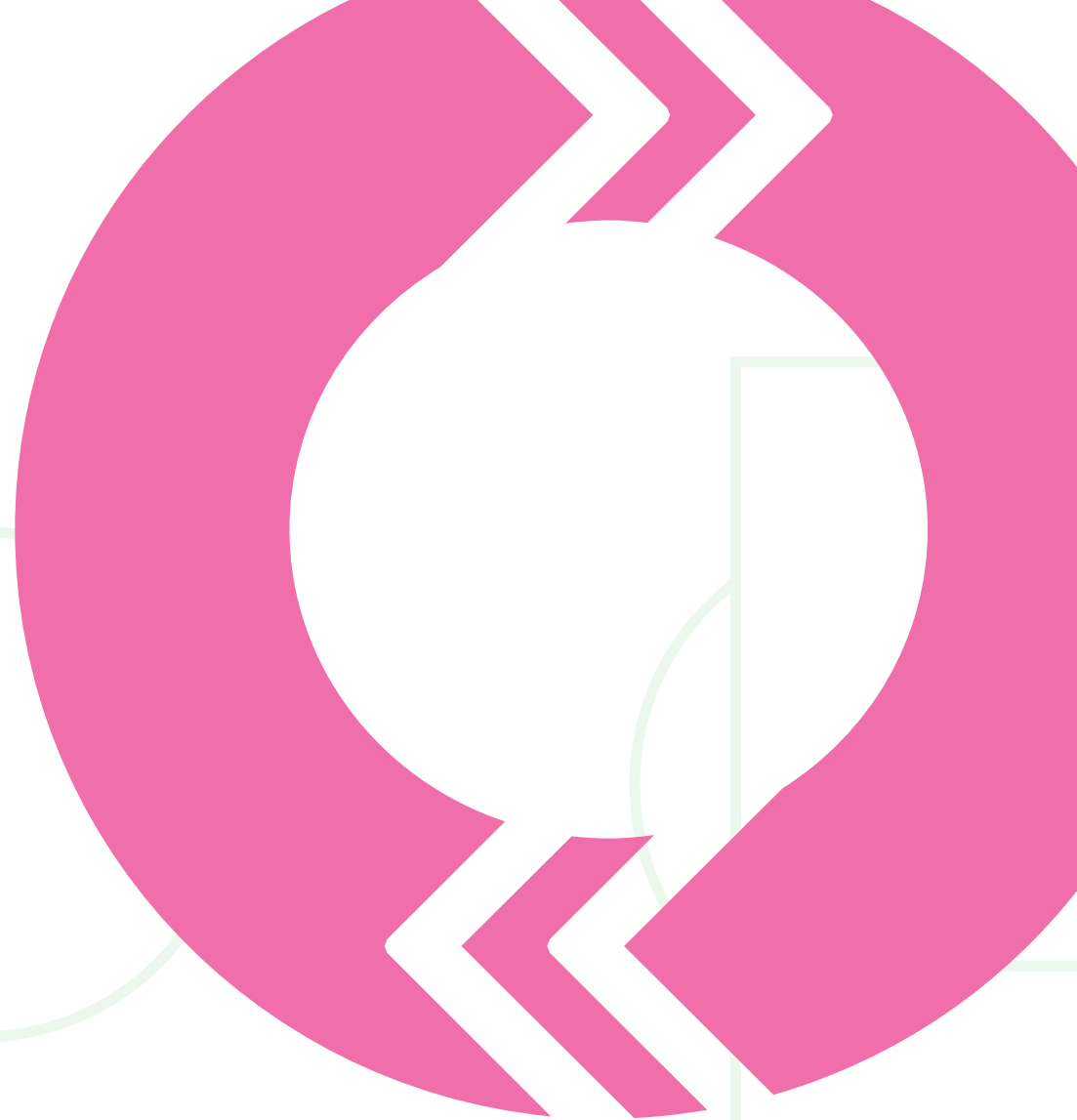


# UEFA

## CIRCULAR ECONOMY

### GUIDELINES



**RESPECT**

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Football must unite to drive sustainable change, collaborating with institutions and civil society for a strong dissemination of messages and actions that take care of our environment. Being able to play a team game by anticipating collective needs using football as a platform is one of the pillars of our strategic thinking.

Circular economy in football is a new and fascinating concept. UEFA included it as a fundamental policy alongside three others to which it is closely linked – climate and advocacy, event sustainability and infrastructure sustainability – when we developed our [Football Sustainability Strategy 2030](#), in which we also identified targets, KPIs and a dedicated action plan to achieve them. All the policies contribute to the strategy's mission to inspire, activate and accelerate collective action to respect human rights and the environment within the context of European football.

Collaboration and guidance will be key ingredients to delivering solutions and impact and to preventing and mitigating waste management risks that weigh on the football ecosystem.

The UEFA Circular Economy Guidelines constitute a practical idea to engage first ourselves and then other football stakeholders in this journey. We have developed the 4R framework (Reduce, Reuse, Recycle, Recover) as a compass and tried to apply its concepts to football. To everyone's football, to everyday gestures, to the idea that the sum of behaviour in football will create exponential value for civil society.

We have collaborated with important partners – national associations, the European Club Association (ECA), clubs and

commercial partners – that are particularly attentive and sensitive to the topic, but also with subject matter experts, academics and European institutions. We thank them all for their contributions.

These guidelines are not the final destination but rather the springboard to operationalise our ambition to support member associations, leagues and clubs to develop their own solutions.

On UEFA's side, we are catalysing action together with our partners and event venues, with a particular focus on targeted measures and investment in product packaging, plastics, single-use items, food waste, and energy and water efficiency. Furthermore, we are integrating circularity criteria into UEFA regulations as well as in the management of our campus facilities. Throughout this process, our Social and Environmental Sustainability division is creating a repository of best practices, capturing innovations and lessons learned across European football.

We are determined to play our part in accelerating football's transition to a circular economy, and we are happy to have our stakeholders on board.

## **Michele Uva**

UEFA Director of Social and Environmental Sustainability



**CIRCULAR ECONOMY IS ONE OF THE 11 POLICIES CURRENTLY BEING IMPLEMENTED AS PART OF UEFA'S STRENGTH THROUGH UNITY FOOTBALL SUSTAINABILITY STRATEGY 2030. THE ASPIRATIONAL TARGET SET BY UEFA IN THAT STRATEGY DOCUMENT IS: "ROAD TO ZERO PLASTIC WASTE AND FOOD WASTE – WITHIN UEFA, ACROSS UEFA EVENTS AND COLLABORATIVELY ACROSS EUROPEAN FOOTBALL – BY 2030."**

**Circular economy is a concept that aims to shift from our current consumption model – Take, Make, Waste – to a circular model that radically reduces:**

- The raw materials used to manufacture products
- The amount of plastic discarded and food wasted
- Greenhouse gas emissions
- Our impact on biodiversity
- Water and energy consumption

Our ambition in the area of circular economy is to embed the **4R approach – built around Reducing, Reusing, Recycling and Recovering**. This approach aspires to minimise football's environmental impact, improve resource efficiency and save costs.

The **UEFA Circular Economy Guidelines** are designed to help national associations, leagues, clubs, event



organisers and other football stakeholders to adopt targeted investments and measures aligned with the 4R approach. To that end, it includes practical and actionable information in the form of best practices and fact sheets.

These guidelines are the result of a **comprehensive collaborative effort**: UEFA joined forces with key stakeholders, most notably national associations, members of the European Club Association (ECA), commercial partners (namely PepsiCo, adidas and Macron), subject matter experts, academics and European institutions.



## IN TERMS OF CONTENT, THE DOCUMENT PROVIDES:

**AN INTRODUCTION** to the circular economy concept, waste minimisation and the 4R framework.

**AN EIGHT-STEP STRATEGIC APPROACH** to implementing the 4R framework effectively across four football-related focus areas; this approach involves selecting accountable individuals, analysing the specific context, defining objectives, setting KPIs, prioritising solutions, creating action plans, monitoring progress, and reporting on achievements.

**AN OVERVIEW** of legislation and international standards relating to waste management and more broadly to the circular economy, setting the context of an accelerating trend towards legal and regulatory requirements applicable to football organisations.

**A DEEP DIVE** into the consumption and life cycle of products throughout football operations and events, zooming in specifically on the following **four major areas within football** where waste minimisation and circular economy principles can be applied effectively:

THESE GUIDELINES WILL BE SHARED ACROSS THE EUROPEAN FOOTBALL COMMUNITY AND ARE DESIGNED TO BE APPLICABLE TO ALL FOOTBALL ORGANISATIONS WITHIN THE 55 EUROPEAN NATIONAL ASSOCIATIONS, REGARDLESS OF THEIR SIZE, INFRASTRUCTURE OR LEVEL.

- **FOOD AND BEVERAGES** – dissecting existing legislation, the application of the 4R framework and priority actions and offering practical implementation data sheets for various solutions
- **APPAREL AND FOOTBALL EQUIPMENT** – exploring the life cycle of these products, relevant legislation and the 4R framework in the context of the clothing and textile sector and emphasising the urgent need to reduce waste and promote sustainability in this sector
- **EVENT MATERIALS** – applying the 4R framework to the signage materials, branded products, furniture and ICT equipment used at events and underlining the importance of integrating circularity criteria in this area
- **ENERGY AND WATER** – proposing the adoption of the 4R framework to guide effective measures designed to reduce energy and water usage, promote sustainability and start the transition to renewable energy sources

# EXECUTIVE SUMMARY

UEFA will actively engage with the sustainability managers of national associations and clubs to support the implementation of best practices through knowledge transfer workshops, educational material and accurate monitoring of the various activities.

We will also **develop event-specific recommendations** and a **checklist** with a view to accelerating the uptake of the 4R approach for single football events.

**THE UEFA CIRCULAR ECONOMY GUIDELINES WILL BE UPDATED REGULARLY TO INCORPORATE NEW BEST PRACTICES, INNOVATIONS AND REGULATORY DEVELOPMENTS.**



- These guidelines provide simple, practical and essential information on key aspects of the circular economy.

It is a tool that will help national associations, event organisers, clubs and other football stakeholders navigate this complex subject and start the journey towards zero-plastic-waste and zero-food-waste football matches by 2030.

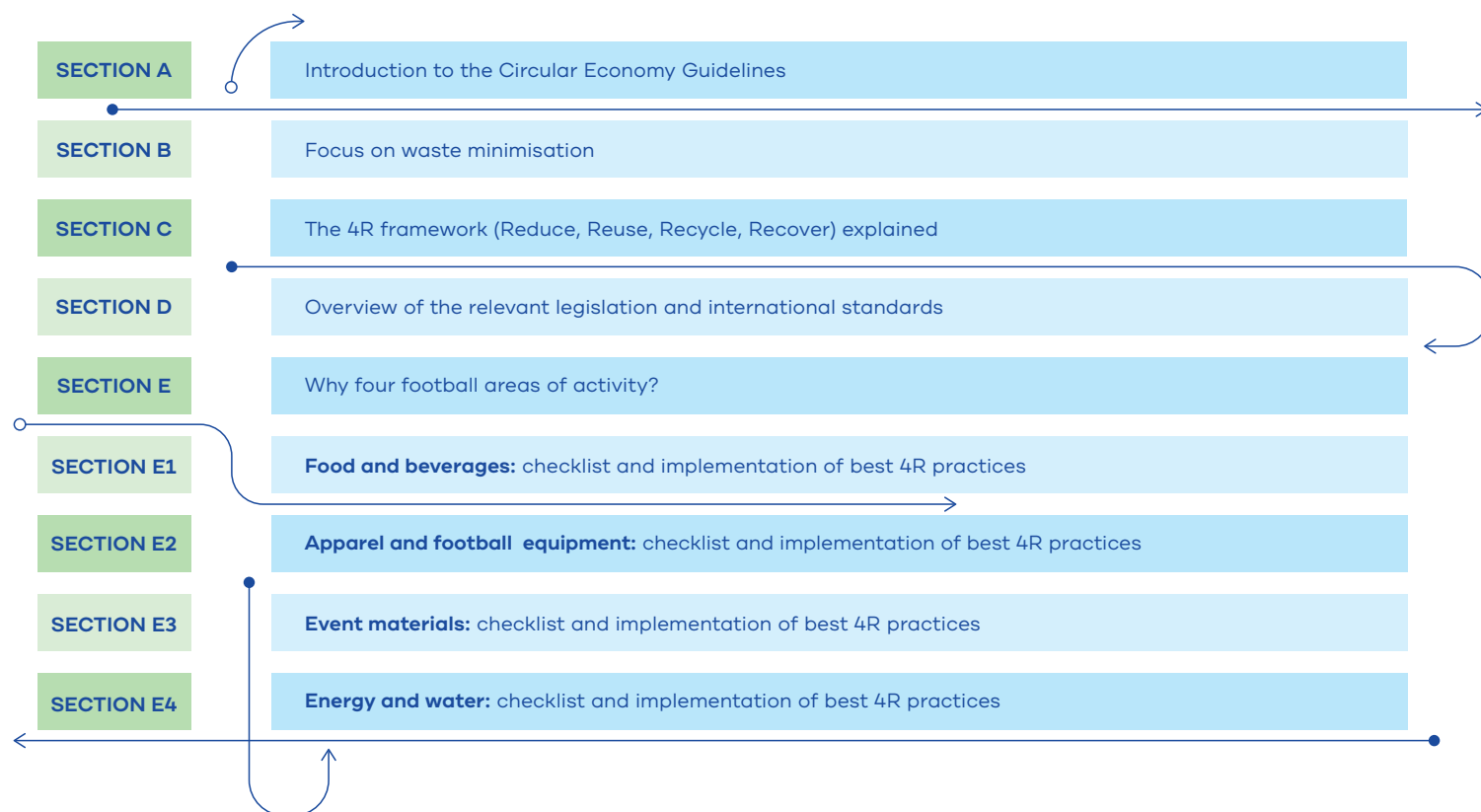
- **VERSION 1.0**  
October 2023 – Original version

**VERSION 2.0**  
September 2025 – Update of:

- Section D  
legislation section
- Throughout the document  
case studies and references to external links

**PLEASE AVOID PRINTING AND COPYING WHEREVER POSSIBLE.**

The UEFA Circular Economy Guidelines are available only as a downloadable PDF from the UEFA website: [uefa.com/sustainability](https://uefa.com/sustainability)  
If you do need to print, please print double-sided, on recycled paper and in black and white.

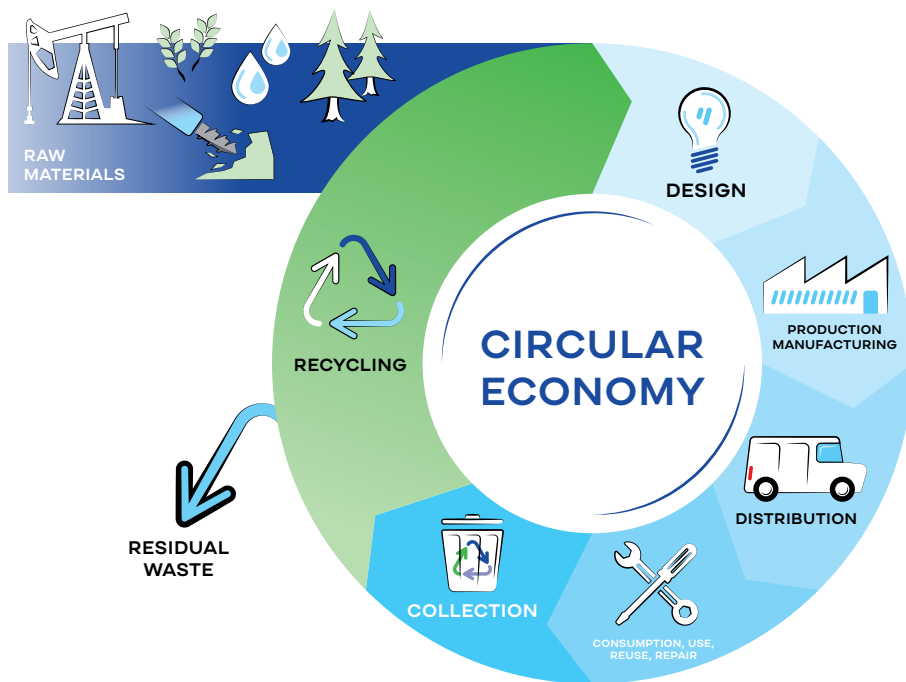




# A INTRODUCTION

CIRCULAR ECONOMY IS A CONCEPT WITH INTERCONNECTED RAMIFICATIONS ON CLIMATE CHANGE, BIODIVERSITY, POLLUTION, CONFLICT MINERALS AND SOCIOECONOMICS.

## A. INTRODUCTION



**FIGURE 1**  
The European Parliament's  
representation of circular  
economy<sup>1</sup>

1. View source

As shown in figure 1, the concept of circular economy encompasses the entire life cycle of products and services we use every day.

Circular economy is one of the 11 (seven social and four environmental) policies defined by UEFA's Social and Environmental Sustainability team in our [Football Sustainability Strategy 2030](#), the goal of which is to inspire, activate and accelerate collective action to respect human rights and the environment within the context of European football, in line with UEFA's fifth strategic pillar, [Responsibility](#). The UEFA Circular Economy Guidelines are therefore one of the deliverables of the sustainability strategy.

Adopting a circular economy is central to achieving our aim of zero plastic and food waste in football by 2030. To do this, we must focus on the 4Rs: reduce, reuse, recycle and recover. This 4R framework, explained in detail in [section C](#), is an environmentally friendly approach to gradually reducing waste and improving waste management.

## A. INTRODUCTION

Given the complexity of achieving a circular economy, this focused working document contains four standalone sections each offering practical, concrete guidance on a specific area. For ease of reference, these sections can be consulted independently.

The food and beverage (F&B) section was developed first, and it features best practices and fact sheets produced as part of a joint project undertaken with PepsiCo (UEFA Champions League commercial partner and F&B supplier) as well as insights from experts in the field and certain clubs that participated in the 2021/22 UEFA Champions League.

The other three sections were developed later, with input from commercial apparel partners (adidas and Macron), industry experts, the Federation of the European Sporting Goods Industry, and various clubs and national associations involved in innovative projects. They feature extensive data gathered about best practices through stakeholder consultation and pilot projects.

**URGENT ACTION IS DEMANDED BY SOCIETY AND IS NECESSARY TO ALIGN WITH THE EU'S CIRCULAR ECONOMY ACTION PLAN, WHICH AIMS TO REDUCE PRESSURE ON NATURAL RESOURCES, SUPPORT PROGRESS TOWARDS THE EU'S 2050 CLIMATE NEUTRALITY TARGET AND HALT BIODIVERSITY LOSS.**

→ This document sets targets encouraging football organisations to embed the 4R framework into their operations with the fundamental support of all stakeholders and lays out best practices to achieve those targets in the fastest, most practical and most cost-effective ways.



## A. INTRODUCTION

This document also provides specific guidelines addressed to every stakeholder within the European football community to support collaboration and knowledge transfer towards the target of **zero plastic and food waste** within UEFA and at UEFA events. The guidelines will be updated periodically taking into account new best practices and innovations.

The document is composed of:

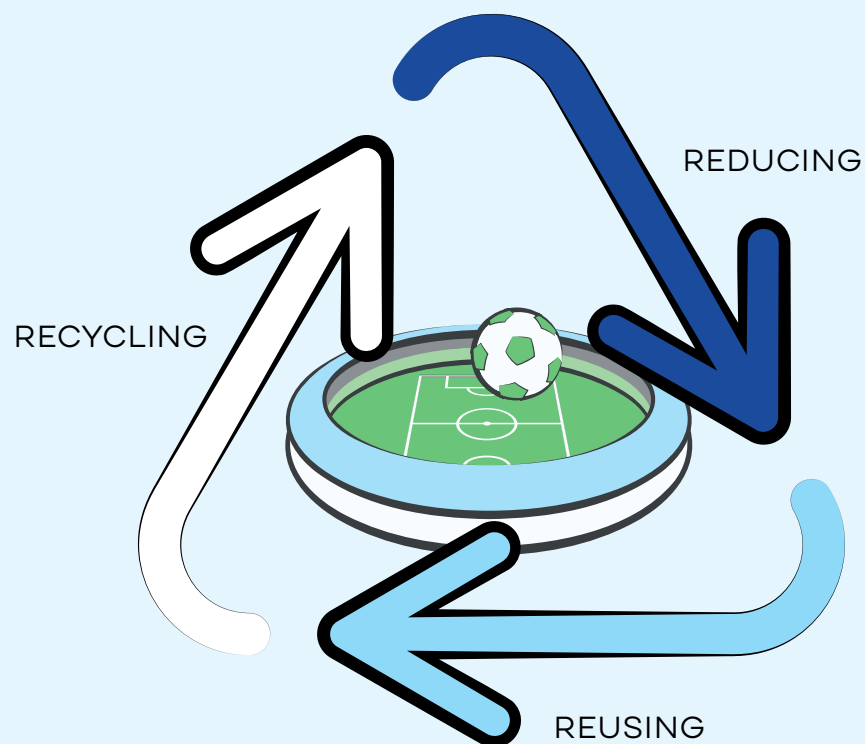
1. **AN INTRODUCTION** to the circular economy concept, waste minimisation and the 4R framework.
2. **AN OVERVIEW OF LEGISLATION** and international standards relating to waste management and more broadly to circular economy
3. **BEST PRACTICE AND FACTSHEETS** in four areas of focus:
  - Food and beverages
  - Apparel and football equipment
  - Event materials (signage, brand production, furniture and ICT equipment)
  - Energy and water, which are indispensable in everyday life and in the manufacture of all products



# B WASTE MINIMISATION

As a governing body and event organiser, UEFA does not design, manufacture or distribute products, so its circular economy efforts are essentially driven by waste minimisation.

**OUR ROLE IS TO BRING ABOUT CHANGE THROUGH OUR PROCUREMENT PROCEDURES AND BY ENGAGING WITH SUPPLIERS, COMMERCIAL PARTNERS AND THE WHOLE FOOTBALL COMMUNITY.**





### WASTE MINIMISATION IS ONE OF THE PILLARS OF A CIRCULAR ECONOMY.

As the Ellen MacArthur Foundation, the leading promoter of the circular economy, [states](#):

*"A circular economy is a bigger idea than incrementally reducing the harm of our current model. It tackles the root causes of global challenges such as climate change, biodiversity loss, waste and pollution, while creating opportunities for better growth. A circular economy is underpinned by three principles, all led by design: **eliminate waste and pollution**, keep products and materials in use, and regenerate natural systems."*

Waste is a global issue. Football is part of the problem and we must address it urgently, as society is asking for concrete action. According to [Life Tackle](#), "the average European football match generates 0.8kg of waste per spectator"; this equates to a fully loaded lorry (20 tonnes of waste) for a stadium with a capacity of 25,000 spectators. Considering all the matches organised by Europe's national football associations, Life Tackle estimates that the overall waste generated amounts to 750,000 tonnes per year.

