be used for online sharing and borrowing. Some of the existing apps include obstacles for users, such as costs and verification by someone else living locally.

We currently consider the target behaviour of sharing and borrowing to have potential. It would appear promising to focus on eradicating deterrents such as lack of familiarity and inconvenience and to make use of existing motivations, such as saving money.

### Discarding electrical and electronic equipment

In 2019, SHEA were collected at more than 13,000 places, including supermarkets. The collection percentage for all appliances and equipment (including larger items) was ultimately around 58% in 2019. Larger equipment is disposed of separately more effectively than small appliances. SHEA regularly end up in residual waste (RWS, 2020). Despite this, citizens are accustomed to the separate disposal of waste streams and are open to this. We currently consider the target behaviour of the proper disposal of waste to be promising.

## 4. Conclusions

The behavioural analysis has been used to compile the following list of ideas of potential measures based on the target behaviours that we consider to be promising.

### Make the desired behaviour easy, obvious and fair

**Repair** is an effective way of extending the lifespan of SHEA. Craft centres and repair cafés can play an important role in repair and in selection and disassembly for second-hand sale and recycling at municipal waste collection facilities. In this, it is important to increase the number of craft centres and to ensure they are better known, closer and more accessible than is currently the case. Repair cafés and repairers in city centres and high streets also need to be scaled up, ensuring they are easily accessible for consumers.

Making repair and second-hand electrical and electronic equipment **more economically attractive** will help support the desired behaviour by citizens. It increases the possibilities for repair and reuse.



For SHEA, **extending** technical lifespans has a direct impact in terms of lengthening product lifetime because most SHEA are not sensitive to changes in fashion. This issue can be addressed with manufacturers in legislation and regulations and in sector agreements. It will also need to be accompanied by guarantee periods. A longer period of guarantee makes it more attractive and more obvious for a consumer to use a product for longer and have it repaired.

**Sharing and borrowing** SHEA is a successful way of reducing the amount of new SHEA that people buy. This primarily applies for products that are not used on a daily basis and are not strictly personal or subject to changes in fashion. It is also important for there to be platforms at local level to facilitate sharing and borrowing because citizens prefer to share with and borrow from people they know. Existing platforms, such as *Marktplaats*, could have an added sharing/borrowing facility added to them. The advantage of this is that many citizens already use this platform. A joint sharing/lending cupboard/ neighbourhood shed, to which several neighbours have the key, can help to make sharing and borrowing SHEA easy. Local municipalities could also play a supportive role in this.

Handing SHEA in separately for **disposal** is a specific behaviour that can be encouraged with the provision of the right knowledge, appropriate accessible facilities and a sense that it is beneficial. Facilitating it by increasing the opportunities for collection can prove effective. Further research can be conducted to identify the best practices for SHEA. Recycling centres/craft centres will have an important role to play in collection, assessment and recycling (or reuse and refurbishing). Craft centres are also suitable for the provision of information about disposing of SHEA. Collection for reuse can be facilitated by having experts at municipal waste collection facilities and conducting rapid checks on what is reusable/suitable for repair. This can help prevent reusable or repairable goods ending up in a residual waste container or a recycling container.

#### **Focusing on specific drivers and obstacles for each target behaviour**

Sharing and borrowing, repair, refurbishing and second-hand sales (online and physical) can be promoted by means of approaches based on citizens' motivations and objections. Identifying motivations and objections can be part of the regular monitoring.

Measures for encouraging sharing and borrowing should aim to give people the feeling that they are each other's neighbours (12x more willing to share). The recurring motive for sharing is to help or have contact with other people. Borrowing is primarily motivated by the desire to save money. People will share and borrow more if they know that this has a positive impact on the environment. Fear that products may be broken, a lack of knowledge of where to go and the inconvenience involved in sharing and borrowing are the main deterrents.

#### **Embedding and broadening the desired circular behaviour**

As described earlier in the strategy, it is important to ensure that circular behaviour is embedded and broadened. Follow-up research is needed for the development of tools that can help citizens to maintain the desired behaviour and extend it to other target behaviours or product groups.



## 5. List of proposed actions

Chapter 3 describes a strategy aimed at effectively achieving circular economy targets through a focus on behavioural knowledge. Chapter 4 includes a detailed breakdown of a behavioural analysis for four product groups by exploring the specific target group, potentially promising target behaviour, motivations and objections. The targets outlined

in the NPCE are also compared with the latest behavioural insights. Based on this behavioural analysis, suggestions have been formulated for specific potential behavioural measures. Table 5 shows a list of the potential measures for organisational purposes. Table 6 shows measures that transcend individual target groups.