Urgent change is therefore needed to minimise waste in football: **the time for talk is over; we need action.**

By effectively working to minimise waste, we will accelerate the transition to a circular economy. Following consultation with various experts in the field, we have defined guidelines perfectly adapted to UEFA's various processes in the four areas of focus and fully aligned with international legislation and frameworks.

These guidelines are designed to be applicable to all football clubs within the 55 national associations, from the small to those with large-scale infrastructure and from grassroots to professional levels, with no specific restrictions.

A materiality assessment of UEFA activities identified the food and beverage sector as a priority for waste minimisation. We therefore addressed this area first, through a joint pilot project with **PepsiCo**, our commercial partner and supplier of soft drinks and fast food at UEFA Champions League finals.

## B. WASTE MINIMISATION

Football apparel was also identified as a significant source of waste by subject matter experts, and we addressed this area next ([section E2](#)) with the support of external advisers and UEFA's commercial partners, **adidas** and **Macron**. Professional team apparel has a short shelf life of just ten months on average, as most is disposed of at the end of each season.

**The seasonal nature of football apparel contributes to the wider issues of waste within the clothing and textile sector:**

IN 2014  
consumers bought

**60% +**

**MORE CLOTHES**  
than in 2000 and used  
them for half as long<sup>2</sup>



THE AVERAGE  
number of times  
a garment is worn  
**HAS DECREASED BY**

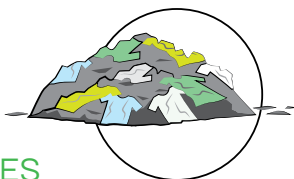
**36%**

IN 15 YEARS<sup>3</sup>



ABOUT  
**5.8** **MILLION TONNES**

**OF TEXTILES**  
are discarded every year in the  
EU, equating to approximately  
11kg per person<sup>4</sup>



GLOBALLY  
**73%**

of the materials used to  
produce clothing are sent  
to landfill or incinerated  
at the end of their life<sup>5</sup>



2. View source  
3. View source  
4. View source  
5. View source

## B. WASTE MINIMISATION

It is estimated that only around 30% of clothes donated to the UK's 10,000 charities are resold in second-hand shops.<sup>6</sup> Those that remain are often sorted and graded by quality and shipped to other countries for resale. Exports of textile waste outside the EU have been steadily increasing, reaching 1.4 million tonnes in 2020.<sup>7</sup>

Ghana is a major destination for second-hand clothing from the EU: the Kantamanto second-hand clothing market in the capital city receives 15 million items per week. However, 40% of the clothing that arrives at Kantamanto leaves as waste because the quality is too poor for sale.<sup>8</sup>

Not having a global strategy for dealing with the volume of waste clothing has resulted in illegal dumping. In 2021, an estimated 39,000 tonnes of clothing waste were dumped in the Atacama Desert in Chile, causing huge environmental damage. It is estimated that this has since increased to 60,000 tonnes; the mountain of discarded clothes is so vast that it is visible from space.<sup>9</sup>

Also high on the list of priorities for waste minimisation were water and energy use ([section E4](#)), which we worked on again with the support of external advisers and subject matter experts. The event materials section ([E3](#)) was produced by the relevant internal UEFA competence centres, given the organisation's extensive experience and expertise in events.

### **Our specific waste minimisation objectives, in line with UEFA's Football Sustainability Strategy 2030, are:**

- Zero plastic waste sent to landfill from food and beverages at UEFA Champions League finals by 2026
- No football apparel sent to landfill or incinerated by 2030
- Identification and implementation of innovative initiatives to minimise waste from event material by engaging with commercial partners and suppliers
- Events 100% powered by renewable energy

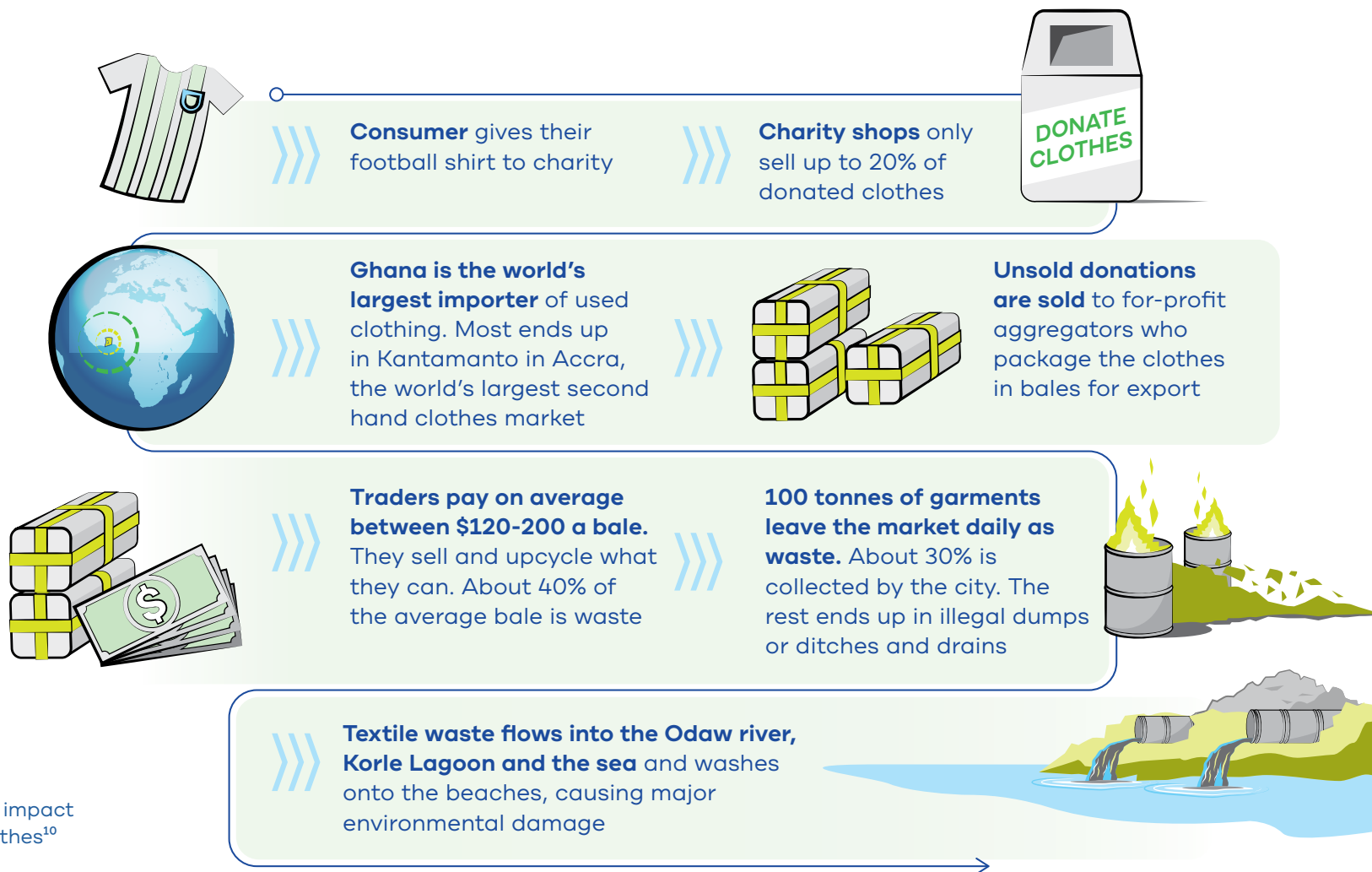
6. View source

7. View source

8. View source

9. View source

## HOW T-SHIRTS DONATED TO CHARITY ARE CAUSING POLLUTION IN GHANA



**FIGURE 2**  
Environmental impact  
of donated clothes<sup>10</sup>

10. View source



# THE 4R FRAMEWORK:

REDUCE, REUSE,  
RECYCLE, RECOVER

## PRINCIPLES

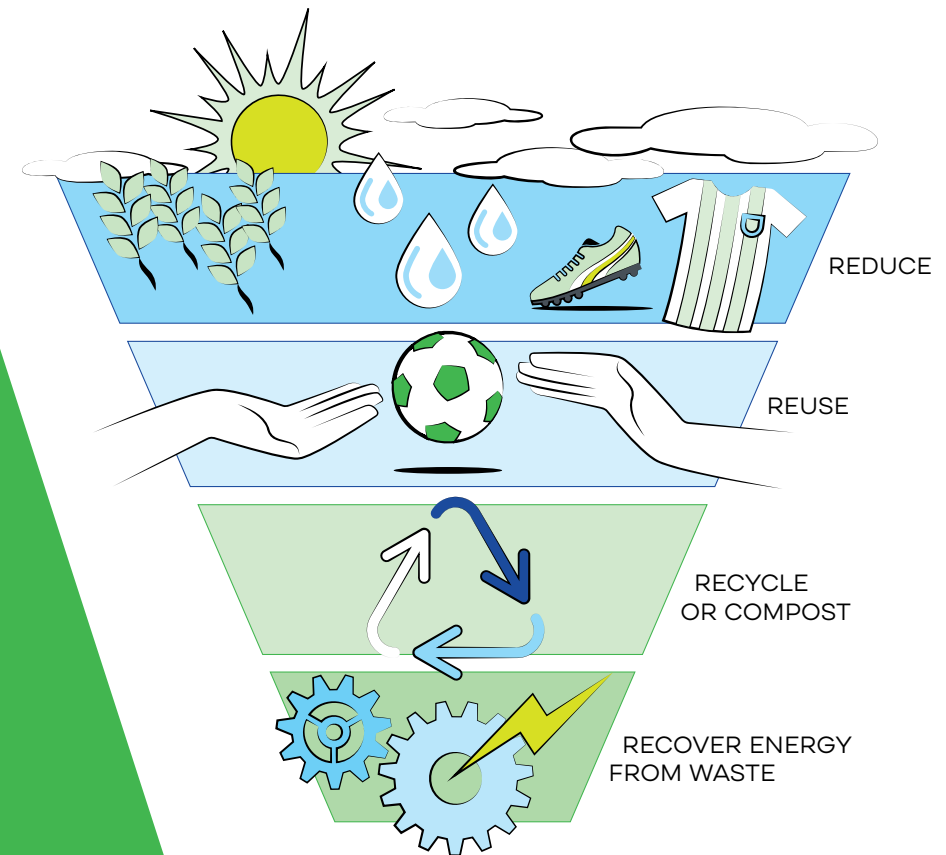
P.18

1

## IMPLEMENTATION

P.21

2



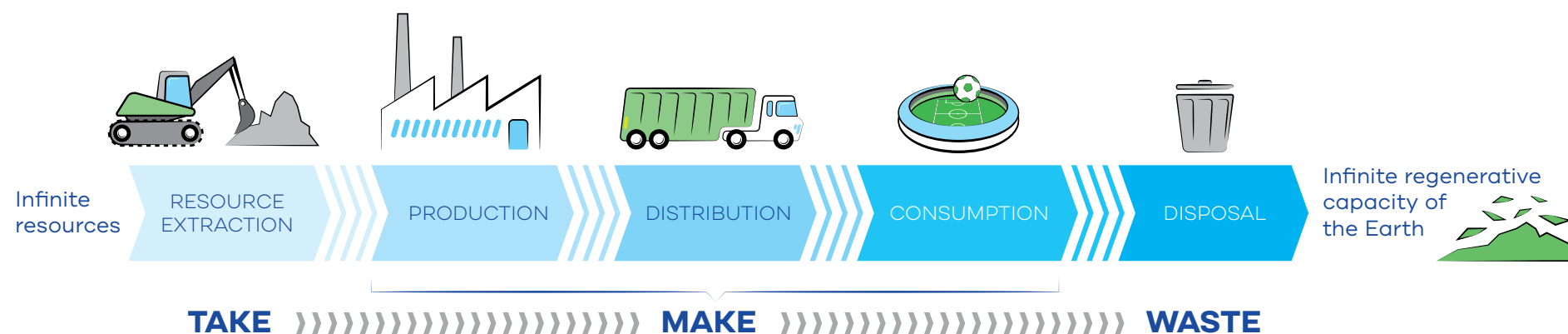
# 1 PRINCIPLES

Society has traditionally followed what is now commonly known as the linear model – Take, Make, Waste – which is not sustainable within a finite environment.

Natural resources have for too long been believed to be infinite; as Sir David Attenborough said:

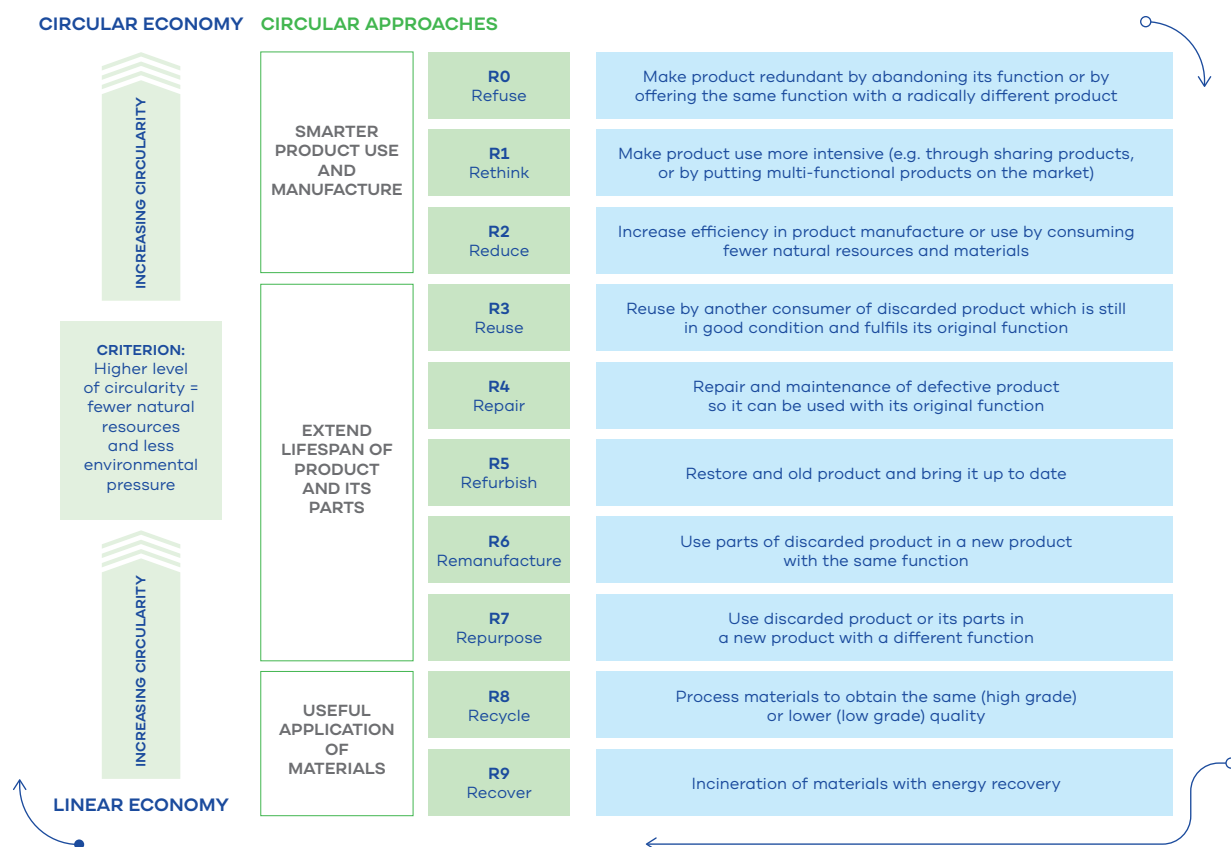
**“ANYONE WHO BELIEVES IN INDEFINITE GROWTH ON A PHYSICALLY FINITE PLANET IS EITHER MAD, OR AN ECONOMIST.”**

For more information about the linear economy, we recommend the article from which the image below is taken (available [here](#)).



**FIGURE 3**  
Linear economy: the Take, Make, Waste model

## C. THE 4R FRAMEWORK: REDUCE, REUSE, RECYCLE, RECOVER



In contrast, the 4R method – Reduce, Reuse, Recycle, Recover – is a contracted version of the full 9R framework of circular approaches to the production chain in order of priority (see figure 4). We have grouped these nine approaches into four in order for them to be more easily understood by our stakeholder community and tailored to UEFA processes.

Clearly technology availability and levels of social awareness about waste reduction differ in different countries, so they progress at different rates. The main objective of this document is to support all stakeholders within football (and beyond) to implement the 4R framework as early as possible and move up the ladder to higher levels of circularity, as shown in figure 5 below.

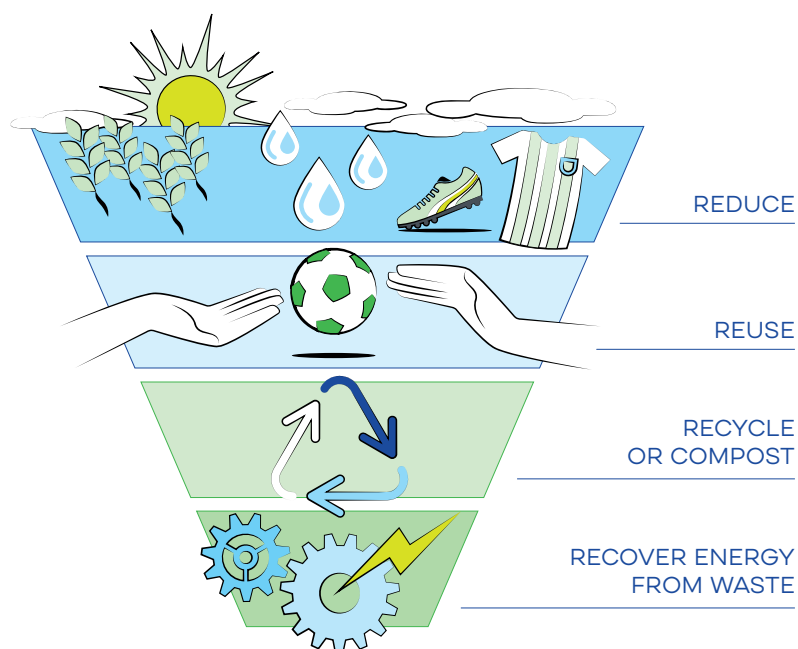
**FIGURE 4**

The 9R framework of circular approaches to the production chain in order of priority<sup>11</sup>

<sup>11</sup>. View source

## C. THE 4R FRAMEWORK: REDUCE, REUSE, RECYCLE, RECOVER

### HOW THE 4RS CORRESPOND TO THE 9RS:



**FIGURE 5**  
Diagram illustrating the 4Rs

### 1. REDUCE

This combines R0 (refuse), R1 (rethink) and R2 (reduce), as the first two also lead to a reduction in waste. While UEFA does not produce products itself, it is important to engage with our commercial partners and suppliers to encourage them to rethink their products and processes as early as possible in the cycle for optimal results.

### 3. RECYCLE

Recycling (R8) is probably what most people think of when discussing waste management, but it should not be the first choice as it has less of a positive impact on the circular economy than reducing or reusing, as highlighted in figure 5.

### 2. REUSE

This covers R3 (reuse) and R7 (repurpose), which both relate to extending the lifespan of the products purchased for our events. R4 (repair), R5 (refurbish) and R6 (remanufacture) are less applicable to UEFA's core activities, but we must nonetheless engage with our suppliers and commercial partners to repair, refurbish and remanufacture products. Examples will be provided throughout the document.

### 4. RECOVER

Finally, recovering energy through the incineration of products (R9) should be the last resort and requires a good understanding of the waste management supply chain to be done properly.



## 2 IMPLEMENTATION

IN ORDER TO IMPLEMENT THE 4R FRAMEWORK EFFECTIVELY, UEFA RECOMMENDS THAT FOOTBALL ORGANISATIONS AND OTHER STAKEHOLDERS ADOPT A STRATEGIC APPROACH COMPRISING THE FOLLOWING EIGHT STEPS THAT CAN BE APPLIED TO ALL AREAS OF OPERATION:

### 1. SELECT

one or more individuals in your organisation to be accountable for the strategy

### 2. ANALYSE

your specific context and identify key issues in your organisation, facilities and events

### 3. IDENTIFY

an overall mission, guiding principles and fundamental changes

### 4. DEFINE

topics, key performance indicators (KPIs) and targets

### 5. PRIORITISE

solutions

### 6. IMPLEMENT

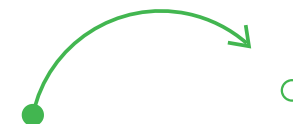
an action plan

### 7. MONITOR

targets and KPIs

### 8. REPORT

on progress



## C. THE 4R FRAMEWORK: REDUCE, REUSE, RECYCLE, RECOVER

### STEP 1

SELECT ONE OR MORE INDIVIDUALS  
IN YOUR ORGANISATION TO BE  
ACCOUNTABLE FOR THE STRATEGY

#### WHY IT IS IMPORTANT:

Like any strategic priority, waste minimisation (and sustainability in general) requires people to be held accountable. It is therefore critical to define roles and responsibilities, internally and externally, and to allocate tasks clearly.

#### WHAT YOU COULD DO:

- Allocate tasks to skilled staff members (or staff of your suppliers) whose positions allow them to interact with all functions horizontally and vertically.
- Every department can be affected by environmental decisions, so they should all be trained to ensure that everyone shares the same vision and to establish relationships based on collaboration and mutual trust.

### STEP 2

ANALYSE YOUR SPECIFIC CONTEXT  
AND IDENTIFY KEY ISSUES IN YOUR  
ORGANISATION, FACILITIES AND EVENTS

#### WHY IT IS IMPORTANT:

Each organisation faces different challenges, and identifying the most important issues to tackle in the football sector and in your organisation is essential to avoid wasting time and resources on activities that have only a minor impact.

#### WHAT YOU COULD DO:

- Collect data on major sources of waste in your organisation.
- Work with relevant internal and external stakeholders to identify your biggest issues in the domain of waste management.
- Identify the waste streams you manage separately, indicating their nature, quantities and disposal methods. Highlight what is sent to landfill, recycled or incinerated, with the aim of optimising recycling rates and minimising landfill waste.

### STEP 3

IDENTIFY AN OVERALL MISSION,  
GUIDING PRINCIPLES AND  
FUNDAMENTAL CHANGES

#### WHY IT IS IMPORTANT:

Clarity about your guiding principles and mission helps to ensure coherent action.

#### WHAT YOU COULD DO:

- To guarantee alignment among all stakeholders, communicate and educate them on your policies, capabilities and objectives.
- Make sure your circular economy strategy is consistent with your other sustainability principles and objectives (e.g. reducing emissions).

### STEP 4

DEFINE TOPICS, KPIS AND TARGETS

#### WHY IT IS IMPORTANT:

"You can't improve what you don't measure."<sup>12</sup>  
Define specific KPIs, aligned with UEFA's strategy, to make the topic relevant to your organisation and to enable monitoring of progress in relation to your overall mission.