**Table 5: Potential measures for strategy and organisation**

Measure	Target	Type of measure
1. Including the <b>Behavioural Strategy for Citizens and the Circular Economy in the NPCE</b> .	Broad application of the strategy by policymakers and decision-makers, thereby achieving more results in terms of citizens' circular behaviour.	Organisation
2. Adding <b>behavioural expertise to NPCE</b> planning and implementation.	More effective approach to the circular economy, support for implementation of measures.	Organisation
3. Assessing <b>circular economy priorities</b> based on target groups' capacity for change.	Effective policy, early identification of where obstacles are in the target group and ability to focus specifically on them.	Policy
4. Including <b>behavioural monitoring</b> as standard in monitoring of the market by or on behalf of government authorities. Also monitoring of support for circular economy transition.	Understanding of existing circular behaviour, support and opposition from different target groups with regard to effective measures and communication about circular economy.	Policy and implementation
5. More in-depth research aimed at perpetuating circular economy behaviour using <b>post-rationalisation</b> .	Understanding of how circular behaviour can be embedded and spread to other behaviours (spillover).	Research
6. Investigating whether and how <b>Emotional intelligence and Happiness studies</b> can be added to the 'Whole School Approach'.	Understanding of the possibilities for using education to enable new generations to experience that happiness is not the result of material things, but results from social contacts and significance for your environment.	Research
7. Identifying a <b>circular economy and behaviour knowledge network</b> (research groups, agencies, institutes and executive organisations, contact persons) and knowledge (BIN knowledge bank, as for waste separation/prevention).	Making it easier to find support and specific knowledge about behaviour and circular economy.	Implementation



**Table 6: Possible measures that transcend individual product groups**

Measure	Target	Type of measure
<p>8. Strengthening craft centres by means of:</p> <ul style="list-style-type: none"> <li>• Increased numbers of craft centres: close by and accessible</li> <li>• Research into motivations and objections with regard to repair and second-hand market</li> <li>• Research into establishing platforms for sale/distribution of repaired products</li> <li>• Research into provisions at the entrance to municipal waste collection facilities to enable selection</li> <li>• Research into opportunities for DIY repair, e.g. online</li> </ul>	<p>Longer product lifespan</p> <ul style="list-style-type: none"> <li>• More product repair</li> <li>• Understanding of what motivates citizens with regard to supply and communication</li> <li>• Ensuring use of products is easily accessible</li> <li>• Use of reusable products and components</li> <li>• Citizens repairing products themselves</li> </ul>	<p>Research and implementation</p> <p>(To be linked to Flagship Craft Centres project)</p>
<p>9. Investigating and developing existing and new <b>supportive/ancillary legislation and regulations</b> and agreements (e.g. Ecodesign, e-labels, EPR, tax legislation)</p> <ul style="list-style-type: none"> <li>• Exploring possibilities for deterring new (non-circular) purchases, for example through EU-level environmental-cost pricing</li> <li>• Compulsory supply of second-hand products in clothing and furniture retail</li> <li>• Extension of guarantee on textiles and SHEA</li> <li>• Tax advantages for repair and second-hand</li> <li>• Exploring possibilities for reducing returns within e-commerce</li> <li>• Modular construction of SHEA and furniture</li> <li>• Extending technical lifespan of SHEA</li> <li>• Exploring possibilities for promoting the purchase of circular products and discouraging the purchase of non-circular products, for example by means of marketing</li> </ul>	<p>Encouraging the desired behaviour because products last longer, are easier to repair, can be processed more effectively, are cheaper or because the desired behaviour becomes impossible or more difficult.</p>	<p>Research and policy</p>
<p>10. Exploring promising activities and effective campaigns</p> <ul style="list-style-type: none"> <li>• Washing clothing less often</li> <li>• Repairing clothing</li> <li>• SHEA DIY repairs with instruction video (possibly via craft centres)</li> </ul>	<p>Less purchase of new products</p> <ul style="list-style-type: none"> <li>• Less wear and tear and energy consumption</li> <li>• More reuse</li> <li>• More repairs</li> </ul>	<p>Research and implementation</p>



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# Appendix 2. Motivations and objections for purchasing second-hand, sharing, borrowing and separating waste

(Based on Milieu Centraal, Consumer Insights, 2021)