#### WHAT YOU COULD DO:

- Set improvement targets in line with our 4R roadmap.
- Make sure your targets are measurable.
- Do not overcomplicate your KPIs, and prioritise quality over quantity: less is more.

12. Often attributed to Peter Drucker, prominent educator and writer on management theory

### STEP 5

#### PRIORITISE SOLUTIONS

##### 5A. IDENTIFICATION

###### WHAT YOU COULD DO:

- Consult with your stakeholders to find out whether they have any experience in these matters.
- Research existing solutions to similar problems. New waste management solutions emerge every day! Make the most of them and reach out to those who have already tried them out.
- Do not hesitate to reach out to UEFA to discuss particular solutions.

##### 5B. PRIORITISATION

###### WHAT YOU COULD DO:

- Use these guidelines to help you identify priority practices. Practices have been prioritised based on four criteria: technical feasibility, economic feasibility, environmental relevance and consistency with UEFA's sustainability strategy. You can also adapt the prioritisation by plotting potential solutions on a two-dimensional matrix of environmental relevance versus economic and technical feasibility.
- Combine quick wins that can be implemented in a very short time frame (low effort and big environmental impact reduction) and medium-term projects that are more complex or resource-intensive or require investment to implement but are necessary to drastically reduce impact.

##### 5C. SELECTION

###### WHAT YOU COULD DO:

- Each solution can be implemented in various ways, leading to very different outcomes in terms of waste and emissions reduction. Compare the potential waste reduction impact of the various options to choose the most effective and make sure that you are also minimising emissions at the same time. On [page 57](#), you can find an example of such a comparison relating to reusable cups.

### STEP 6

#### IMPLEMENT AN ACTION PLAN

##### WHY IT IS IMPORTANT:

True impact is not in setting ambitious goals for 2030 but rather in making the right changes starting right now.

##### WHAT YOU COULD DO:

- Define roles and responsibilities, taking into account the implementation responsibilities described later in these guidelines.
- Allocate an appropriate budget.
- List and schedule each activity.
- Execute the plan and follow up with the people responsible.

### STEP 7

#### MONITOR TARGETS AND KPIS

##### WHY IT IS IMPORTANT:

Just as you cannot reduce what you do not measure, you cannot keep track of your progress without monitoring KPIs.

'Greenwashing' (i.e. creating a public image of environmentally responsible practices without actually making meaningful changes) is a serious matter. If you decide to communicate your environmental achievements externally, ensure that your claims are valid.

##### WHAT YOU COULD DO:

- Measure your KPIs at regular intervals to make sure you are on track to reach targets.
- Make necessary adjustments: change the priority or urgency of different initiatives as you go based on experience.
- Identify useful analyses (e.g. environmental footprint or life cycle assessment).
- Use scientific methods to gather data.
- Seek certifications (e.g. zero waste certification) to validate your results.

## C. THE 4R FRAMEWORK: REDUCE, REUSE, RECYCLE, RECOVER

### STEP 8

#### REPORT ON PROGRESS

##### WHY IT IS IMPORTANT:

Reporting allows you to communicate efficiently with your various stakeholders, show your progress and celebrate milestones.

It can improve productivity and boost the morale of all parties involved, but also enables you to identify and address problems early.

Reporting also facilitates decision-making.

##### WHAT YOU COULD DO:

- Choose meaningful KPIs on which to report to avoid losing your audience's attention in the details.
- Create reports or dashboards for distribution, as they are a powerful communication tool.
- A picture is worth a thousand words: diagrams can be particularly useful. Use colours that can be distinguished when printed in black and white and that can be distinguished by colour-blind people.





# D LEGISLATION AND INTERNATIONAL STANDARDS

UEFA's approach to waste reduction is based on legislation and internationally recognised standards.

EUROPEAN  
UNION  
LEGISLATION

P.28

1

INTERNATIONAL  
STANDARDS

P.29

2

UN TREATY  
ON PLASTIC  
POLLUTION

P.31

3



## 1 EUROPEAN UNION LEGISLATION

Where sustainable alternatives are easily available and affordable, single-use plastic products cannot be placed on the markets of EU Member States.

### FOR OTHER SINGLE-USE PLASTIC PRODUCTS, THE EU IS FOCUSING ON LIMITING THEIR USE THROUGH

- reducing consumption through awareness-raising measures
- introducing design requirements, such as a requirements to connect caps to bottles
- introducing labelling requirements, to inform consumers about the plastic content of products
- introducing waste management and clean-up obligations for producers, including Extended Producer Responsibility (EPR) schemes

### SPECIFIC TARGETS INCLUDE

- a 77% separate collection target for plastic bottles by 2025 increasing to 90% by 2029
- incorporating 25% of recycled plastic in PET beverage bottles from 2025, and 30% in all plastic beverage bottles from 2030<sup>13</sup>

13. View source

14. View source

**THE EU'S DIRECTIVE ON SINGLE-USE PLASTICS, APPLIES TO A RANGE OF PRODUCTS INCLUDING CUPS, FOOD AND BEVERAGE CONTAINERS MADE OF EXPANDED POLYSTYRENE, AND ON ALL PRODUCTS MADE OF OXO-DEGRADABLE PLASTIC.**

The following guidance and initiatives from expert groups within the European Commission should also be taken into account:

- The [Waste Framework Directive](#) is the EU's legal framework for treating and managing waste in the EU. Certain categories of waste require specific approaches. Therefore, as well as the overarching legal framework, the EU has many laws to address different types of waste.<sup>14</sup>
- The [EU Ecolabel](#) is a world-renowned, voluntary scheme promoting goods and services that clearly demonstrate environmental excellence, based on standardised processes and scientific evidence. EU Ecolabel is the only EU-wide ISO 14024 Type I ecolabelling scheme. Recognised throughout Europe, it is multi-criteria and tackles the main environmental impacts of products along their full lifecycle, from extraction of raw material to disposal.<sup>15</sup>
- Guides on how to buy 'green' in a very practical way, in particular the EU's green public procurement criteria for [food, catering services and vending machines](#).<sup>16</sup>

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## 2 INTERNATIONAL STANDARDS

AN INTERNATIONAL STANDARD IS A TECHNICAL STANDARD DEVELOPED BY ONE OR MORE INTERNATIONAL STANDARDS ORGANISATIONS. INTERNATIONAL STANDARDS ARE AVAILABLE FOR USE WORLDWIDE TO PROMOTE CONSISTENCY.

### INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

The most prominent standards organisation is the International Organization for Standardization (ISO).

#### • ISO 14001

##### ENVIRONMENTAL MANAGEMENT SYSTEMS

ISO 14001:2015 specifies the requirements for an environmental management system that an organisation can use to enhance its environmental performance.

Technical information relating to ISO 14001:2015 can be found on the [ISO website](#).

#### • ISO 20121

##### SUSTAINABLE EVENTS

ISO 20121:2024 offers guidance and best practices to help you manage events and control their social, economic and environmental impact.

Every action counts, from relying on tap water instead of plastic bottles to encouraging the use of public transport. It might also help to cut unnecessary costs.

The requirements of ISO 20121:2024 and guidance for its implementation can be found on the [ISO website](#).

### • ISO 26000

#### SOCIAL RESPONSIBILITY

ISO 26000:2010 provides guidance for those who recognise that respect for society and the environment is a critical success factor. As well as being the right thing to do, applying ISO 26000 is increasingly viewed as a way of assessing an organisation's commitment to sustainability and its overall performance.

Guidance relating to ISO 26000:2010 can be found on the [ISO website](#).

#### BRITISH STANDARDS INSTITUTION (BSI)

BS 8001, published by the BSI, is the first practical framework and guidance of its kind aiming to help organisations to implement the principles of the circular economy. While this is a British standard, it is intended to be used by organisations irrespective of where they are located and regardless of size, sector or type. It is useful for those with varying

levels of knowledge and understanding of the circular economy, so readers do not need to be specialists in sustainability or circularity to benefit.

It suggests practical ways to secure quick wins, right through to helping organisations rethink how their resources are managed to create financial, environmental and social benefits.

The guide to BS 8001 can be found [here](#).

#### EU ECO-MANAGEMENT AND AUDIT SCHEME (EMAS)

[EMAS](#) is a premium management instrument developed by the European Commission to help companies and other organisations to evaluate, report on and improve their environmental performance. EMAS is available to every type of organisation eager to improve its environmental performance. It spans all economic and service sectors and applies worldwide.

## 3 UN TREATY ON PLASTIC POLLUTION

On 2 March 2022, representatives of 175 countries gathered in Nairobi for the continuation of the fifth session of the United Nations Environment Assembly. Following a campaign led by the [World Wildlife Fund](#) and the [Ellen MacArthur Foundation](#), the assembly made history when those countries unanimously agreed on a [United Nations resolution to fight plastic pollution on a global scale](#). The resolution calls for global rules, financing and enforcement mechanisms aimed at regulating plastics from manufacture through to disposal.

Negotiations for the global UN Plastics Treaty stalled in August 2025 at the INC-5.2 session in Geneva due to disagreements over the scope of the agreement, particularly concerning plastic production. Delegates will need time to regroup and a date for future talks has not been set. The treaty aims to address the full life cycle of plastics, but countries remain divided on key issues, leading to a lack of consensus on the draft text and delaying its completion.



### RECYCLING

For many years, recycling has been presented as the answer to plastic waste, however, in reality recycling alone will not solve the problem.

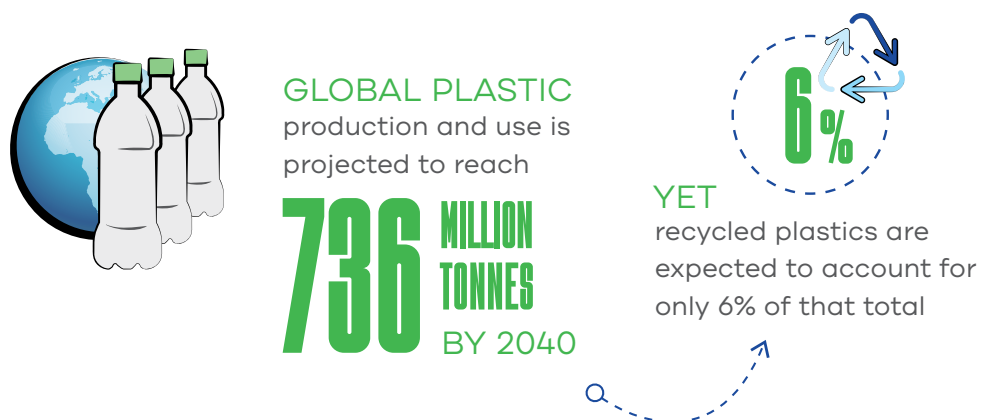
Global plastic production and use is projected to reach 736 million tonnes by 2040, yet recycled plastics are expected to account for only 6% of that total.<sup>17</sup> At present, only around 9% of plastic waste is recycled globally.<sup>18</sup>

### RECYCLING LIMITATIONS

- Not all plastics can be recycled at scale. A single bottle may include different materials (body, cap, label) that cannot be processed together.
- Plastics can lose quality when they are recycled and may require virgin plastic to be added to maintain performance.
- The recycling process itself can create residues and microplastics that can enter the environment.
- New recycling technologies are emerging, but many remain expensive and not yet available at large scale.

### WHAT CAN CLUBS DO?

Football clubs can play a leading role by reducing unnecessary plastics and choosing alternatives.










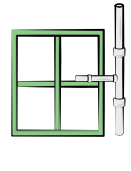


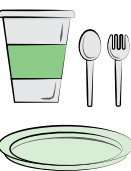



17. View source  
18. View source

### WHAT ACTIONS CAN BE TAKEN:

- **Reduce:** phase out single-use plastics in events, stadia and supply chains
- **Design better:** favor mono-material products and components that are easy to recycle, reuse or rebrand
- **Buy better:** set minimum recycled content requirements for products
- **Extend life:** reuse and redistribute where possible instead of disposing
- **Support innovation:** test scalable new technologies
- **Measure and report:** track plastic use and recovery so that progress can be monitored

Plastics are not just a technical issue, they are also cultural and economic. Tackling them requires collective responsibility and collaboration across clubs, leagues, suppliers, and fans.

SYMBOL						
						
PET	HDPE	V	LDPE	PP	PS	OTHER
Polyethylene Terephthalate	High-Density Polyethylene	Polyvinyl Chloride	Low-Density Polyethylene	Polypropylene	Polystyrene	...
APPLICATIONS						
						
Beverage bottles, medicine jars, rope, clothing and carpet fibre	Containers for milk, motor oil, shampoos and conditioners, soap bottles, detergents and bleaches	All kinds of pipes and tiles	Cling-film, sandwich bags, squeezable bottles and plastic grocery bags	Lunch boxes, margarine containers, yogurt pots, syrup bottles, prescription bottles, plastic bottle caps and plastic cups	Disposable coffee cups, plastic food boxes, plastic cutlery and packing foam	Baby bottles, compact discs and medical storage containers

**FIGURE 6**  
Seven common types of plastics, with symbols and applications



# FOUR AREAS OF ACTIVITY IN FOOTBALL

THIS SECTION FOCUSES ON THE FOUR AREAS OF ACTIVITY IDENTIFIED IN A MATERIALITY ASSESSMENT AS THE MAIN CONTRIBUTORS TO WASTE WITHIN THE WORLD OF FOOTBALL. THE AREAS OF FOCUS MAY CHANGE IN THE FUTURE AS THESE GUIDELINES ARE PERIODICALLY REVIEWED IN LINE WITH:

- Technological advances
- Ever-evolving local, national and international legislation
- Public awareness and sensitivity



## E. FOUR AREAS OF ACTIVITY IN FOOTBALL

**THESE  
GUIDELINES ARE  
DESIGNED TO  
RESPOND TO THE  
TARGETS DEFINED  
IN UEFA'S  
SUSTAINABILITY  
STRATEGY:**

### **MINIMISE PLASTIC WASTE AND FOOD WASTE**

within UEFA and at all UEFA events

**4R PROCESSES AND TOOLS** embedded into the UEFA guidelines by 2025, and national associations encouraged to apply 4Rs

**4R APPROACH** applied to all UEFA events by 2024, with a particular focus on product packaging, plastics, single-use items and food waste

**KNOWLEDGE TRANSFER** through one 4R pilot project per season until 2025

To minimise waste throughout European football, the highest level of collaboration is required. We have therefore created these guidelines not only for UEFA itself but also to support football facilities, clubs, sponsors, caterers, suppliers and waste management companies in prioritising actions and working together towards more sustainable football.





## E. FOUR AREAS OF ACTIVITY IN FOOTBALL

**IN ORDER TO PROVIDE A 360° VIEW OF THE FOOTBALL INDUSTRY AND FOOTBALL ORGANISATIONS, THE FOLLOWING AREAS WILL BE COVERED IN DEDICATED SECTIONS.**

Please note that this segregation is neither definitive nor exhaustive and will be revisited periodically.

**SECTION E1**  
**FOOD AND  
BEVERAGES**  
including their  
packaging

**SECTION E2**  
**APPAREL  
AND  
FOOTBALL  
EQUIPMENT**

**SECTION E3**  
**EVENT  
MATERIALS**

**SECTION E4**  
**ENERGY  
AND  
WATER**



# E1 FOOD AND BEVERAGES

This section focuses on the aim of achieving zero waste in the food and beverage (F&B) sector of football organisations, facilities and events by applying the 4Rs.

## CONTEXT

P.38

1

## LEGISLATION

P.40

2

## IMPLEMENTATION OF THE 4RS IN F&B

P.42

3



# 1 CONTEXT

Food waste is a worldwide issue that has been ignored for too long. Based on the latest estimations, if food waste were a country, it would be the third biggest emitter of greenhouse gases after China and the USA, accounting for around 8–10% of emissions.<sup>19</sup> Roughly one third of the food produced in the world for human consumption is thought to be lost or wasted.<sup>20</sup>

Understanding the problem of food waste is key to finding good solutions. A first step is to measure the amount of food that goes to waste and understand where the waste is happening.

Food waste occurs at three main stages:

1. **Pre-consumer** – overproduction, spoilage, or expired stock before reaching the consumer.
2. **Consumer plate waste** – uneaten food from fans or guests.
3. **Post-event waste** – surplus from events, conferences, or matchdays.

Depending on where and what happens along the supply chain, we use the terms '**food loss**' or '**food waste**' and '**food surplus**'.

**FOOD LOSS** refers to any food that is discarded, incinerated or otherwise disposed of at any point **along the food supply chain**, from the moment it is harvested, slaughtered or caught up to but not including retail, provided it is not used for any other productive use, such as animal feed or seed.

**FOOD SURPLUS** is defined as agricultural produce or a quantity of food produced in excess of our needs.<sup>21</sup> For the purposes of these guidelines, the term 'food surplus' describes any food and inedible parts that are sent to the following<sup>22</sup>:

- Redistribution to people (e.g. through a charity or commercial redistributor)
- Animal feed
- Bio-based materials/biochemical processing (e.g. feedstock for other industrial products)

<sup>19</sup> View source

<sup>20</sup> View source

<sup>21</sup> View source

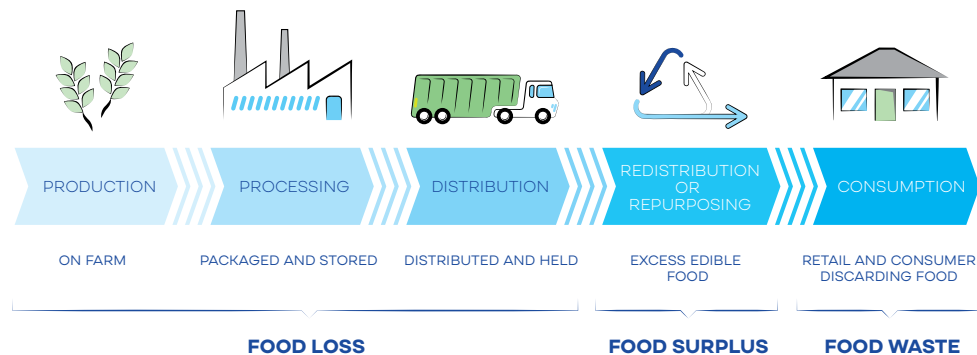
<sup>22</sup> View source

## E1. FOOD AND BEVERAGES

**FOOD WASTE** refers to food that is **discarded by retailers, food service providers or consumers**.

Food can be wasted in many ways; for example:

- Fresh produce that deviates from what is considered optimal (e.g. size, shape or colour) may be removed during sorting
- Food is often discarded by retailers or consumers when it reaches the best-before date
- Households and restaurants throw away unused or leftover food



**F&B IS A MAJOR SOURCE OF WASTE IN FOOTBALL, NOT ONLY IN TERMS OF FOOD WASTE ITSELF BUT ALSO BECAUSE OF PACKAGING AND SUPPLY CHAINS.**

Collaboration between all stakeholders is needed to address F&B waste in football, which is why UEFA has defined these guidelines to be deployed across European football.

Furthermore, in collaboration with the ALMA School of Italian Culinary Arts and UEFA subject matter experts, UEFA has developed [sustainable catering guidelines](#), which provide practical advice on how to make responsible and sustainable choices in the selection, preparation, communication and waste management of food and beverages.

We look forward to seeing these guidelines translated into tangible actions at UEFA events and collaboratively across European football to help us achieve our targets around health and well-being and environmental impact.

## 2 LEGISLATION

### WASTE FRAMEWORK DIRECTIVE

The European Commission is planning to set legally binding food waste reduction targets for all EU countries as part of the [revision of the Waste Framework Directive](#). EU countries will be required to reduce food waste in processing and manufacturing by 10% and in retail and consumption by 30% per capita by 2030. A formal review of progress will be carried out by the end of 2027.

On 19 February 2025, the European Parliament and the Council reached a provisional agreement on the Commission proposal. Co-legislators agreed to introduce binding [food waste reduction targets](#) to be met at national level by 31 December 2030: 10% in food processing and manufacturing and 30% per capita in retail, restaurants, food services and households. Once formally adopted by co-legislators, Member States will have up to 20 months to transpose the Directive into national legislation.<sup>23</sup>

<sup>23</sup>. View source

### PACKAGING AND PACKAGING WASTE REGULATION

The Packaging and Packaging waste regulation [PPWR](#) entered into force on 11 February 2025. The rules aim to minimise the quantities of packaging and waste generated while lowering the use of primary raw materials and fostering the transition to a circular, sustainable and competitive economy.

#### It aims to:

- Prevent and reduce packaging waste, including through more reuse and refill systems.
- Make all packaging on the EU market recyclable in an economically viable way by 2030.
- Safely increase the use of recycled plastics in packaging.
- Decrease the use of virgin materials in packaging and put the sector on track to climate neutrality by 2050.

The PPWR establishes a new set of requirements in line with Europe's waste rules that cover the entire packaging life cycle, from product design to waste handling.

### The new rules include:

- Restrictions on certain single-use plastics, such as individual portions of condiments.
- Minimising the weight and volume of packaging and avoiding unnecessary packaging.
- 2030 and 2040 targets for a minimum percentage of recycled content in packaging.
- A requirement for take-away businesses to offer customers the option to bring their own containers at no extra cost.
- Minimising substances of concern, including restrictions on packaging containing per- and polyfluorinated alkyl substances (PFAS) if they exceed certain thresholds.

Packaging recoverable through composting and biodegradation should meet the harmonized standard requirements EN 13432:2000.<sup>24</sup>

The PPWD will be repealed 18 months after the PPWR enters into force. However, some provisions of the existing regulation will continue to apply even after that date.<sup>25</sup>

<sup>24</sup>. View source

<sup>25</sup>. View source

### BEVERAGE PACKAGING

The European soft drinks sector, represented by [UNESDA](#), fully supports the EU's objective of driving packaging circularity forward. The sector as a whole aims to deliver fully circular soft drinks packaging by 2030: UNESDA is committed to reach 100% recyclable soft drinks packaging and use an average of 50% recycled content in PET bottles by 2025.

UNESDA has also pledged that by 2030, at least 90% of all its packaging (plastic bottles, metal cans and glass bottles) will be collected, PET bottles will be made from 100% recycled and/or renewable materials and reusable beverage systems will be more widely available.



## 3 IMPLEMENTATION OF THE 4RS IN F&B

We have compiled a list of the most meaningful actions to address the issue of F&B waste management in football facilities and have consulted with experts and clubs on each action's potential impact, feasibility and resulting priority level.

On the basis of this analysis and prioritisation exercise\*, we have drawn up a range of actions ranging from very high priority to low priority.

### Possible actions identified fell into the following clusters\*:

- **Governance and strategy:** the strategy, decision-making process, management and system of responsibility needed to make sure that the most pressing issues are tackled and the most effective actions are taken
- **F&B offer:** the food, beverages and packaging selected with a view to minimising waste and maximising the useful life of materials
- **Waste collection and management:** the handling of waste to minimise the amount sent to landfill or incinerated

\*The methodology used to identify and prioritise these actions can be found in [Appendix 1](#)

\*The expert impact and feasibility analysis can be found in [Appendix 2](#)



## E1. FOOD AND BEVERAGES

### VERY HIGH PRIORITY

- Define an overall circular economy strategy for F&B
- Guarantee an effective waste management supply chain by:
  - Choosing materials that can be recovered through the local waste management supply chain
  - Providing separate bins (plastic, glass, aluminium, organic, paper) to enable separate waste collection throughout the entire football facility (hospitality areas, concessions and offices/staff areas)
  - Educating spectators and encouraging them to use bins correctly
- Optimise menu planning and implement an effective inventory management system to minimise food waste (hospitality)
- Install biodigesters (machines that decompose pre-consumer food waste) or donate unused food

### HIGH PRIORITY

- Promote reusable cups for drinks
- Install refill stations for water and other beverages to reduce bottle purchases



### MEDIUM PRIORITY

- Use reusable tableware (concessions)
- Display panels informing fans about separate waste collection near concessions

### LOW PRIORITY

- Carry out surveys to understand fans' environmental awareness and behaviour
- Close the loop by recycling waste to produce other essential football items (e.g. recycle plastic bottles into seats)

Table 1 indicates how the very high and high priorities represent a process of continuous improvement from awareness of circularity towards zero-waste events.

## E1. FOOD AND BEVERAGES

**TABLE 1**  
ADVANCEMENT PHASES

PHASE	GOAL	ACTIONS	PRIORITY
<b>1. AWARENESS</b>	Broad understanding of F&B items produced for the event and their impact on event sustainability	Organise waste assessments to understand waste composition	High
<b>2. BASIC: COMMITMENT</b>	Public commitment to considering the 4R policy during F&B procurement for the event	Provide evidence of public statements or spectator awareness campaigns regarding the commitment to manage waste streams, reduce the production of single-use items, and promote recycling, recovery and upcycling programmes in F&B	Very high
<b>3. INTERMEDIATE: ACTION</b>	Circularity strategy in place for F&B	Define an overall circular economy strategy in F&B	Very high
		Collect and analyse performance indicators in terms of waste production and recycling, especially in F&B	High
		Train staff (including concessions staff) on how to reduce the environmental impact of F&B	High
	4Rs integrated into discussions with suppliers and partners	Provide suppliers with packaging and F&B procurement guidelines, including waste minimisation targets	High
		Activate communication channels with key stakeholders and service providers involved in F&B improvement actions (e.g. regular meetings with caterer and consultations with waste management operator/municipality)	Very high
		Train the cleaning service provider on how to sort and separate F&B waste	High
	Recycling system optimisation in place	Guarantee an effective waste management supply chain by: <ul style="list-style-type: none"> <li>• Choosing materials that can be recovered through the local waste management supply chain</li> <li>• Providing separate bins (plastic, glass, aluminium, organic, paper) to enable separate waste collection throughout the entire football facility (hospitality areas, concessions and offices/staff areas)</li> <li>• Educating spectators and encouraging them to use bins correctly</li> </ul>	Very high
<b>4. ADVANCED: RESULTS</b>	Packaging minimisation and phase-out of single-use items	Choose foods with minimal or no packaging (hospitality)	Very high
		Choose foods with minimal or no packaging (concessions)	Very high
		Install refill stations for water and other beverages to reduce bottle purchases (hospitality)	High
		Install beverage draft systems to reduce bottle purchases (concessions)	High
		Promote reusable cups for drinks (hospitality)	High
		Promote reusable cups for drinks (concessions)	High
		Use reusable tableware (hospitality)	High
	Food waste minimisation	Optimise menu planning and implement an effective inventory management system to minimise food waste (hospitality)	Very high
		Donate unused prepared food	Very high
	Initiatives to encourage waste reduction outside the football facility	Organise initiatives to encourage separate waste collection outside the football facility	Very high
<b>ASPIRATIONAL: BEST PRACTICE</b>	Zero-waste packaging, with special attention to plastics	Activate all best practices listed in the 'Packaging minimisation and phase-out of single-use items' goal to reach targets	NA
	Zero food waste	Activate all best practices listed in the 'Food waste minimisation' goal to reach targets	NA

→ The following pages provide detailed data sheets for all the very high and high-priority activities for which the consultation groups, surveys, individual interviews and pilot projects yielded sufficient data.



## MOST COMMON BENEFITS

ECONOMIC	BRANDING
Although setting a strategy requires an initial investment (effort and money, if external professionals are involved), it guarantees that the best decisions are made. → Reduced costs relating to trial and error.	A circularity strategy can be communicated to external stakeholders. → Improved image in relation to sustainability efforts.

## MOST COMMON CHALLENGES

CULTURE	EFFORT	INFRASTRUCTURE/LOCATION
No challenges identified.	<ul style="list-style-type: none"> <li>The scope of a sustainability strategy can be quite broad (food, merchandising, etc.). → Start from the most pressing issues (please see step 2 of the methodology: 'Analyse your specific context and identify key issues in your organisation, facilities and events').</li> <li>Setting a circularity and sustainability strategy requires experienced professionals, which the organisation might not have. → May require external support.</li> </ul>	No challenges identified.

## TECHNICAL WARNINGS

Suppliers who are not aligned with the football organisation's sustainability agenda might limit the strategy's effectiveness. → It might be necessary to make policies mandatory/include sustainability criteria in the supplier selection process.
---

BEST PRACTICES  
BASICBEST PRACTICES  
INTERMEDIATEBEST PRACTICES  
ADVANCED

<ul style="list-style-type: none"> <li>Use these guidelines to identify priority activities relating to waste management.</li> <li>To reduce the scope of the strategy, start with the most pressing issues (please see step 2 of the methodology: 'Analyse your specific context and identify key issues in your organisation, facilities and events').</li> </ul>	<ul style="list-style-type: none"> <li>Calculate the return on investment of possible activities. An activity that seems expensive might actually offer positive returns in the medium term.</li> </ul>	<ul style="list-style-type: none"> <li>Circularity does not only relate to waste: combine a 4R strategy with an emissions reduction strategy.</li> <li>Perform analyses such as calculating environmental footprint of the organisation/facility/match to identify major sources of waste.</li> </ul>
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### → CASE STUDY 1 MANCHESTER CITY'S OVERALL F&B CIRCULAR ECONOMY STRATEGY

→ Requiring catering services provided by a contractor to be sustainable is no longer only a moral decision but also increasingly a business decision. It can lead to both a smaller impact on the environment and higher-quality ingredients that improve the product delivered to clients. Manchester City's caterer (F3) investigated a range of initiatives over two years, including the following:

#### ● WASTE MANAGEMENT

- **REDUCING** food waste is a major focus at the club's City of Manchester Stadium, and the F3 team have made huge strides in reducing levels of waste. This was achieved by re-engineering the menus and raising awareness among guests and employees. F3 have also successfully implemented an ORCA biodigester that 'eats' food waste and turns it into wastewater. The caterer has also established partnerships with local and [international charities and food banks](#) to redistribute any unwanted food that cannot be utilised within its shelf life. By working with the hospitality events team, F3 is able to anticipate the food required according to the number of guests in every suite or space in order to both meet customers' needs and reduce waste by avoiding overprovision or overordering.
- **PACKAGING:** F3 have instigated several initiatives to reduce the amount of packaging used for products that they receive and deliver, such as: reducing the use of cardboard and replacing vacuum bags with peach paper.

- **REDUCED PLASTIC WASTE:** F3 are on a mission to eradicate all single-use plastic from the stadium. The club has embarked on a programme of removing single use plastics from its business and match/concert day – saving over 800,000 single use plastic cups on match days; removing plastic milk bottles from its staff catering and providing all staff with keep cups and refillable water bottles.<sup>26</sup>

- **FOOD SOURCING:** F3 aims to showcase the very best food produced in northwest England, sourcing ingredients from local suppliers to drive down the carbon footprint.

#### ● OVERALL BENEFITS ACHIEVED

By collaborating with and across the club, it has been possible to maintain the best value while improving the overall provision of local, high-quality produce. This has also enabled F3 to focus on smarter ordering, thereby reducing waste, transportation costs and food miles. Sharing these practices with fans and customers adds value and improves options to attract additional events and functions, ensuring that F3 is contributing to the club's goal to reduce emissions and achieve an overall target of Net Zero by 2030.

<sup>26</sup>. View source

## E1. FOOD AND BEVERAGES

**VERY HIGH PRIORITY**  
GUARANTEE AN EFFECTIVE WASTE  
MANAGEMENT SUPPLY CHAIN

- Choose materials that can be recovered through the local waste management supply chain
- Provide separate bins (plastic, glass, aluminium, organic, paper) to enable separate waste collection throughout the entire football facility (hospitality areas, concessions, and offices/staff areas)
- Educate spectators and encourage them to use bins correctly

MOST COMMON BENEFITS		
ECONOMIC	BRANDING	
The higher the waste separation rate, the lower the cost of waste management.	Very visible to spectators. → Good tool to show the football organisation's awareness of sustainability.	
MOST COMMON CHALLENGES		
CULTURE	EFFORT	INFRASTRUCTURE/LOCATION
<ul style="list-style-type: none"><li>Football organisations cannot control spectators' behaviour, and many have found that relying on spectators to put waste in the correct bin is a challenge. → The focus on recycling should be a preliminary step while working towards waste reduction.</li><li>This is also in line with the zero waste hierarchy, whereby recycling needs to be secondary to reducing and reusing.</li><li>However, waste cannot be completely eliminated. → Recycling still plays a fundamental role in circularity and efforts must be made to raise awareness among all parties.</li></ul>	<ul style="list-style-type: none"><li>Requires investment in equipment.</li><li>Various parties need to be involved to ensure that waste is disposed of in the correct bins. → This activity needs to be implemented in conjunction with the activity 'Activate communication channels with key stakeholders and service providers involved in F&amp;B improvement actions (e.g. regular meetings with caterer and consultations with waste management operator/ municipality').</li></ul>	<ul style="list-style-type: none"><li>Local security regulations might be an obstacle.</li><li>Many football facilities have a binary system for spectators in concessions, with one bin for plastics and one for general waste. While this is simple from a spectator's perspective, it has two limitations:<ul style="list-style-type: none"><li>It hinders innovations in packaging (e.g. switching to compostable food packaging), as any packaging that is not plastic is put in the general waste bin.</li><li>The plastic bin serves little purpose during matches at which spectators are not given plastic bottles for safety reasons.</li></ul></li><li>Enough space to accommodate multiple bins is needed.</li><li>Recycling multiple types of waste requires rethinking the recycling system as a whole, especially in concessions.</li></ul>



### TECHNICAL WARNINGS

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• The football organisation can only influence, not control, spectators' behaviour.</li> <li>• The risk of contamination is high (a whole bin bag might be refused by the recycling partner if it contains an item placed in the wrong bin).<br/>→ In addition to maintaining recycling only as a secondary action after reducing and reusing, various ways of maximising the recycling rate can be tested. Examples implemented by different football organisations include:</li> </ul> | <ul style="list-style-type: none"> <li>- Use rewards to engage fans in separate waste collection campaigns (e.g. by adopting reverse vending machines that collect PET bottles in exchange for a reward, as was done by Inter Miami CF).</li> <li>- Raise awareness among spectators about the issue of waste (e.g. by showing impactful videos of waste generated during a match or by having staff collect waste from the floor in front of spectators to show the effort required).</li> <li>- Have the cleaning service provider separate waste after the match, especially waste found under seats.</li> </ul> |
|---|---|

### BEST PRACTICES BASIC

- To support the introduction of more environmentally friendly packaging (e.g. compostable food packaging), test the switch from a binary system to bins for multiple types of waste.
- Try to ensure that different suppliers of products offered to spectators use the same type of packaging in order to reduce the risk of confusion (e.g. if a beverage supplier switches to compostable cups and this is confirmed to have a lesser impact than other food packaging and cups given to spectators, ask all other suppliers to switch to the same type of compostable packaging so that spectators can throw all their waste away in the same bin).
- Place sorting bins at the gates of the football facility, especially bins for plastic bottles and caps.
- Train suppliers on the sustainability agenda and on recycling best practices.

### BEST PRACTICES INTERMEDIATE

- One possible solution to encourage correct recycling by catering employees is to apply penalties for failing to separate waste correctly.
- Test different incentives to encourage spectators to recycle, including those listed in under 'Technical warnings'.

### BEST PRACTICES ADVANCED

- Focus on waste reduction and make recycling a secondary action.
- To guarantee consistency, make policies mandatory/ include sustainability criteria in the supplier selection process.
- When collecting water bottles at the gates, separate those that have been opened from closed bottles that can be reused/donated.
- Have stewards going around the stands not only to sell F&B during the match but also to collect recyclable waste in a specific bin bag only accessible by the football facility's staff.  
→ This both raises awareness among spectators and maximises the recycling rate by maintaining control of waste sorting.

### → **CASE STUDY 2** DRIVING SUSTAINABLE FOOD & BEVERAGE PRACTICES

→ The 2024 UEFA Champions League Final at Wembley Stadium served as a testing ground for a range of innovative, circular economy-inspired food and beverage initiatives. Designed to reduce environmental impact while engaging fans, the pilot demonstrated how sustainability can be embedded into major sporting events without compromising the spectator experience.

- One of the headline features was carbon labelling across menu boards at the stadium and the Champions Festival. Delivered in partnership with My Emissions and Just Eat Takeaway.com, this A-E rating system gave fans clear, at-a-glance information about the carbon footprint of their food choices.<sup>27</sup> By making environmental impact visible at the point of purchase, UEFA aimed to encourage more climate-conscious decisions among spectators.

- Sustainable packaging was also a focus. Over 100,000<sup>28</sup> meals were served in seaweed-lined, compostable containers supplied by Notpla. Each package included a QR code linking to a sustainability quiz, where participants could win tickets for the following year's competition. This not only reduced reliance on single-use plastics but also turned packaging into an interactive engagement tool.

- In line with UEFA's commitment to preventing edible food from going to waste, the event facilitated a large-scale food donation programme. Almost 770 kg of surplus food was salvaged and redistributed through charities such as City Harvest, providing an estimated 1,824 meals to people in need.<sup>29</sup>

- Complementing these efforts were waste reduction measures that included reusable cups, dedicated recycling streams, and the installation of back-of-house food waste bins to improve segregation.

- Together, these initiatives created a more sustainable hospitality experience and provided valuable operational learnings for future tournaments.

<sup>27</sup>. [View source](#)

<sup>28</sup>. [View source](#)

<sup>29</sup>. [View source](#)

### → CASE STUDY 2 DRIVING SUSTAINABLE FOOD & BEVERAGE PRACTICES (CONT.)

#### KEY TAKEAWAYS

1 >>>

##### **Integrate environmental information at the point of choice:**

Carbon labelling can influence behaviour without restricting options

2 >>>

##### **Leverage packaging for impact:**

Choose compostable or recyclable solutions and use them as a platform for fan engagement

3 >>>

##### **Plan for surplus food management:**

Formalise agreements with local charities before events to ensure safe and efficient redistribution



In partnership with UEFA and Just Eat Takeaway.com, My Emissions carbon labelled the menu boards at and around the 2024 UEFA Champions League Final

## E1. FOOD AND BEVERAGES

**VERY HIGH PRIORITY**  
OPTIMISE MENU PLANNING AND  
IMPLEMENT AN EFFECTIVE INVENTORY  
MANAGEMENT SYSTEM TO MINIMISE  
FOOD WASTE (HOSPITALITY)

### MOST COMMON BENEFITS

#### ECONOMIC

Less production and waste.  
→ Economic savings.

#### BRANDING

Switching from buffets to table service is generally appreciated by spectators, as it elevates the experience to that of a restaurant.

### MOST COMMON CHALLENGES

#### CULTURE

Spectators are used to having a full buffet available for the whole match.  
→ Some awareness-raising might be needed to change this. However, as indicated above, switching to table service can be appreciated by spectators.

#### EFFORT

No challenges identified.

#### INFRASTRUCTURE/LOCATION

Switching from buffets to table service may require changes to the furniture, but this is easily done at a low cost. If multiple clubs co-own the same football facility, it is essential that they are all involved in the change to ensure that they all manage the VIP areas in the same way.

### TECHNICAL WARNINGS

No technical warnings identified.

#### BEST PRACTICES BASIC

- Evaluate the waste rate of each dish prepared in order to determine consumption habits by dish type and weight.
- Do not replenish buffets in lounges until absolutely necessary (since food cannot be donated once it has been placed in the buffet, even if not eaten).

#### BEST PRACTICES INTERMEDIATE

- Switch from buffets to table service.

#### BEST PRACTICES ADVANCED

- Use smart ordering to optimise food planning and purchasing by allowing spectators to order their food before the match.

#### → CASE STUDY 3 CHANGING FROM BUFFETS TO TABLE SERVICE AT AC MILAN AND FC INTERNAZIONALE MILANO

→ Historically, the hospitality service at San Siro has always been split between buffet and table service. The decision to offer table service initially stemmed from the need to offer a premium option for sponsors and VIPs.

- During the 2021/22 season, due to COVID-19 restrictions, no buffet service was possible in the hospitality areas. It became crucial for the clubs to plan another type of service in order to guarantee that the lounges could be used and avoid a huge reduction in the number of guests.
- Although some reduction in the capacity of the lounges was unavoidable, this change may have led to an improvement in the experience offered at the football facility. Both clubs decided, with their shared caterer, to change all the buffet lounges to table service, with each guest having an assigned seat. Thus social distancing was respected at all times and there was no physical contact between guests and food during preparation.
- The caterer provided tables and chairs and the layout of the lounges was approved by the local authorities.
- Hosts were provided with name lists and escorted each guest to their seat to avoid crowding at the entrance.
- Not having a kitchen in every lounge was identified as a benefit: the food was prepared in advance by the caterer and plated on-site.
- This method also made it easier to donate unprepared food after matches. This policy led to several achievements:
  - Food waste was reduced thanks to menu planning
  - Catering costs were reduced as a result of inventory management
  - All crockery was reusable in order to meet high standards of quality, thereby reducing plastic waste
- Given these positive results, the clubs continued to use this type of service even after COVID-19 restrictions were lifted.



## E1. FOOD AND BEVERAGES

**VERY HIGH PRIORITY**  
INSTALL BIODIGESTERS OR DONATE  
UNUSED PREPARED FOOD

### MOST COMMON BENEFITS

#### ECONOMIC

- Some biodigester providers will support the football organisation in applying for fiscal incentives from the EU.
- Using biodigesters can lead to savings on electricity generation, heating/cooling and fertiliser.
- Food donation comes at no cost, but requires some forward planning.

#### BRANDING

- On-site biodigesters can also process food waste generated by other companies and the community, contributing to a positive perception of the football organisation in the local area.
- Food donation is supported by local communities and often has a positive social impact on the community around the stadium.

### MOST COMMON CHALLENGES

#### CULTURE

No challenges identified.

#### EFFORT

Installing a biodigester requires an initial investment but, as noted above, incentives are available from the EU and some biodigester providers can help with the bureaucracy.

#### INFRASTRUCTURE/LOCATION

- Food donations may be restricted by local regulations.
- On-site biodigesters require less equipment and are easier to move than one may think.

### TECHNICAL WARNINGS

- Food that is wrapped is the most suitable for donation, but could lead to increased food packaging and consequently increased emissions. Reducing packaging is a very high priority under UEFA's 4R framework.  
→ If food donation requires changes in food choices and packaging, this should be taken into account when comparing options. One solution may be to donate food that has to be wrapped in any case but use biodigesters for food from hospitality that cannot be donated, as was done at the Stade de France.
- Please note, however, that using biodigesters is not always preferable to increasing packaging to allow for donation; the optimal solution must be determined on a case-by-case basis.
- For food donation, select a reliable partner that recovers the leftover food, stores it and immediately transports it safely to the final beneficiaries. The catering supplier may be able to assist in the selection of such a partner. Access to the stadium can be an issue, so the facility must plan for the partner's arrival before the match or organise food pick-up early the morning after the match, once the general public have left and there are no more hazards.

#### BEST PRACTICES BASIC

- Sell sandwiches at very discounted prices at the end of a match to avoid wasting them.
- When collecting water bottles at the gates, separate those that have been opened from closed bottles that can be reused/donated.
- If purchasing a biodigester is not possible, send food waste to an external partner that has biodigesters.

#### BEST PRACTICES INTERMEDIATE

- Try to use foods that are suitable for donation (e.g. that do not need to be heated).
- Implement food donation in conjunction with waste reduction (e.g. better menu planning) to minimise food waste at the source.
- Arrange for unused food to be picked up by food banks based on the type of food and packaging (fresh, wrapped, etc.).
- Take advantage of fiscal incentives to install biodigesters offered by the EU.

#### BEST PRACTICES ADVANCED

- Evaluate and compare the environmental benefits (e.g. using life cycle assessments (LCAs)) of the various solutions to managing food waste (food donation, biodigesters, organic dehydrators, etc.), in order to select the best one based on the football facility's specific characteristics. If necessary, adopt a combination of solutions for different types of food (e.g. wrapped versus unwrapped).

### → CASE STUDY 4 FOOD WASTE AVOIDANCE AFTER RB LEIPZIG HOME-MATCHES BY INCENTIVISED SALES TO STAFF AND FOODSHARING-INITIATIVE

→ In addition to trying to minimise food waste in its public concessions through continuous monitoring and optimisation of the volume provided and sold each matchday as well as collaborating with Foodsharing-Organisations, RB Leipzig and its public caterer sell unsold food (e.g. salads, sandwiches, bread, sausages) and beverages that have reached their best-before date (no beer) to staff, employees and service providers at a reduced price of €1.50 per item.

- This post match 'happy hour' sale starts after the gates have been closed each matchday.
- The 'happy hour' idea helps to tackle matchday food waste in the public sector and further creates additional benefits for hard-working staff and third-party service providers.
- Moreover, the money that is being earned through these sales is donated to a local aid organization that advocates for homeless and vulnerable children and young people.
- For legal and hygiene reasons, RB Leipzig is not permitted to donate food directly to local NGOs –particularly items that are no longer in their original packaging. To prevent food waste, the club, together with its hospitality caterer, explored alternative solutions. Consequently, RB Leipzig now collaborates with the organization

Foodsharing e.V. They enable volunteers to collect surplus food and meals and to redistribute them in full compliance with legal and hygiene regulations to individuals in need.



### → CASE STUDY 5 ADOPTION OF BIODIGESTERS AT JOHAN CRUIJFF ARENA

→ Food waste is everywhere and is certainly not always avoidable; the question is how to maximise its value. For Johan Cruijff Arena, a biodigester is the solution and was installed in 2023. The aim is to preserve all possible value locally.

- The digester turns food waste into biogas, which in turn is converted into electricity and used to heat and cool the stadium. It also produces digestate – a nutrient-rich product that will be used to fertilise the arena's grass fields. The digester processes 600 tonnes of food waste each year, not only from the arena itself but also from neighbouring organisations such as ING, ABN Amro and the Academic Medical Centrum of Amsterdam.
- An EU grant helped to kick-start this initiative and it is clear that there is a solid business model for similar projects in the future. Increased waste and energy prices and the awareness of the need to shift to a regenerative society add extra value to this initiative.
- In addition, waste collection and processing provide at least five additional FTE jobs for members of the local community struggling to enter the labour market. Employees have the

opportunity to be trained and supported in advancing their careers, thereby creating turnover and vacancies for new employees.