Motivations	Objections	Effective approach
<b>Buying second-hand</b>		
<ul style="list-style-type: none"> <li>• Saving money (75%)</li> <li>• Environment (35%)</li> <li>• Fun, enjoyment (35%)</li> <li>• No need for new (45%)</li> <li>• Old is nicer/better (20%)</li> </ul>	<ul style="list-style-type: none"> <li>• Not as nice (50%)</li> <li>• Lower quality (35%)</li> <li>• No guarantee (35%)</li> <li>• Unhygienic (35%)</li> <li>• Impossible to find/takes time (25%)</li> </ul>	<ul style="list-style-type: none"> <li>• Intensify behaviour of people who occasionally buy second-hand, including via consistency</li> <li>• Intensify categories for which people are open to second-hand, such as furniture</li> <li>• Make use of social norms (preferably specific and local) and cost savings</li> <li>• Make sure it looks fresh (show, don't tell), offer a guarantee</li> <li>• Enable access to supply, online and offline</li> </ul>
<b>Sharing and renting</b>		
<ul style="list-style-type: none"> <li>• Being social (55%)</li> <li>• Good feeling, appreciation (40%)</li> <li>• Useful, combats waste (80%)</li> <li>• Environment (50%)</li> <li>• Earning money (30%)</li> </ul>	<ul style="list-style-type: none"> <li>• Fear of strangers (60%)</li> <li>• Wear and tear, using it oneself (40%)</li> <li>• Lack of guarantees (40%)</li> <li>• Inconvenience (25%)</li> <li>• Local availability (30%)</li> <li>• Being the owner oneself (50%)</li> <li>• Never thought about it (40%)</li> </ul>	<ul style="list-style-type: none"> <li>• Emphasise advantages: good feeling, environment, saving money, social contacts</li> <li>• Encourage providing a small reward, e.g. bar of chocolate</li> <li>• Focus on items that do not have high financial or personal value</li> <li>• Focus on sharing and borrowing among people you know, make strangers feel more familiar</li> <li>• Focus on younger groups</li> <li>• Make it easy to share and borrow</li> <li>• Guarantees, reviews, show what is in demand</li> </ul>
<b>Borrowing and hiring</b>		
<ul style="list-style-type: none"> <li>• Saving money (75%)</li> <li>• Environment (50%)</li> <li>• Fun (30%)</li> <li>• Social (20%)</li> <li>• Convenience, certainty (50%)</li> </ul>	<ul style="list-style-type: none"> <li>• Not thought about it (55%)</li> <li>• Fear of strangers (55%)</li> <li>• Quality (40%)</li> <li>• Prefer to buy oneself (40%)</li> <li>• Fear of breaking the item (40%)</li> <li>• Inconvenience (35%)</li> <li>• No opportunities (20%)</li> </ul>	<ul style="list-style-type: none"> <li>• Emphasise advantages: good feeling, environment, saving money, social contacts</li> <li>• Encourage providing a small reward, e.g. bar of chocolate</li> <li>• Focus on items that do not have high financial or personal value</li> <li>• Focus on sharing and borrowing among people you know, make strangers feel more familiar</li> <li>• Focus on younger groups</li> <li>• Make it easy to share and borrow</li> <li>• Guarantees, reviews, show what is in demand</li> </ul>
<b>Waste separation</b>		
<ul style="list-style-type: none"> <li>• Right thing to do, value (95%)</li> <li>• Good for the environment, beneficial (95%)</li> <li>• Compulsory (68%)</li> <li>• Saving money (50%)</li> <li>• Important for other people (40%)</li> </ul>	<ul style="list-style-type: none"> <li>• Unclear what goes where (40%)</li> <li>• Doubts about benefits (50%)</li> <li>• Limited facilities (60%)</li> <li>• No financial incentive (55%)</li> <li>• Habit (35%)</li> </ul>	<ul style="list-style-type: none"> <li>• Try to break or soften habits, leverage moments of change, trivia lists, create a norm</li> <li>• Make the benefits visible, show what can be done, risk of extra costs</li> <li>• Emphasise consistency and good behaviour</li> <li>• Make use of social norms, preferably within local neighbourhood, feedback from local environment</li> <li>• Good facilities, close to home, in public spaces, structure facilities intuitively</li> <li>• Easy-to-access knowledge about waste streams, waste separation guide</li> </ul>





## Behavioural Strategy for Citizens and the Circular Economy

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February 2023