Moreover, visitors to the arena see the impact of the biodigester, so it helps to raise awareness of how we can combine social, environmental and economic benefits. This iconic, pioneering project can easily be replicated by other stadiums and cities worldwide in the near future.



MOST COMMON BENEFITS			
ECONOMIC		BRANDING	
	Waste reduction reduces waste management costs.	Spectators generally appreciate reusable cups.	
MOST COMMON CHALLENGES			
CULTURE	EFFORT	INFRASTRUCTURE/LOCATION	
Reusable cups are designed to create a closed loop whereby the football facility continues to use them: this entails educating spectators on returning them and not taking them home.	Logistics and cleaning costs need to be taken into account.	Transportation and washing both have an environmental impact. It is therefore important to: <ul style="list-style-type: none"><li>Identify a washing location very close to the football facility, if not inside the facility itself</li><li>Ensure that the energy used to wash the cups is not too dependent on fossil fuels</li><li>Make sure that cups are reused inside the football facility</li></ul> More details are provided in the study on the next page	
TECHNICAL WARNINGS			
	<ul style="list-style-type: none"><li>Decorative cups risk having a low return rate, which compromises the closed loop whereby reusable cups are kept and reused for their whole useful life (up to 500 uses, depending on the cup). It is therefore important to adopt a design that spectators are unlikely to want to take home.</li><li>Reusable cups should not feature branding that impedes their reuse (e.g. dates or mentions of specific events).</li></ul>		
BEST PRACTICES BASIC		BEST PRACTICES INTERMEDIATE	BEST PRACTICES ADVANCED
<ul style="list-style-type: none"><li>Carry out a preliminary screening of the various possible options and make sure that all the conditions are met for reusable cups to reduce the environmental impact compared with single-use cups (see the study below).</li><li>If those conditions are not met, consider other solutions such as paper cups with a water-based coating (in this case, check whether your local recycling system accepts used cups for recycling or make sure that they are composted, and check how far away the supplier is as such cups are less common than those with an LDPE coating).</li><li>Encourage spectators to return their cups after use (e.g. by implementing a deposit system and by using a plain design).</li></ul>		<ul style="list-style-type: none"><li>Try to reduce not only waste but also emissions: conduct an LCA to compare the environmental impacts of reusable cups and single-use cups. An initial screening method can be found in the study below, but should be used only as preliminary analysis.</li></ul>	<ul style="list-style-type: none"><li>Implement a system for washing reusable cups at concessions.</li></ul>

- To verify whether best practices to reduce waste would also reduce emissions, we performed a screening assessment using secondary data relating to the carbon footprint of different solutions for cups used during football matches.

### STUDY 1 OF DIFFERENT TYPES OF SINGLE-USE AND REUSABLE CUPS

- The objective of the study was to understand the different impacts of the various solutions analysed and to provide a basis for future, more in-depth studies involving primary data collection.
- The analysis compared single-use and reusable cup options, focusing on material type, washing logistics, usage frequency, and end-of-life scenarios.

### RESULTS:

1. The results show that polypropylene (PP) is the most sustainable material due to its durability and low production impact.
2. Compostable PLA (polylactic acid) cups have the highest environmental impact, while reusable PP cups washed on-site after two uses have the lowest, with a footprint reduction of over 65%.
3. Among single-use options, paper cups with a water-based lining are the most environmentally friendly, as they can be recycled through standard facilities. However, the effectiveness of recycling depends on local infrastructure and transport distances.

- See [appendix 3](#) for the full analysis.

### STUDY 2 OF DIFFERENT WATER DISPENSING SYSTEMS

- The analysis evaluated the carbon footprint of different water dispensing solutions used during football matches through a simplified life cycle analysis.

### RESULTS:

1. Refill stations with washable or reusable water tanks have the lowest carbon footprint, especially if combined with only 30% of drinks being served in 0.2l disposable cups (and the remainder in consumers' own bottles).
2. The 20g PET bottles has the highest impact, followed by disposable PET water tanks.
3. Increasing the distance from the supplier to the water refill station from 25km to 770km results in an increase in the carbon footprint of about 10%.

- See [appendix 4](#) for the full analysis.



## STUDY 1 OF DIFFERENT TYPES OF SINGLE-USE AND REUSABLE CUPS (CONT.)

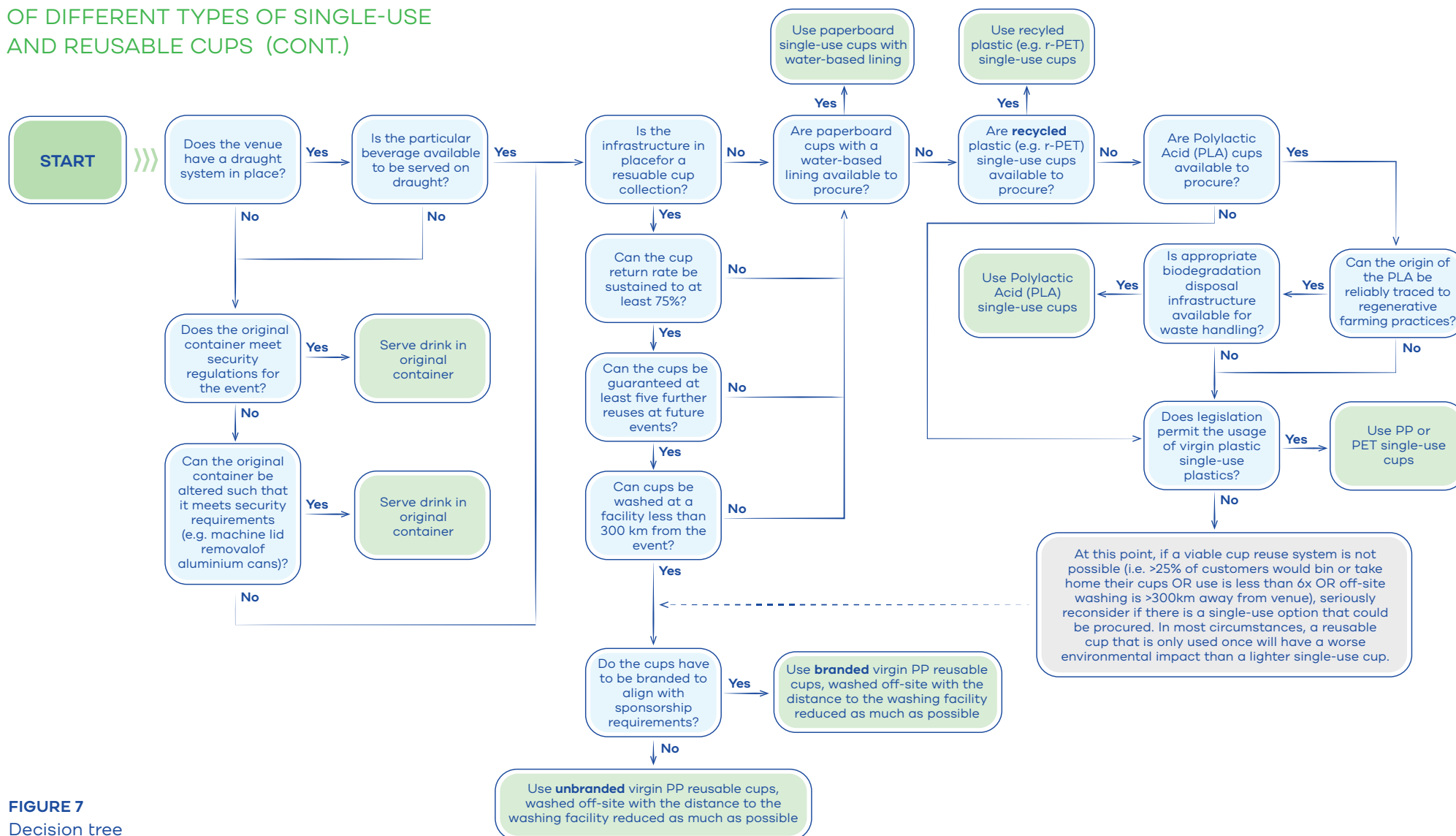


FIGURE 7  
Decision tree

### IMPLEMENTATION ROADMAP

While this roadmap is not compulsory, we encourage stakeholders to start following it as soon as possible if they have not already begun, since it will be hard to reach the targets if it is implemented later. Performance against targets is to be measured on a yearly basis (using the average across all matches held during the year).

#### NOTE:

- An adapted version of the roadmap for smaller facilities is given in table 3
- The roadmap includes only actions deemed to be very high or high priority; those deemed to be medium and low priority should be seen as additional actions that can facilitate the implementation of the 4R framework, if compatible with the roadmap priorities
- In cases where various actions are possible, only one action has been included in the roadmap while alternatives are listed in the notes below the table

**IN ORDER TO COLLECTIVELY REACH AMBITIOUS WASTE MINIMISATION TARGETS, ALL STAKEHOLDERS ARE ENCOURAGED TO IMPLEMENT THE ROADMAP SHOWN IN TABLE 2 OR TABLE 3 MAKING THE NECESSARY ADAPTATIONS BASED ON THE SPECIFIC SITUATION AND MATURITY LEVEL.**

- Where necessary, a distinction has been made between concessions and hospitality
- The activity 'Offer vegetarian or plant-based options', despite having received the highest ranking in the impact and feasibility analysis, was not included in the implementation roadmap as its impact is mostly on climate change rather than waste management

## E1. FOOD AND BEVERAGES

**TABLE 2**  
IMPLEMENTATION ROADMAP

AREA	PRIORITY	ACTION	4R APPROACH	PHASE 1		PHASE 2		PHASE 3
GOVERNANCE AND STRATEGY	Very high	Define an overall circular economy strategy for F&B	Strategy	Plan and set up		Test and make periodic improvement		Completed
GOVERNANCE AND STRATEGY	Very high	Activate communication channels with key stakeholders and service providers involved in F&B improvement actions (e.g. regular meetings with caterer and consultations with waste management operator/municipality)	Strategy	Plan and set up communication channels		First consultation with each key stakeholder		Regular consultations
GOVERNANCE AND STRATEGY	Very high	Organise waste assessments to understand waste composition, with a focus on single-use plastics	Strategy	First assessment or audit		Annual assessment or audit		
WASTE COLLECTION AND MANAGEMENT	Very high	Guarantee an effective waste management supply chain by: - Choosing materials that can be recovered through the local waste management supply chain - Providing separate bins (plastic, glass, aluminium, organic and paper) to enable separate waste collection throughout the entire football facility (hospitality areas, concessions and offices/staff areas) - Educating spectators and encouraging them to use bins correctly <sup>1</sup>	Recycle	Plan and set up	<40% of all mixed and plastic F&B packaging waste sent to landfill or incinerated	<30% of all mixed and plastic F&B packaging waste sent to landfill or incinerated	<20% of all mixed and plastic F&B packaging waste sent to landfill or incinerated	0% of all mixed and plastic F&B packaging waste sent to landfill or incinerated
GOVERNANCE AND STRATEGY	High	Measure and analyse performance indicators in terms of waste production, waste reduction and recycling, especially in F&B	Strategy	First analysis and definition of baseline and improvement KPIs	First verification of KPIs	Continuous verification of KPIs		
GOVERNANCE AND STRATEGY	High	Provide suppliers with packaging and F&B procurement guidelines, including waste minimisation targets	Strategy	Plan, set up and complete		Annual compliance verification		

## E1. FOOD AND BEVERAGES

**TABLE 2**  
IMPLEMENTATION ROADMAP

AREA	PRIORITY	ACTION	4R APPROACH	PHASE 1		PHASE 2		PHASE 3	
F&B OFFER	Very high	Optimise menu planning and implement an effective inventory management system to minimise food waste (hospitality)	Reduce	Plan and set up	<30% of all prepared food wasted <sup>7</sup>	<20% of all prepared food wasted <sup>7</sup>	<15% of all prepared food wasted <sup>7</sup>	<10% of all prepared food wasted <sup>7</sup>	
F&B OFFER	Very high	Choose foods with minimal or no packaging (hospitality) <sup>2</sup>	Reduce	Plan and set up	>30% food options with optimised packaging (eliminated or reduced in weight/volume)	>50% food options with optimised packaging (eliminated or reduced in weight/volume)	>70% food options with optimised packaging (eliminated or reduced in weight/volume)	100% food options with optimised packaging (eliminated or reduced in weight/volume)	Continuous optimisation
F&B OFFER	Very high	Choose foods with minimal or no packaging (concessions) <sup>2</sup>	Reduce	Plan and set up	>30% food options with optimised packaging (eliminated or reduced in weight/volume)	>50% food options with optimised packaging (eliminated or reduced in weight/volume)	>70% food options with optimised packaging (eliminated or reduced in weight/volume)	100% food options with optimised packaging (eliminated or reduced in weight/volume)	Continuous optimisation
F&B OFFER	High	Train staff (including concessions staff) on how to reduce the environmental impact of F&B	Strategy	Initial training		Annual training			
F&B OFFER	High	Install refill stations for water and other beverages to reduce bottle purchases (hospitality)	Reuse	Plan and set up	>40% of all litres served in hospitality served in refillable containers	>50% of all litres served in hospitality served in refillable containers	>60% of all litres served in hospitality served in refillable containers	>80% of all litres served in hospitality served in refillable containers	Continuous optimisation
F&B OFFER	High	Promote reusable cups for drinks <sup>3</sup> (hospitality)	Reuse	Plan and set up		>80% of all tableware and cups used in hospitality reused in subsequent matches		Continuous optimisation	

## E1. FOOD AND BEVERAGES

**TABLE 2**  
IMPLEMENTATION ROADMAP

AREA	PRIORITY	ACTION	4R APPROACH	PHASE 1		PHASE 2		PHASE 3
F&B OFFER	High	Use reusable tableware <sup>4</sup> (hospitality)	Reuse	Installation		>80% of all tableware and cups used in hospitality reused in subsequent matches		
WASTE COLLECTION AND MANAGEMENT	Very high	Donate unused prepared food <sup>5</sup>	Recycle	Plan and set up	<40% of all food waste sent to landfill or incinerated	<30% of all food waste sent to landfill or incinerated		<20% of all food waste sent to landfill or incinerated
WASTE COLLECTION AND MANAGEMENT	High	Train the cleaning service provider on how to sort and separate F&B waste	Strategy	Initial training		Regular training		
F&B OFFER	High	Install beverage draft systems to reduce bottle purchases (concessions)	Reuse	Installation	>10% of all litres served in concessions served in refillable containers	>20% of all litres served in concessions served in refillable containers	>40% of all litres served in concessions served in refillable containers	>50% of all litres served in concessions served in refillable containers
WASTE COLLECTION AND MANAGEMENT	Very high	Organise initiatives to encourage separate waste collection outside the football facility <sup>6</sup>	Recycle	Plan and set up		Demonstrable reduction in waste generated and improved recycling rate compared with the planning and set-up phase		Continuous waste reduction
F&B OFFER	High	Promote reusable cups for drinks <sup>3</sup> (concessions)	Reuse	Installation		>20% of all tableware and cups used in concessions reused in subsequent matches	>40% of all tableware and cups used in concessions reused in subsequent matches	>50% of all tableware and cups used in concessions reused in subsequent matches



## E1. FOOD AND BEVERAGES

**TABLE 3**  
IMPLEMENTATION ROADMAP FOR  
FACILITIES WITH A CAPACITY OF  
FEWER THAN 3000 SPECTATORS

AREA	PRIORITY	ACTION	4R APPROACH	PHASE 1		PHASE 2		PHASE 3	
GOVERNANCE AND STRATEGY	Very high	Activate communication channels with key stakeholders and service providers involved in F&B improvement actions (e.g. regular meetings with caterer and consultations with waste management operator/municipality)	Strategy	Plan and set up communication channels	First consultation with each key stakeholder	Regular consultations			
GOVERNANCE AND STRATEGY	Very high	Assess waste composition for one month to identify improvement priorities	Strategy	Plan, set up and complete		Annual verification			
WASTE COLLECTION AND MANAGEMENT	Very high	Guarantee an effective waste management supply chain by: - Choosing materials that can be recovered through the local waste management supply chain - Providing separate bins (plastic, glass, aluminium, organic and paper) to enable separate waste collection throughout the entire football facility (hospitality areas, concessions and offices/staff areas) - Educating spectators and encouraging them to use bins correctly <sup>1</sup>	Recycle	Plan and set up	<40% of all mixed and plastic F&B packaging waste sent to landfill or incinerated	<30% of all mixed and plastic F&B packaging waste sent to landfill or incinerated	<20% of all mixed and plastic F&B packaging waste sent to landfill or incinerated	0% of all mixed and plastic F&B packaging waste sent to landfill or incinerated	
F&B OFFER	Very high	Optimise menu planning and implement an effective inventory management system to minimise food waste (hospitality)	Reduce	Plan and set up	<30% of all prepared food wasted <sup>7</sup>	<20% of all prepared food wasted <sup>7</sup>	<15% of all prepared food wasted <sup>7</sup>	<10% of all prepared food wasted <sup>7</sup>	
F&B OFFER	Very high	Choose foods with minimal or no packaging (hospitality) <sup>2</sup>	Reduce	Plan and set up	>30% food options with optimised packaging (eliminated or reduced in weight/ volume)	>50% food options with optimised packaging (eliminated or reduced in weight/ volume)	>70% food options with optimised packaging (eliminated or reduced in weight/volume)	100% food options with optimised packaging (eliminated or reduced in weight/volume)	Continuous optimisation

## E1. FOOD AND BEVERAGES

**TABLE 3**  
IMPLEMENTATION ROADMAP FOR  
FACILITIES WITH A CAPACITY OF  
FEWER THAN 3000 SPECTATORS

AREA	PRIORITY	ACTION	4R APPROACH	PHASE 1		PHASE 2		PHASE 3	
F&B OFFER	Very high	Choose foods with minimal or no packaging (concessions) <sup>2</sup>	Reduce	Plan and set up		>30% food options with optimised packaging (eliminated or reduced in weight/volume)			
F&B OFFER	High	Train staff (including concessions staff) on how to reduce the environmental impact of F&B	Strategy	Initial training		Annual training			
F&B OFFER	High	Install refill stations for water and other beverages to reduce bottle purchases (hospitality)	Reuse	Plan and set up	>40% of all litres served in hospitality served in refillable containers	>50% of all litres served in hospitality served in refillable containers	>60% litres served in hospitality served in refillable containers	>80% of all litres served in hospitality served in refillable containers	Continuous optimisation
F&B OFFER	High	Promote reusable cups for drinks <sup>3</sup> (hospitality)	Reuse	Plan and set up		>80% of all tableware and cups used in hospitality reused in subsequent matches		Continuous optimisation	
F&B OFFER	High	Use reusable tableware <sup>4</sup> (hospitality)	Reuse	Plan and set up		>80% of all tableware and cups used in hospitality reused in subsequent matches		Continuous optimisation	
WASTE COLLECTION AND MANAGEMENT	Very high	Donate unused prepared food <sup>5</sup>	Recycle	Plan and set up	<40% of all food waste sent to landfill or incinerated	<30% of all food waste sent to landfill or incinerated	<20% of all food waste sent to landfill or incinerated	0% of all food waste sent to landfill or incinerated	

## E1. FOOD AND BEVERAGES

**TABLE 3**  
IMPLEMENTATION ROADMAP FOR  
FACILITIES WITH A CAPACITY OF  
FEWER THAN 3000 SPECTATORS

AREA	PRIORITY	ACTION	4R APPROACH	PHASE 1		PHASE 2		PHASE 3
WASTE COLLECTION AND MANAGEMENT	High	Train the cleaning service provider on how to sort and separate F&B waste	Strategy	Initial training		Regular training		
F&B OFFER	High	Install beverage draft systems to reduce bottle purchases (concessions)	Reuse	Installation	>10% of all litres served in concessions served in refillable containers	>20% litres served in concessions served in refillable containers	>40% of all litres served in concessions served in refillable containers	>50% of all litres served in concessions served in refillable containers
F&B OFFER	High	Promote reusable cups for drinks <sup>3</sup> (concessions)	Reuse	Installation	>20% of all tableware and cups used in concessions reused in subsequent matches	>40% of all tableware and cups used in concessions reused in subsequent matches		>50% of all tableware and cups used in concessions reused in subsequent matches

1. Please note that the types of waste to be separated might be different in different areas of the football organisation or facility, and bin placement should be planned accordingly. Alternative action 1: install smart bins that automatically separate different types of waste. Alternative action 2: have the cleaning service provider separate waste after each match. Each football organisation is advised to test different options and compare their respective recycling rates to identify the best option for the specific context. Separate bins are not needed in places where local authorities require all waste to be collected together and then sorted by the waste management operator. An effective way of incentivising spectators to use recycling bins correctly is to offer rewards or prizes such as tickets, money, or similar (e.g. install machinery that collects PET bottles in exchange for a small reward). Fallback or temporary solution for waste that cannot be recycled: recover the energy generated during incineration.

2. This includes packaging used during transportation. Please note that this action should be implemented in conjunction with the action 'Guarantee an effective waste management supply chain', choosing packaging materials that can be recovered in the local waste management supply chain. Particular attention should be paid to minimising plastic packaging as per UEFA's zero plastic waste target. When eliminating plastic packaging, the priority should be to reduce packaging overall rather than just switching to another material. When such a switch is unavoidable, an ad hoc analysis should be carried out to confirm the best option.

3. Fallback or temporary solution: use compostable single-use cups with a water-based coating. Please note that the advantages of reusable cups depend on how the practice is implemented ([see the relevant implementation data sheet](#)). If reusable cups are not the optimal solution, an ad hoc analysis should be carried out to confirm the best option.

4. Fallback or temporary solution: use compostable tableware with a water-based coating. If reusable tableware is not the optimal solution, an ad hoc analysis should be carried out to confirm the best option. Although not included in the roadmap, efforts should also be made to introduce reusable tableware in concessions.

5. Alternative action 1: install biodigesters (machines that decompose leftover food waste) or send food waste to a local biodigester. Alternative action 2: install organic dehydrators (machines that heat waste and dehydrate the product into a soil additive used to nourish gardens). Fallback or temporary solution: recover the energy generated during incineration.

6. Possible activities may require the agreement of the local authorities and could range from awareness-raising campaigns or asking spectators not to bring bottles to the football stadium to practical recycling actions.

7. This includes unused food that will be donated but excludes packaged food that can be taken back by suppliers and reused for later events.

ACTORS	KEY SUCCESS FACTOR AND STAKEHOLDER ENGAGEMENT
ALL STAKEHOLDERS	Walk the talk: sustainability is a shared responsibility and everyone must play their part.
ALL STAKEHOLDERS	If an activity seems economically unfeasible (because of high initial costs or reduced profits), calculate the return on investment as many initiatives have a short payback period or provide economic benefits in the medium term.
ALL STAKEHOLDERS	Educate spectators but focus on maximising waste control and reduction at the source to minimise risk.
ALL STAKEHOLDERS	<p>Collaborate with the marketing and communication departments: a well-communicated project improves brand image and is therefore better received by external partners whose support is essential for the project's success.</p> <p>If partners have conflicting priorities, prepare a strong case for how not committing to sustainability would damage branding and sales.</p> <p>Collaboration with the marketing and communication departments is also necessary as many activities (e.g. phasing out single-use items) require a rethinking of the on-product marketing strategy.</p>
ALL STAKEHOLDERS	Collect data and use quantitative tools to make decisions: sustainability is a science requiring a scientific approach and the time frame to drastically reduce our impact is short.
ALL STAKEHOLDERS	<p>Adopt a science-based and holistic approach: do not focus on claims but on real impact, considering the whole life cycle of products and materials.</p> <p>For example, while compostable products reduce waste, they do not necessarily lead to reduced emissions, and the overall impact of the product should be taken into account when making a decision about its use.</p>
ALL STAKEHOLDERS	<p>Follow the zero waste hierarchy: although zero waste can theoretically be achieved in many ways, including focusing mostly on recycling, UEFA follows the international consensus on how to prioritise the 4Rs:</p> <ul style="list-style-type: none"> <li>- Reduce</li> <li>- Reuse</li> <li>- Recycle</li> <li>- Recover</li> </ul> <p>The overarching R is 'refuse', which stops waste from being produced at the source by avoiding unnecessary production. The pyramid should be followed in combination with the principle 'Adopt a science-based and holistic approach'.</p>
FOOTBALL FACILITY OPERATORS/CLUBS	To avoid the risk of parties shifting responsibility onto one another, clearly allocate tasks to the various parties (football facility operator/club, caterer, F&B sponsors, cleaning service provider) with KPIs. This should be done jointly to maximise commitment from all parties and ensure the optimal distribution of tasks.
FOOTBALL FACILITY OPERATORS/CLUBS	If a supplier has conflicting priorities, evaluate whether to encourage them to align with the football organisation's policies (e.g. by providing solutions to address their concerns) or to switch to a different supplier. Sustainability should be one of the selection criteria for all partners and suppliers. If commercial partners have conflicting priorities, sustainability should be one of the common objectives.

### → CASE STUDY 6

#### TOTTENHAM HOTSPUR: INTEGRATING CIRCULARITY INTO DAILY OPERATIONS



- Tottenham Hotspur has embedded circularity principles across its stadium operations, focusing on food and beverage, waste management, and single-use plastic reduction. By combining operational changes, supply chain engagement, and fan-facing initiatives, the club has reduced its environmental impact and created replicable approaches for other clubs.

#### 1. FOOD & BEVERAGE

##### REDUCING IMPACT THROUGH PLANT-FORWARD MENUS AND LOCAL SOURCING

- The club has adopted a plant-forward approach to menu design, increasing the proportion of vegetables, legumes, and grains to reduce reliance on high-impact animal products. For example, the N17 Burger uses a 50:50 plant-to-beef patty, achieving a 33% reduction in emissions compared to a standard beef burger. Across match days, 84% of desserts are made with plant-based dairy and egg alternatives.
- Food is produced in-house where possible, including 4,000 pies and 4,000 sausage rolls per matchday in

the stadium's dedicated "Pie Room." Carbon labelling is applied to menus using a cradle-to-grave assessment, with low-impact dishes marked with A or B ratings on retail screens and premium menus.

- The club has a Kitchen Garden and on-site microbrewery. The Kitchen Garden produces organic fruit, vegetables and herbs that serves all players at our Training Centre throughout the football season. Tended to by our full-time gardening staff all year round, the Kitchen Garden gives them the ability to grow strains of herbs that complement the specific dietary requirements of individual players to maximise performance and recovery.
- Tottenham Hotspur have a unique partnership with Beavertown Brewery to operate a microbrewery inside the Stadium. The microbrewery produces 70,000 pints per week utilising the Club's optimised energy infrastructure. This significantly reduces the Club's carbon footprint.
- Sourcing is focused on local and seasonal suppliers, with 80% located within 50 miles of the stadium, reducing transport emissions and supporting the regional economy.

### CASE STUDY 6 (CONT.)

#### KEY TAKEAWAYS

1 >>>

Plant-forward menus cut emissions without losing appeal

2 >>>

Carbon labelling empowers staff and fans to make lower-impact choices

3 >>>

Local sourcing reduces emissions and supports the local economy



### 2. WASTE MANAGEMENT

#### ZERO LANDFILL THROUGH FAN ENGAGEMENT AND LOCAL PARTNERSHIPS

The club operates a zero-waste-to-landfill policy supported by clear bin infrastructure, fan guidance, and staff assistance. Concourses feature paired bins for General Waste and Dry Mixed Recycling, with accepted materials limited to empty bottles, cans, paper, and small cardboard.

- Recyclables are processed locally at a Material Recovery Facility to create high-quality outputs for reprocessing. Contamination prevention is a key focus, with on-site staff educating fans during events. Resulting in zero waste to landfill achieved and improved recycling quality through fan engagement.

#### KEY TAKEAWAYS

1 >>>

Clear signage and staff presence improve recycling outcomes

2 >>>

Charity partnerships extend impact beyond environmental gains

3 >>>

Local processing reduces transport emissions and increases efficiency



### → CASE STUDY 6 (CONT.)

#### 3. SINGLE-USE PLASTICS REDUCTION

##### ELIMINATING AND REPLACING HIGH-IMPACT MATERIALS

Single-use plastics have been phased out where possible through operational changes and procurement policies requiring alternatives. A reusable cup scheme using OnePlanet cups eliminates over 1.25 million single-use cups annually, with dedicated return points across concourses. Cups are collected and taken off site after matches to be washed and then returned for further use. Cups at the end of their life will also be recycled into new products.

Where disposables remain necessary, the club has switched to seaweed-coated compostable packaging, avoiding 336kg of plastic and 3.77 tonnes of CO<sub>2</sub>e annually. Other changes include replacing condiment sachets with pumps, removing plastic cutlery, straws, and stirrers in favour of wood or paper alternatives, and ensuring premium food service avoids single-use plastic altogether.

#### KEY TAKEAWAYS

1 >>>

Embedding plastic reduction into procurement ensures lasting change

2 >>>

Reusable systems can deliver large-scale waste savings

3 >>>

Innovative materials can bridge gaps where reuse is not yet possible



# SUMMARY

### THE CURRENT SITUATION

- Roughly one third of the food produced for human consumption is wasted at some point in the supply chain
- Food waste represents 8–10% of global greenhouse gas emissions
- Food and beverages consumed in football facilities require a large amount of packaging, and consequently generate considerable waste
- The global food service market is [projected](#) to \$5,423.59bn by 2030, which equates to a compound annual growth rate of 10.79% between 2023-2030.

### INFLUENCE AND COLLABORATION

- Clubs have the power and platform to influence other stakeholders, champion change and set good examples
- The transition to circularity requires collaboration and shared goals among sponsors, shorter supply chains, a preference for local food, and a reduction in the use of single-use plastic packaging

### THE FUTURE

- New business models need to be explored and tested to unlock opportunities and transition away from 'all-you-can-eat' formats to those based on providing a great experience
- Clubs should consider the environmental impact of the F&B services they provide in their regular profit and loss reporting
- Food services are designed to enhance the football experience; they should not become a necessity
- Only as much food as needed should be ordered, which requires accurate forecasting and pre-order models facilitated by dynamic and ethical supply chains

# E2 APPAREL AND FOOTBALL EQUIPMENT

This section sets the impact of football apparel within the context of the wider clothing and textiles industry and provides suggestions as to how stakeholders responsible for football apparel can apply the 4Rs.

## CONTEXT

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## LEGISLATION

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## THE 4RS AND PRODUCT LIFE CYCLES

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3

## IMPLEMENTATION

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4



**BASED ON CASE STUDIES AND COLLABORATION WITH INDUSTRY STAKEHOLDERS, THIS SECTION PRESENTS EXAMPLES OF GOOD PRACTICES TO INSPIRE, ACTIVATE, AND CHALLENGE FOOTBALL STAKEHOLDERS TO CREATE MORE CIRCULAR PROCESSES WITHIN THEIR FOOTBALL APPAREL AND EQUIPMENT MANAGEMENT.**

### **IN THIS SECTION, WE:**

- **POSITION** the football apparel sector within the wider context of the clothing and textile industry
- **PROVIDE CONTEXT** for the issues facing the current football apparel business model
- **CONSIDER THE POTENTIAL IMPACT** of planned and future legislation
- **INTRODUCE THE 4R FRAMEWORK** in relation to football apparel
- **PRESENT EXAMPLES**, supported by case studies, of actions that can be implemented across a range of cost and complexity levels
- **EXPLAIN UEFA'S POSITION** on recovering energy from the incineration of waste
- **PRESENT 8 STEPS** to implement the 4Rs





## E2. APPAREL AND FOOTBALL EQUIPMENT

Circularity within apparel will be a new concept for some football stakeholders, and taking this into consideration, the scope of the updated edition of this section has been kept deliberately narrow, focusing solely on apparel worn by team members and replica football shirts bought by fans.


However, many of the suggestions made in this section can be applied to multiple product categories.

### APPAREL HAS BEEN PRIORITISED BECAUSE:

- The football shirt is an iconic item generating significant revenue, and football apparel is a growing market
- Football apparel generates significant waste
- Multiple internal and external stakeholders with various priorities are involved in the design, launch and sale of football apparel, so collaboration and stakeholder management are essential
- The current business model relies on selling higher volumes each season
- Upcoming EU legislation is likely to impact the design, manufacture, retail and management of football apparel

30. View source

31. This figure was shared during interviews with industry professionals and could not be independently verified



55%


OF THE GROWTH OF THE FOOTBALL APPAREL MARKET BETWEEN 2025-2029 IS EXPECTED TO COME FROM EUROPE<sup>30</sup>

5.8%

THE GLOBAL FOOTBALL APPAREL MARKET HAS AN EXPECTED COMPOUND ANNUAL GROWTH RATE OF 5.8% BETWEEN 2024 AND 2029<sup>30</sup>

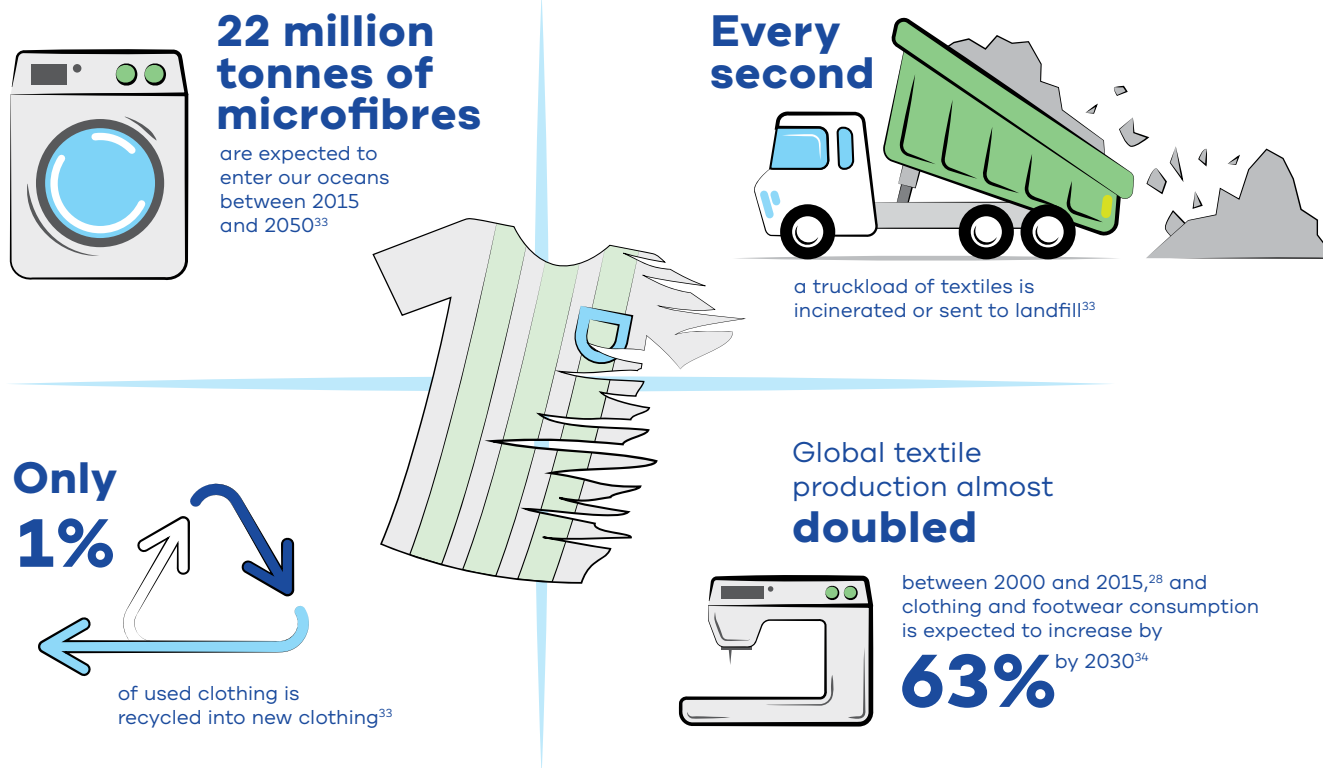
60%

OF PROFESSIONAL TEAM APPAREL IS DISPOSED OF AT THE END OF THE SEASON<sup>31</sup>



# 1 CONTEXT

The consumption of textiles in the EU has, on average, the fourth highest negative impact on the environment and on climate change and the third highest on water and land use from a global life cycle perspective.<sup>32</sup>



32. View source

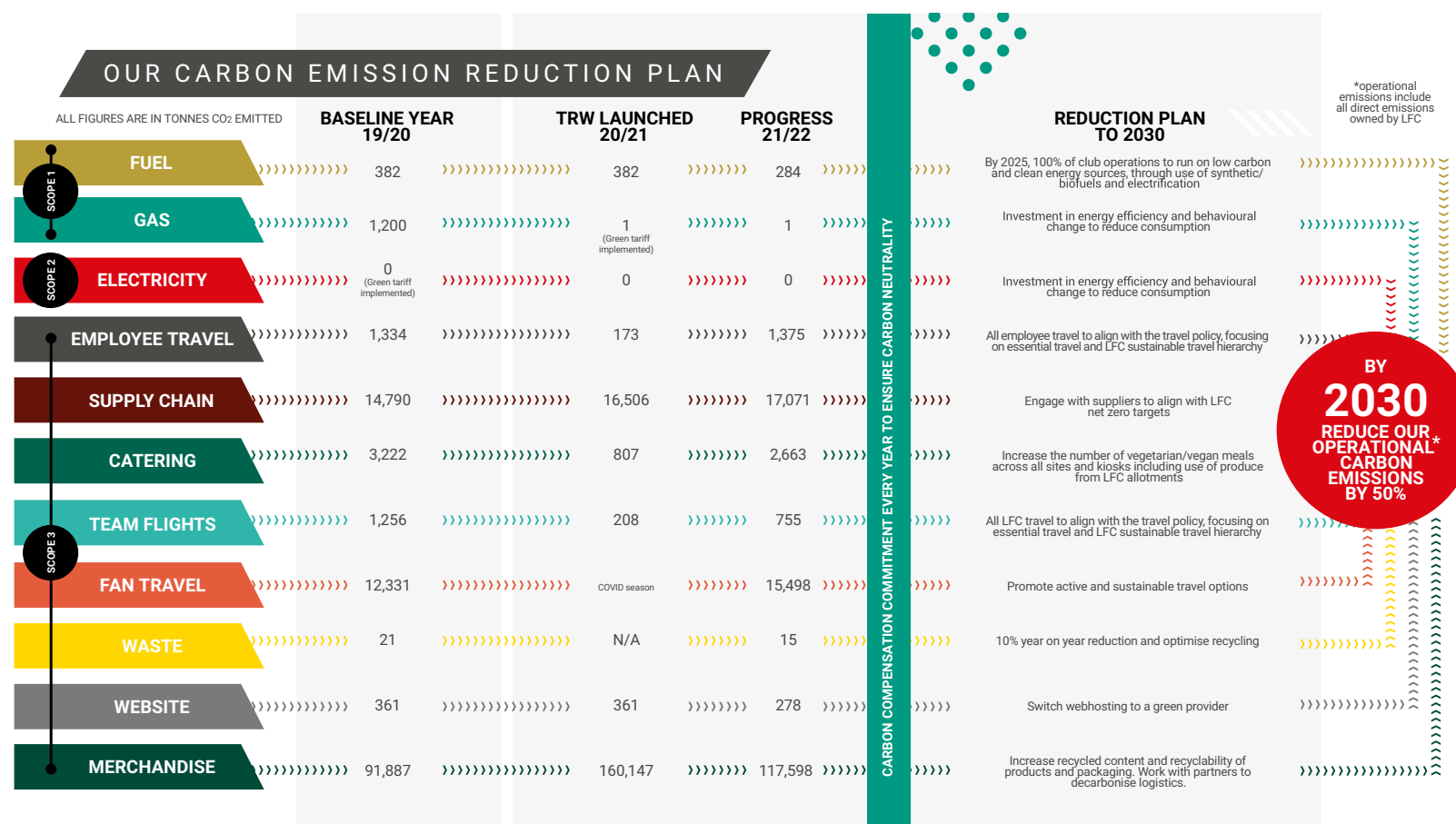
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34. View source



## E2. APPAREL AND FOOTBALL EQUIPMENT

Football apparel contributes to the issues within the wider clothing and textile industry. Merchandise is one of the main contributors to a club's carbon footprint (see, for example, figure 8) owing to emissions produced throughout the supply chain as well as the volume and disposable nature of some items.



**FIGURE 8**  
Liverpool FC's carbon  
emission reduction plan<sup>35</sup>

LFC's updated emission figures for 2023/24 can be found [here](#)

35. View source

## E2. APPAREL AND FOOTBALL EQUIPMENT

The size of the global football sportswear market size reached USD 90.8 Billion<sup>36</sup> (€ 78.1 billion) in 2024 and is expected to reach USD 137.6 Billion<sup>36</sup> (€ 118.2 billion) by 2033. Europe is expected to account for 55%<sup>37</sup> of that growth.

### THE MAIN DRIVERS FOR GROWTH ARE:

- The increasing popularity of football apparel worn outside the stadium as a fashion item
- The rise of additional kits, such as third and special kits; for example, SSC Napoli released 13 kits in the 2021/22 season

- An increasing range of garments in many clubs' apparel collections, which now often include not only football shirts and shorts but also items such as tracksuits, hats and hoodies
- Sponsorship and broadcasting rights: shirts are seen as a commercial canvas and are updated regularly in line with sponsorship changes
- The increasing popularity of football and its apparel in new geographical markets and the rise of the women's game
- Easier access to apparel through online retail platforms

2024  
**\$90.8 BILLION**  
GLOBAL FOOTBALL  
SPORTSWEAR MARKET  
VALUE IN 2024

2033  
**\$137.6 BILLION**  
ESTIMATED GLOBAL  
FOOTBALL SPORTSWEAR  
MARKET VALUE IN 2033

= **+55%**  
OF THAT GROWTH IS  
EXPECTED TO COME  
FROM EUROPE

36. View source  
37. View source

## E2. APPAREL AND FOOTBALL EQUIPMENT

The business model for club-branded football apparel, including replica shirts, is based on selling high volumes each season. It relies on a linear model of infinite growth focused on increasing profits for all parties: the club, the sponsor and the manufacturer.

In recent years, the main reason for releasing new shirts has shifted from technical innovations to design and commercial motivations.<sup>38</sup> As a result, most clubs release new shirts each season, and this can lead to them having unused or unsold stock left over at the end of each season. Leftover apparel does not hold the same retail value once new collections have been launched.

### REVENUE

- It is estimated that the top clubs in the five main European football leagues generate between 30% and 50% of their revenue from commercial activities; this is topped only by broadcast revenue
- Sales of club merchandise, licensed products and other apparel-related sales account for approximately 25–40% of the revenue generated by commercial activities and 10–20% of the total revenue of the twenty highest-earning clubs in Europe<sup>39</sup>
- A club's official apparel merchandise is often one of its biggest revenue streams, generating between €50m and €100m of revenue for the club, the kit supplier and other retail partners each season

**TABLE 5**

Football apparel ordered in one year by a medium-sized national football association in Europe, excluding items such as shoes and shin guards<sup>40</sup>

APPAREL ITEM	NO. OF UNITS ORDERED	PERCENTAGE OF TOTAL
Socks	6,744	12.26%
Jackets	7,463	13.57%
Polo shirt	3,700	6.73%
Shirts	17,045	30.99%
Shorts	7,133	12.97%
Trousers	5,173	9.40%
Accessories	6,397	11.63%
Other	1,348	2.45%

38. View source

39. View source

40. Source: Interviews with stakeholders

## E2. APPAREL AND FOOTBALL EQUIPMENT

### WASTE

MORE THAN  
**\$500 BILLION**

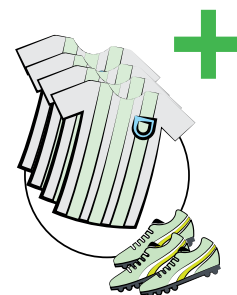


of value is lost every year due to clothing being underused and under-recycled<sup>41</sup>

**30%**



It is estimated that 30% of all football apparel ordered by a football club to be used by its professional teams is football shirts, including game day, training and pre-match shirts

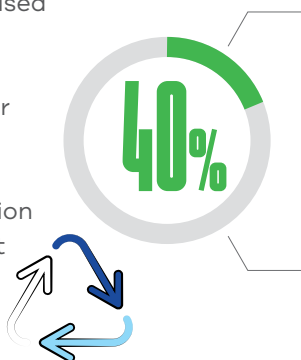


**HIGH MINIMUM ORDER QUANTITIES (MOQs)**

on football apparel can result in clubs having to order more pieces than they will use or can sell during the season to meet the MOQ, which leads to

**OVERSTOCKS**

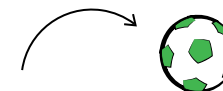
Only around 40% of apparel ordered and used by football clubs and national associations across Europe for their players and staff (i.e. not for retail) is reused through donation schemes and discount resellers



This represents an estimated volume of **960,000 - 2,400,000** items of football apparel across all garment categories

The 60% that goes to waste represents between **1.44 and 3.6 million** items

**= €43.2 - €108 MILLION**



As a conservative estimate, this amounts to a loss of between €43.2m and €108m in wholesale value being lost each season

In football terms, this is equivalent to the transfer fees of **Cody Gakpo** from PSV Eindhoven to Liverpool FC (€42m) or **Jude Bellingham** from Borussia Dortmund to Real Madrid CF (€102m)\*

\*figures based on 2023 data

### CONFLICT OF INTERESTS

The estimates relating to revenue and waste highlight the conflicting considerations that clubs face: apparel generates significant profits but also a significant negative environmental impact. Football apparel procurement and sponsorship negotiation requires the involvement and approval of many important stakeholders inside and outside the club, each with varying priorities.

Interviews with stakeholders highlighted that departments within clubs often become siloed; for example, the goals of the sustainability department may conflict with those of other departments such as retail.

If clubs are to transition to circularity, they must adopt a cohesive, collaborative approach driven by club values and external factors such as legislation.

### FIVE KEY TAKEAWAYS FOR FOOTBALL APPAREL STAKEHOLDERS

1 >>>

The majority of football shirts are made from polyester, which is derived from fossil fuels and does not biodegrade; if sent to landfill or incinerated, polyester can harm the environment

2 >>>

Football shirts are often changed each season, meaning that many of them have a shelf life of only around ten months

3 >>>

The current business model for football apparel merchandise prioritises year-on-year growth through increasing sales volumes

4 >>>

Football shirts and boots are often exported from EU countries to other regions such as West Africa

5 >>>

The [EU Strategy for Sustainable and Circular Textiles](#) will apply to football apparel and will mandate significant changes in the way apparel is designed, used and disposed of

## 2 LEGISLATION

The clothing and textiles sector is predicted to go from one of the least to one of the most regulated sectors given its substantial environmental impact, the volumes produced, and the high numbers of workers involved in clothing manufacturing. The EU Green Deal (December 2019) and [EU Strategy for Sustainable and Circular Textiles](#) (March 2022) sets out several areas of current and planned legislation.

The current Commission (2025–2029 term) aims to maintain the course set by the EU Green Deal, while placing greater emphasis on implementing legislation proposed during the previous term. The objective is to ensure global sustainable competitiveness. This will be pursued through initiatives such as the Competitiveness Compass (January 2025), Clean Industrial Deal (February 2025), Single Market Strategy (May 2025), Bioeconomy Strategy (Q4 2025), and Circular Economy Act (Q4 2026), among others.

The purpose of this section is to give an overview of current and planned EU legislation and highlight the impact they may have on football apparel.

This section has been written in collaboration with the [Federation of the European Sporting Goods Industry](#) (FESI) a platform which represents the interests of the sporting goods industry in Europe spanning all 55 UEFA national association members.



## E2. APPAREL AND FOOTBALL EQUIPMENT

### LEGISLATION LIKELY TO IMPACT FOOTBALL APPAREL



### THE KEY LEGISLATIVE DEVELOPMENTS IN THE ORDER OF THE PUBLICATION OF THE INITIATIVES ARE:

1. Ecodesign for Sustainable Product Regulation (ESPR)  
(entry into force and applicability in July 2024<sup>42</sup>)
2. Corporate Sustainability Due Diligence Directive  
(entry into force 2024 / applicability 2028)
3. Ban on Forced Labour Regulation  
(entry into force in December 2024 / applicability December 2027)
4. Empowering Consumers for the Green Transition Directive  
(entry into force in March 2024 / applicability September 2026)
5. Substantiating Green Claims Directive  
(initial planned entry into force was Q4/2025 and entry into applicability 18 or 24 months after that<sup>43</sup>)
6. Packaging and Packaging Waste Regulation  
(entry into force in February 2025 / applicability August 2026)
7. Waste Framework Directive targeted revision (expected to enter into force in Q4 2025 with 20 months of transposition<sup>44</sup>)
8. Waste Shipment Regulation  
(entry into force in May 2024 / applicability May 2026)

### THE LEGISLATION BROADLY FITS INTO FOUR KEY CATEGORIES WHICH COVER:

1. DESIGN AND MANUFACTURING
2. WORK CONDITIONS
3. COMMUNICATION/MARKETING
4. WASTE MANAGEMENT

42. While the Ecodesign for Sustainable Product Regulation's entry into force date is July 2024, key elements for the industry have different dates of applicability:

1. The ban on the destruction of unsold consumer products enters into force in July 2026

2. Textile Delegated Act, specifying performance and information requirements for apparel and apparel accessories is expected to enter into force in 2029

3. Digital Product Passport is expected to enter into force together with the Textile Delegated Act, for the same products

43. The proposal is currently on hold due to political opposition among legislators, the timelines provided are likely subject to change

44. The dates given for the Waste Framework Directive's entry into force and applicability are estimates due to the ongoing legislative process



### 01. DESIGN AND MANUFACTURING

With 80% of environmental impact factored in at the design stage, the below legislation aims to impact products at the development stage by mandating eco-design practices.

#### ECODESIGN FOR SUSTAINABLE PRODUCT REGULATION

##### (ESPR)

The aim of the regulation is to significantly improve the sustainability of products placed on the EU market by improving their circularity, energy performance, recyclability and durability.

- The framework will set a wide range of performance and information requirements, including product durability, recyclability, recycled content, reusability, presence of substances of concern, microplastics release, energy and resource efficiency and environmental footprint, among others.
- The information requirements will be available to the customers through a Digital Product Passport (DPP).

- The foreseen Textile Delegated Act for apparel and apparel accessories will apply to all products placed on the EU market, whether produced inside or outside the EU. Footwear products are currently not in the scope, but may be considered in the future.<sup>45</sup>
- Apparel and footwear are subject to the ban on the destruction of unsold consumer products, which prohibits<sup>46</sup> the destruction of unsold consumer products. The ban will apply as of July 2026. Companies that will destroy products under the specific derogations (such as due to health and safety among others), will have to report the numbers and describe the type of preventive actions that were implemented in the process.
- **More information is available [here](#)**
- **Timeline:** July 2024 - entry into force; July 2026 – ban on the destruction of apparel and footwear; first half of 2027 – finalisation of Textile Delegated Act; 2029 – applicability of the Textile Delegated Act and Digital Product Passport

45. The new "Digital Product Passport" will provide information about products' environmental sustainability. It should help consumers and businesses make informed choices when purchasing products, facilitate repairs and recycling and improve transparency about products' life cycle impacts on the environment. The product passport should also help public authorities to better perform checks and controls.

46. With certain exemptions for health and safety, or infringement of intellectual property rights, among others.

### SUMMARY OF DESIGN LEGISLATION

- With 80% of environmental impact factored in at design stage, this proposal ensures that sustainability is considered from the very start of the development of the product. It will affect all those who design, manufacture or have responsibility for approving football apparel. Designers will need to have the skills and knowledge to comply with the requirements in terms of designing for durability, repairability and recyclability, as well as inclusion of recycled content.
- The Digital Product Passport will impact all stages of the value chain and provide information to the customer about the product, which will mean reliable data collection is needed and detailed analysis such as Life Cycle Assessments to measure environmental impacts may be necessary which may add costs.
- For clubs, the legislation is likely to result in a move towards using more recycled materials both in apparel and packaging which may result in an increase in cost. Clubs should focus on reducing excess packaging as a priority and work with their apparel suppliers to source more sustainable packaging alternatives.
- One of the biggest impacts will be the ban on the destruction of unsold goods, given that an estimated 60% of teamwear apparel may be destroyed at the end of the season and that due to sensitivities of changing sponsors, outdated sponsored apparel is currently destroyed, clubs may be left with a huge amount of stock which they may need to pay to store, sell at a significant discount or donate-options which all have financial implications. This may mean clubs develop longer sponsorship partnerships or rollover shirts for more than one season to prevent overstock issues.

### 02. WORK CONDITIONS

The majority of football apparel is produced overseas, often in a different country to where the kit sponsors is based. Kit Sponsors have responsibility for the conditions within their supply chains, however, clubs have a responsibility to ensure all those involved in producing garments to represent their club are treated fairly and have safe working conditions.

#### CORPORATE SUSTAINABILITY DUE DILIGENCE DIRECTIVE

The aim of the legislation is to strengthen sustainable and responsible corporate behaviour and prioritise human rights and environmental sustainability in companies' operations and corporate governance.

- Companies will be required to identify and, where necessary, prevent, end, or mitigate adverse impacts of their activities on human rights, such as child labour and exploitation of workers, and on the environment, for example, pollution and biodiversity loss.

- This directive will bring a legal 'level playing field' for brands. For consumers and investors, they will provide more transparency. For workers within the supply chain, it should mean safe working conditions.

When the directive comes into applicability (2028), kit sponsors will need to:

- integrate due diligence into policies,
- identify actual or potential adverse human rights and environmental impacts,
- prevent, or mitigate potential impacts,
- end or minimise actual impacts,
- establish and maintain a complaints procedure,
- monitor the effectiveness of the due diligence policy and measures,
- publicly communicate on due diligence.
- **More information is available [here](#)**
- The Directive is currently being revised as part of the 'Omnibus Simplification Package' with the aim to simplify and clarify requirements for companies. Among the changes proposed, which are still being discussed, there is a change to the scope the Directive would apply to, as well as a change of to the companies' in-depth assessment requirements: from the whole value chain to Tier 1 only.



- **Timeline (revised and approved as part of the Omnibus):** entry into force: July 2024 – entry into applicability: July 2028 for first wave of companies

### REGULATION ON THE BAN ON GOODS MADE USING FORCED LABOUR

The aim of the proposal is to tackle the issue of forced labour in supply chains, both within the global and EU context.

- The proposal covers all products (and all sizes of companies) made in the EU for domestic consumption and exports and imported goods.
- Economic operators would have to withdraw products that were found to have been made using forced labour from the EU market, following an investigation. Customs authorities cannot stop products from entering the market unless an investigation proving that those products have been made with forced labour has been concluded.
- **More information is available [here](#)**
- **Timeline:** entry into force December 2024-entry into applicability: December 2027. Guidelines have been postponed, currently expected for June 2026.

### SUMMARY OF WORKING CONDITIONS LEGISLATION

- For companies which manufacture football apparel, these proposals mean implementing due diligence policies and ensuring that all production units adhere to these policies. For clubs and Federations, even though they may not be directly responsible for the manufacturing of football apparel, it is important they request transparency over their kit suppliers' manufacturing conditions and that they meet all legal requirements.
- Social compliance issues can often be the result of brands negotiating with suppliers to achieve very low-cost prices or very fast lead times. Clubs may see an increase in prices and longer lead times for apparel if current supply chains are not compliant.
- Clubs need to ensure a fair price is paid for their apparel, policies are published, audits are conducted, and a realistic lead time is given for the manufacture of apparel, to ensure workers have safe and compliant working conditions.



### 03. COMMUNICATION/MARKETING

There has been a substantial rise in the promotion of sustainable claims by companies, many of which are misleading or false, this has become known as 'greenwashing'. The listed below EU legislation aims to empower consumers by ensuring companies substantiate and provide evidence for any sustainable claims they make.

#### EMPOWERING CONSUMERS FOR THE GREEN TRANSITION DIRECTIVE

The directive aims to ensure that environmental claims are fair, understandable and reliable, combating misleading commercial practices such as greenwashing and premature obsolescence of goods and enabling consumers to choose products that are genuinely better for the environment than competing products.

- The Directive amends the Consumer Rights and Unfair Commercial Practices Directives.
- Consumers will have to be informed which products are more durable and repairable. Environmental and

social impact, durability and repairability are added to the list of product characteristics about which traders are forbidden to mislead consumers.

- It prohibits companies from making generic, vague environmental claims as well as making an environmental claim about the entire product when it really concerns only a certain aspect of the product.
- The directive prohibits making claims based on the offsetting of greenhouse gas emissions.
- The directive will also specify new format on the EU label on product durability and EU notice on legal guarantees for consumers.
- It prohibits companies from displaying a voluntary sustainability label, not based on a third-party verification scheme or established by public authorities.
- **More information is available [here](#)**
- **Timeline:** March 2024 – entry into force; September 2026 – applicability

### SUBSTANTIATING GREEN CLAIMS DIRECTIVE

The aim of this proposal is to require companies to substantiate claims they make about the environmental footprint of their products by using standard methods for quantifying them. The aim is to make the claims reliable, comparable, and verifiable across the EU – reducing ‘greenwashing’.

- The proposal includes clear criteria on how companies should prove their environmental claims and labels. It sets requirements for these claims and labels to be checked by an independent and accredited verifier, and new rules on the governance of environmental labelling schemes to ensure they are solid, transparent, and reliable.
- The initiative should improve the availability and reliability of green claims without directly impacting the prices or availability of products.
- **More information is available [here](#)**
- **Timeline:** the proposal is still being discussed among co-legislators with the aim of finding a compromise agreement. The proposal is currently on hold due to political opposition from right-wing political parties in the Parliament and from Italy in the Council. If approved, it should be applicable between 18 or 24 months after its entry into force, depending on what is decided.

### SUMMARY OF COMMUNICATION/MARKETING LEGISLATION

- By ensuring that environmental claims are fair, consumers will be able to choose products that are genuinely better for the environment than their competitors. This will encourage competition towards more environmentally sustainable products, thus reducing the negative impact on the environment. By protecting consumers from greenwashing, consumers can make informed purchasing decisions to help establish a level playing field when it comes to the environmental performance of products.
- Clubs will need to have a strong understanding of these proposals to ensure all communication they release is compliant, this may require costs to have information independently verified. It should result in a shift towards more sustainable products over the long term as consumers become more informed and pressure from fans for more sustainable products increases, this may result in changes in the design and manufacturing stages of apparel, so they are designed and produced in ways which are more sustainable.

### 04. WASTE MANAGEMENT

#### PACKAGING AND PACKAGING WASTE REGULATION

The aim of the Regulation is to reduce packaging waste, boost high-quality recycling and make all packaging on the EU market recyclable by 2030.

- All packaging placed on the EU market must comply with requirements related to its manufacturing, composition, reusability recoverability and labelling requirements.
- The aim is to reduce the need for virgin materials and grow the market for secondary raw materials. For example, recycled plastics, enabling high-quality (“closed loop”) recycling.
- Below is a non-exhaustive overview of the main upcoming requirements:

#### RECYCLABILITY

- From 2030, all packaging must be designed to meet recyclability requirements and will be classified under performance grades A, B, or C, as defined by the EU.
- From 2035, packaging must be recycled at scale (criteria to be defined).
- From 2038, only packaging in grades A or B will be allowed.

- Performance grades:
  - A  $\geq$  95% recyclability | B  $\geq$  80% | C  $\geq$  70%
- EPR fees will be modulated based on recyclability grade.

#### MINIMUM RECYCLED CONTENT IN PLASTIC PACKAGING

- From 2030 (or 3 years after relevant act):
  - 30% for PET contact-sensitive packaging
  - 10% for other contact-sensitive plastic
  - 30% for single-use plastic bottles
  - 35% for other plastic packaging
- From 2040:
  - Increases to 50%, 25%, 65%, and 65% respectively

#### RE-USE TARGETS (FROM 2030)

- 40% for transport packaging (e.g. crates, pallets, trays, wraps)
- 10% for non-cardboard boxes used to group products
- Operators must report data annually (starting 2030)

#### PACKAGING MINIMISATION

- From 2030 (or 3 years after delegated act):
  - Max 50% empty space ratio allowed in grouped, transport, and e-commerce packaging

#### LABELLING REQUIREMENTS

#### (STILL SUBJECT TO DEVELOPMENT BY THE COMMISSION)

- Sorting instructions: mandatory within 3.5 years (or 2 years from act)

- Reusability info: mandatory after 4 years (or 2.5 years from act)
- Recycled content labelling: harmonised if shown
- EPR symbols: national symbols must be digital within 2 years
- Substances of concern: to be digitally marked by 2030

### PACKAGING RESTRICTIONS

- From 2030, certain formats listed in Annex V will be banned from the EU market.
- **More information is available [here](#)**
- **Timeline:** February 2025 entry into force – August 2026 entry into applicability and expected adoption of implementing act to establish content of harmonised label

### WASTE FRAMEWORK DIRECTIVE TARGETED REVISION

The Waste Framework Directive sets the basic concepts and definitions related to waste management, including definitions of waste, recycling and recovery. It explains when waste ceases to be waste and becomes a secondary raw material, and how to distinguish between waste and by-products. As of 1st of January 2025, Member States in the EU are required to set up separate collection of textile waste.

- The foundation of EU waste management is the five-step “waste hierarchy”, establishing an order of preference for managing and disposing of waste, prioritising prevention, reuse and recycling over disposal.
- The Directive introduces concepts and requirements such as the “polluter pays principle”, as well as Extended Producer Responsibility (EPR) and ecomodulation of fees for apparel, apparel accessories and footwear products.
- The EPR schemes require producers to take responsibility (including financial) for the products placed on the Union Market, with a special attention to the end of the product’s life.
- The level of the financial contributions will be modulated on the basis of the ecodesign requirements set under the ESPR, that are most relevant for the prevention of waste and potentially also other criteria, such as the width of the product range, frequency of offers or repair incentives.
- The financial contributions will go towards research and development in innovative technologies that promote circularity in the textile sector. It will also support social enterprises involved in textile collection, sorting, reuse, and recycling, and will ultimately incentivize producers to design more circular products.

- **More information is available [here](#)**
- **Timeline:** The Directive is expected to enter into force in Q4 2025 with 20 months of transposition.

With such a high volume and short shelf life, football apparel producers may face increased financial responsibility for these products. The impact will mean additional costs on producers (kit suppliers) to cover the EPR fees. These added costs may be passed on indirectly to the clubs. Longer term it should result in products designed and made to higher sustainability standards (in line with ESPR) to reduce the eco-modulation fees.

### WASTE SHIPMENT REGULATION

The revised Regulation lays down procedures and control measures depending on the waste's origin, destination and transport route, as well as the type of waste and the treatment it will undergo at its destination.

- The Directive ensures that the EU does not export its waste challenges to third countries and contributes to environmentally sound management of waste.
- The aim is to strengthen enforcement to prevent illegal shipments of waste occurring within the EU, as well as from the EU to third countries.

- The rules will increase traceability of waste shipments within the EU and facilitate recycling and reuse.
  - Used textiles must be clearly classified as either waste or products. Exporting as "second-hand clothing" will now require evidence that the items are suitable for reuse.
  - Shipments of waste to non-OECD countries is subject to a ban, unless the receiving country explicitly consents and can prove it has the capacity for environmentally sound management (ESM). The Commission is expected to publish a list of non-OECD countries which will still be allowed to receive waste in 2026.
  - Stricter traceability and enforcement are being introduced to combat fraudulent exports.
- 
- **More information is available [here](#)**
  - **Timeline:** May 2024 – entry into force; May 2026 – applicability.

### SUMMARY OF WASTE LEGISLATION

- EPR is in force in France for clothing and footwear, and now also includes Sports Equipment. EPR entered into force in the Netherlands in July 2023 for clothing and in 2025 for footwear, but EPR is not in force across all of Europe yet. As some of the legislation has been adopted on a country level first rather than a coordinated EU regional level, it has the potential for schemes in different countries to be set up and run in different ways. A harmonised approach across all EU member states would be advantageous<sup>47</sup>, in the meantime those impacted by EPR legalisation will need to adapt to each country's individual EPR scheme which may require substantial administration and coordination.
- EPR will affect all parts of the value chain and will have a significant financial impact on producers. The financial contributions they will need to pay will be based on the environmental performance of their products so there is an incentive for producers to improve the sustainability credentials of their products. The money raised through EPR may be the catalyst for the technological innovation needed to transition apparel towards circularity.

### SUMMARY OF LEGISLATION IMPACTS FOR CLUBS

- The apparel and textile sector has been predicted to go from one of the least to one of the most regulated, given its substantial environmental impact and the number of workers involved in its supply chain.
- The EU legislations outlined in this section will impact all those involved in the design, manufacture, marketing and end-of-life of football apparel.
- The impacts may result in rising costs in apparel prices for both clubs and fans, longer lead times for delivery, and investment into data collection and verification.
- However, the impacts will also be products designed to higher sustainability standards, which are made in safe working conditions without forced labour, clearer communication for consumers and more investment in technologies to support the transition towards circularity.
- Clubs risk lack of market access if non-compliant as well as reputational damage and damage to relationships with fans if they are not seen to be prioritising sustainability.
- Those who prioritise this area will set an example for others and be seen as leaders in their field.

47. In July 2023 the European Commission published a proposal for the revision of the Waste Framework Directive setting the foundations for harmonisation requirements across EPR schemes in Europe for textiles, clothing, and footwear.



### 3 THE 4RS AND PRODUCT LIFE CYCLES

**THIS SECTION FOCUSES ON HOW CLUBS AND NATIONAL ASSOCIATIONS CAN USE THEIR INFLUENCE TO ENSURE THAT THE 4R FRAMEWORK IS APPLIED AT EACH STAGE OF THE FOOTBALL APPAREL VALUE CHAIN.**

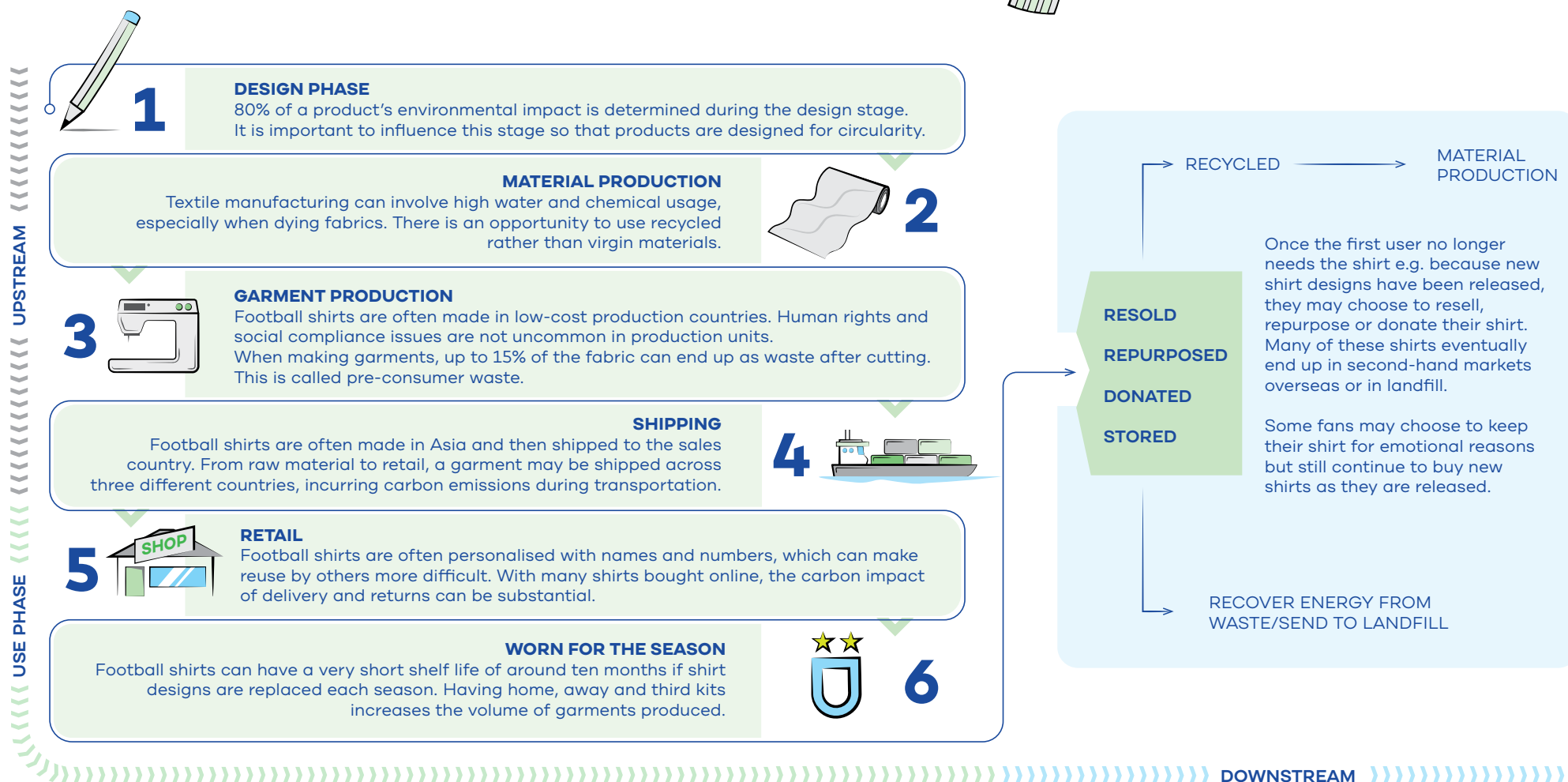
The textile and clothing industry is undergoing considerable innovation, especially in terms of materials and recycling infrastructure. Many of these innovations are yet to be scaled up, so here we focus on practical actions that can already be implemented across a range of budgets and complexity levels rather than covering all developments across the industry.

Multiple stakeholders are involved in the creation, manufacturing retail and recovery of football apparel. While clubs may not have overall responsibility for the manufacturing or recovery processes, they sit at the centre of all stakeholders and, most importantly, at the heart of the fan. As such, clubs have a key responsibility to engage, influence and collaborate.

When considering the 4Rs, it is important to understand the life cycle of football apparel and the influence that clubs can have across the life of the product.



### LIFE CYCLE OF A FOOTBALL SHIRT



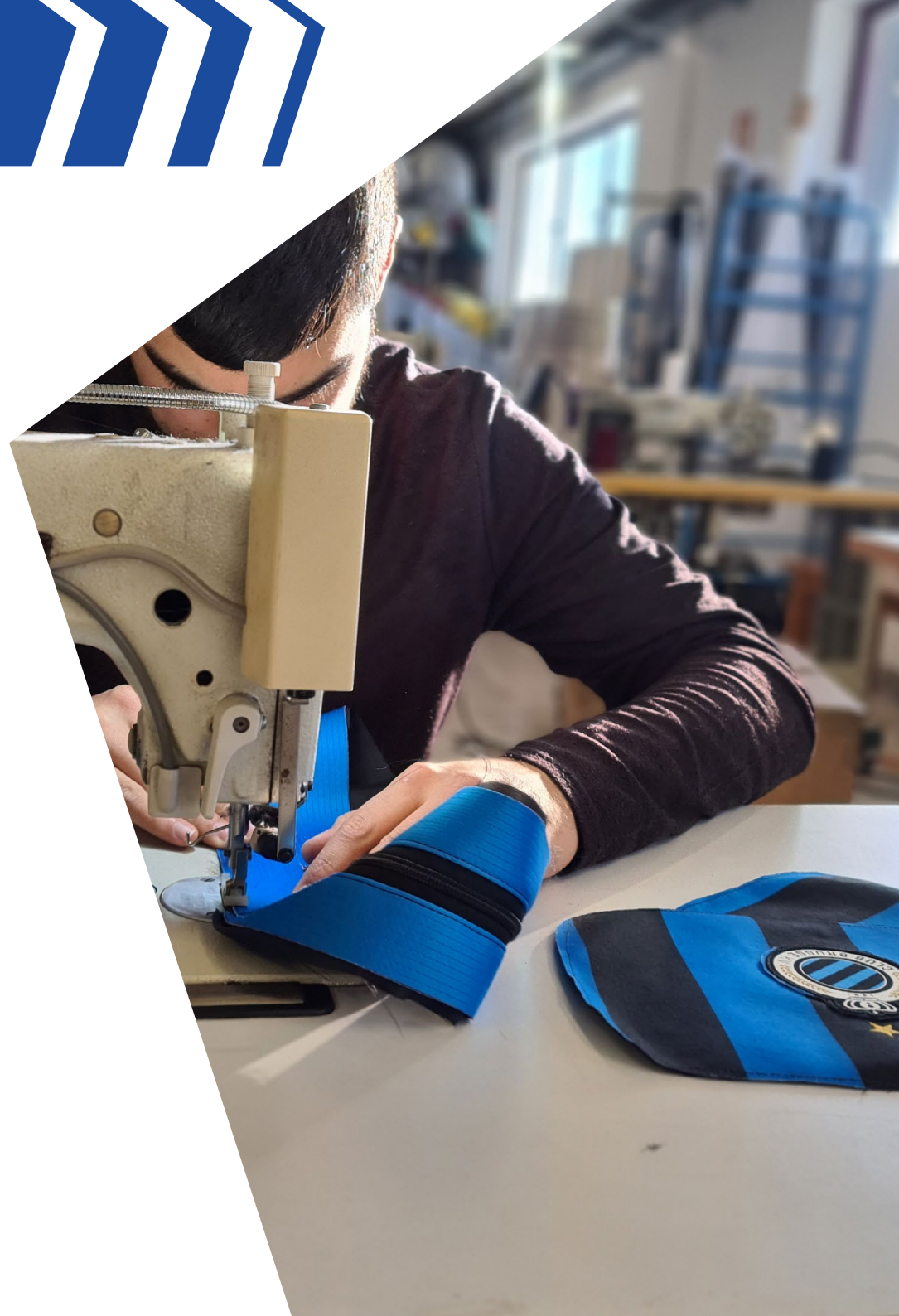
### INFLUENCE

**Clubs and national associations have a responsibility to work with their kit suppliers and sponsors to engage them in strategies to transition towards circularity.**

Circularity needs to be a shared goal between clubs, associations, sponsors and manufacturers so that all stakeholders are aligned and work proactively to support each other in the transition.

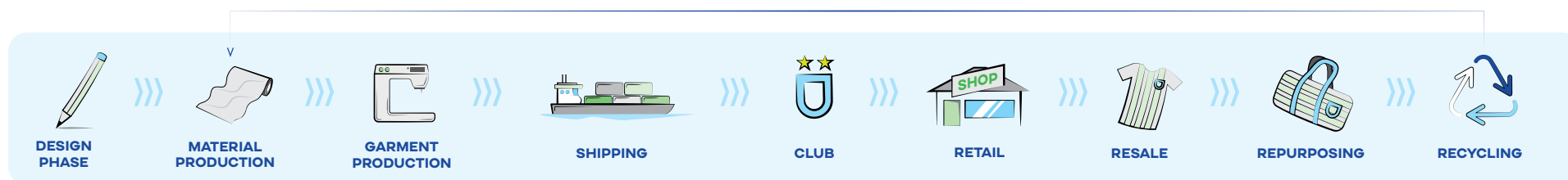
Clubs also have a huge platform to engage fans in more sustainable actions. This may range from championing new initiatives, materials and innovations to educating fans on the environmental impact of football apparel and encouraging the fans to reduce the number of shirts they buy and reuse the ones they already own.

The graphic below shows how clubs can influence sustainability at the various stages of the value chain.



## E2. APPAREL AND FOOTBALL EQUIPMENT

## TOUCH POINTS OF INFLUENCE IN THE VALUE CHAIN



INFLUENCE	<b>DESIGN</b> Clubs are responsible for approving the final design and should use their influence to ensure that it considers ecodesign principles as set out in the ESPR.		<b>PRODUCTION</b> Although clubs are not directly responsible for the production of their kit, they should ensure that their shirt sponsors’ or suppliers’ manufacturing units adhere to all local laws, ask to see certifications and accreditations where necessary, and conduct independent audits on factory units to ensure safe working conditions.		<b>SHIPPING</b> Clubs can specify that goods must be shipped by sea (or, if nearshoring, by electric vehicle) and should place orders in good time to ensure enough time for delivery.		<b>USE</b> Clubs can extend the use phase of their shirts by reducing the number of new kits they release and encouraging fans to wear their current shirts for future seasons. In their forecasting management, improvements can be made to reduce the amount of unused stock after the season.		<b>REUSE</b> Clubs can encourage fans to reuse shirts in future seasons or to resell them/pass them on to others to extend the use phase of the shirt. Clubs can lead by example and give their leftover stock a meaningful second life.		<b>RECYCLE</b> Clubs can partner with their kit suppliers to ensure that shirts are designed for recyclability and can set up logistics to collect shirts to be recycled and used as feedstock for new shirts (see case study 14).							
	ACTION EXAMPLES	Use 3D technology to visualise new designs and reduce the number of samples produced.		<b>MATERIALS</b> Switch to recycled polyester as feedstock (see case study 9) for new football apparel or transition towards natural, biodegradable materials.		<b>GARMENTS</b> Use sales data, sales prediction modelling and just-in-time manufacturing in supply chains. Use stock shirts with held inventory and late stage customisation on demand.		Use sustainable shipping methods such as sea rather than air freight when shipping from production countries and use electric vehicles for last-mile deliveries for online retail orders.		<b>CLUB</b> Change staff apparel and training apparel only when needed (e.g. new sponsor, new manufacturer).		<b>RETAIL</b> Rework defective apparel (e.g. incorrect personalisation, wrong sponsors) into circular products for fans (see case study 11).		<b>RESELL</b> Resell outdated apparel (worn and new) from the club to fans directly.		<b>REWORK</b> Rework outdated apparel into new items in a circular programme.		Recycle outdated and defective apparel and equipment into functional materials for the office or field.
IMPACTS		BENEFIT		BENEFIT		BENEFIT		BENEFIT		BENEFIT		BENEFIT		BENEFIT				
	Fewer physical samples. Samples are made to more sustainable criteria.		Less reliance on fossil fuels as a source for polyester.		Reduced overproduction.		Decreased carbon emissions.		Less stock needed, less overstock, easier forecasting.		Less waste, potential revenue, storytelling.		Longer product lifespan, fan engagement, potential revenue.		Longer lifespan of product, fan engagement, potential revenue (see case study 11).		Reuse of defective apparel and equipment without any reference to the initial product.	

UPSTREAM USE PHASE DOWNSTREAM

WHILE CLUBS AND FEDERATIONS MAY SIT PRIMARILY WITHIN THE RETAIL AND USE PHASE, THEY HAVE DIRECT AND INDIRECT INFLUENCES BOTH UPSTREAM AND DOWNSTREAM.



**DESIGN:** As mentioned above, 80% of the environmental impact of a product is determined at the design stage. Clubs are responsible for approving the final designs of their apparel, and must therefore influence the design process to ensure that environmentally friendly design principles, such as design for disassembly, longevity and recyclability, are followed.



**MANUFACTURE:** Although clubs are not directly responsible for the production of their kit, they should ensure that the manufacturers used by their sponsors or suppliers adhere to all local laws. They should ask to see certifications and accreditations where applicable and should conduct independent audits on factory units to ensure that the working conditions are safe.



**USE:** Clubs can prolong the useful lives of their shirts by reducing the number of new kits they release, improving their forecasting to reduce the amount of unused stock left over at the end of each season and encouraging fans to continue wearing past seasons' shirts ([see case study 10](#)). **The most sustainable football shirt is the one the fan already owns.**



**DISPOSAL:** Clubs should encourage fans to reuse shirts in future seasons or to donate or sell them to extend their use phases. Shirts that are damaged beyond repair should, where possible, be used as a feedstock for textile-to-textile recycling ([see case study 14](#)).



### NEW CIRCULAR BUSINESS MODELS

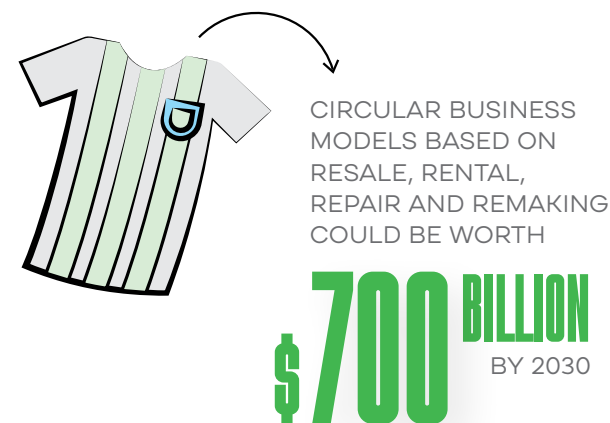
For fans, football shirts and club-branded apparel provide an important connection to the club and have considerable emotional durability. This means that shirts are bought not only to be worn but also as souvenirs that bring back memories when worn.

Clubs and national associations need to see the opportunity in the power of the football shirt and think creatively about how they can engage fans in new ways that transition towards circular business models instead of the current volume-based business model, while also strengthening the connection between fans and the club or national team.<sup>48</sup> For example, the Portuguese Football Federation has launched its [Portugal Legends collection](#), where fans can buy official national team apparel from past seasons directly from the national association.

Innovative products such as digital products or fan experiences can also be highly emotional for fans and may be able to replace physical apparel to some extent. The fashion industry has begun offering rental, resale, reuse and digital products and services to future-proof itself against the linear business model and respond to increasing demand from consumers for more sustainable

practices. This means moving towards more value-based business models, rather than volume-based. Circular business models based on resale, rental, repair and remaking could be worth \$700bn by 2030.<sup>49</sup>

Football clubs need to prepare themselves, their kit sponsors, kit suppliers and fans for these changes and transition towards a more circular approach now to safeguard themselves for the future, otherwise they face potential rising costs or non-compliance. The following subsections and case studies give examples of how clubs can start to transition towards circularity and prepare for the upcoming changes by applying each of the 4Rs to football apparel.



<sup>48</sup>. View source

<sup>49</sup>. View source



### REDUCE

**REDUCING THE VOLUME OF NEW APPAREL PRODUCED SHOULD BE THE PRIORITY. CLUBS CAN PLAY A KEY ROLE IN THIS BY SLOWING DOWN THE TURNOVER OF NEW KITS TO EXTEND THEIR SHELF LIFE, WHICH IS CURRENTLY ONLY AROUND TEN MONTHS ON AVERAGE.**

Clubs should encourage fans to reduce the number of new shirts they buy and should limit the number of new shirts they provide to players.

Product design is one opportunity to increase the reduce the amount of apparel produced. By way of example, Adidas has innovated the design and production of a [reversible jersey for Toronto's Maple Leaf hockey team](#). A football shirt like this would enable fans to have a home and an away shirt in the same garment, thereby reducing the number of garments produced overall. Improved stock management can also reduce waste, as demonstrated by [case study 9](#).



## E2. APPAREL AND FOOTBALL EQUIPMENT

### REDUCE | TABLE 6 EXAMPLES OF ACTIONS CLUBS CAN TAKE TO REDUCE THE AMOUNT OF FOOTBALL APPAREL PRODUCED

		OVERVIEW	POSSIBLE ACTIONS	BENEFITS	APPROACH	INFLUENCE	URGENCY	COMPLEXITY	BUDGET	EXTERNAL STAKEHOLDERS	INTERNAL STAKEHOLDERS	EXAMPLES
STAGE IN SUPPLY CHAIN: UPSTREAM	Clubs can implement reduction strategies across the value chain. In the upstream phase, the environmental impact of production can be minimised by working with kit suppliers to implement changes in manufacturing units. Kit suppliers can reduce the amount of virgin material used in line with the ESPR, replacing it with an increasing percentage of recycled content.		01. Use 3D visualisation technology to prototype garments digitally rather than physically during product design and development, thereby reducing the number of physical samples made.	Enables designers to see numerous colour ways and graphics designs quickly without having to make physical samples.	Work with kit suppliers to encourage them to digitally prototype when possible and agree to review initial design concepts digitally rather than physically.	Indirect	High •••	Low •	€	Kit supplier	Kit manager(s), commercial division	<a href="#">CLO3D</a> and <a href="#">Browzwear</a> are softwares used to produce 3D digital prototypes.
			02. Influence the reliance on fossil fuels as an energy source for material and garment production by working with kit manufacturers to support factories in transitioning to renewable energy sources.	Reduces the carbon footprint within the supply chain.	Work with kit suppliers to set a roadmap and timeline to phase out coal within their supply chains and encourage investment in renewable energy sources.	Indirect	High •••	High •••	€€€	Kit supplier	Kit manager(s), commercial division	<a href="#">adidas</a> has committed to phasing out coal-fired boilers for all core suppliers by the end of 2025, replacing them with lower-impact alternatives, such as gas or biomass-fired boilers.
			03. Transition from virgin polyester derived from fossil fuels to recycled polyester. Consider choosing other materials that have a lower environmental impact than polyester. As the technology is scaled up, transition to polyester made from textiles as its feedstock.	Some material choices generate lower carbon emissions during production. Textile-to-textile recycled polyester utilises waste garments rather than them being disposed of.	Proactively ask kit suppliers for their sustainable material options. Set a roadmap to transition to recycled materials.	Indirect	High •••	High •••	€€	Kit supplier	Kit manager(s), commercial division	In 2024, 99% of the polyester used in adidas' products was made from recycled material. As polyester is adidas' most-used material, this significantly reduces the company's environmental footprint. In 2024, adidas set a new, more ambitious target for recycled polyester: to transition from using recycled plastic bottles to using recycled textile waste as feedstock. They aim to achieve 10% of polyester volume coming from textile waste by 2030.
			04. Encourage kit suppliers to reduce water and chemical usage within the production phase of the garment.	Reduces chemical and water usage. Ensures safer working conditions by reducing exposure to harmful chemicals.	Publicly publish codes of conduct and policies relating to chemical and water usage, ensuring that they all exceed the minimum legal requirements. Work with kit suppliers to agree on a roadmap for reduction within their supply chain.	Indirect	Medium ••	High •••	€€€	Kit supplier	Kit manager(s), commercial division	<a href="#">adidas</a> publishes <a href="#">standards and policies</a> publicly on its website.

## E2. APPAREL AND FOOTBALL EQUIPMENT

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STAGE IN SUPPLY CHAIN: UPSTREAM	Clubs can implement reduction strategies across the value chain. In the upstream phase, the environmental impact of production can be minimised by working with kit suppliers to implement changes in manufacturing units. Kit suppliers can reduce the amount of virgin material used in line with the ESPR, replacing it with an increasing percentage of recycled content.	05.	Offer new ways to engage fans through non-physical merchandise, such as experiences or digital items.	Reduces the volume of physical products manufactured while still enabling fans to connect with the club.	Work with strategic partners who have experience in engaging fans in digital merchandise and experiences.	Direct	Medium ● ●	High ● ● ●	€€	Kit supplier	Commercial division	<a href="#">Connected Fanatics</a> embeds physical products such as shirts with technology linking it to digital experiences that can be updated continually.
		06.	Establish long-term relationships with sponsors to reduce the number of times shirts need to be updated due to new sponsorship.	Reduces the number of products going to waste due to sponsorship changes and sensitivities.	Set strategic goals to establish longer-term partnerships.	Direct	Medium ● ●	High ● ● ●	€€	Kit supplier, shirt sponsor(s)	Commercial division	adidas has sponsored Real Madrid CF since 1998.
		07.	Use better data forecasting and flexible replenishment plans to reduce the amount of excess inventory ordered.	Reduces overstock of physical products.	Prioritise data collection and monitoring and work with kit suppliers to discuss lead times for replenishment. Consider using stock designs with shorter lead times that can be customised as needed.	Direct	High ● ● ●	Medium ● ●	€	Kit supplier	Commercial division	Macron have a stock catalogue offering shorter lead times compared to custom designs ( <a href="#">see case study 9</a> ).
		08.	Manage minimum order quantities required by kit suppliers by sharing order volumes across team kit and retail.	Reduces overstock of physical products.	When minimum order quantities are high, involve both the retail division and the kit manager to share the order.	Direct	Medium ● ●	Low ●	€	Kit supplier	Kit manager(s), commercial, merchandise and retail divisions	FC Porto's supplier has a minimum order quantity for winter coats that exceeds the team's needs, so the kit manager liaises with the retail division to order retail items at the same time.
		09.	Choose higher quality or more sustainable options when buying football apparel (e.g. boots) for club staff.	Lower impact on the environment during production and less waste as products have more longevity.	Source sustainable suppliers of specific apparel or equipment categories.	Direct	High ● ● ●	Low ●	€€	Kit supplier	Kit manager(s)	<a href="#">Sokito</a> designs its football boots using ecodesign principles and has a take-back scheme for all brands of football boots to prevent them from going into landfill.

## E2. APPAREL AND FOOTBALL EQUIPMENT

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STAGE IN SUPPLY CHAIN	USE PHASE	The club has the most influence in the retail and use phase. By using technologies such as AI to gather more accurate sales predictions, clubs can better prevent overstock.  Partnering with kit suppliers who have fast-responding supply chains that allow replenishment of inventory in weeks rather than months enables clubs to hold only the stock needed rather than carrying substantial amounts of overstock.	01. Consolidate professional and retail shirts by offering fans the same high-performance garments.	Reduces overstock and allows surplus team apparel to be sold in retail.	Collaborate with kit manufacturers to create one performance shirt at a price that fans can afford. Maintain regular communication between kit managers and the retail division to manage surplus.	Direct	Medium ••	Medium ••	€	Kit supplier	Commercial division, kit manager(s)	Macron offers one shirt for both professionals and fans ( <a href="#">see case study 9</a> ).
			02. Roll shirts over across multiple seasons rather than releasing new updates each season.	Reduces overstock and extends the product life cycle of existing garments. Reduces financial pressure on fans to buy a new shirt each season.	Consult and collaborate with internal and external stakeholders to review and mitigate any financial impact of reusing shirts for longer than one season.	Direct	High •••	Low •	€	Kit supplier, shirt sponsor(s)	Commercial division, kit manager(s), team staff	Brentford used the same home jersey for two seasons ( <a href="#">see case study 10</a> ).
			03. Provide each player with fewer shirts per game and ensure that shirts are laundered and reused between games.	Reduces the number of shirts produced.	Analyse the minimum number of shirts needed per player per season and agree with players on potential cutbacks in the number of jerseys they can give away.	Direct	Medium ••	Low •	€	None	Commercial division, kit manager(s), team staff	
			04. Change staff and training apparel only when necessary (e.g. due to a change of sponsor or supplier) rather than every season.	Reduces the number of shirts produced by extending the life of existing garments.	Agree with the kit manufacturer that training and staff apparel can be rolled over across multiple seasons rather than replaced.	Direct	Low •	Low •	€	Kit supplier	Kit manager(s), team staff	Brentford FC used the same home jersey for two seasons ( <a href="#">see case study 10</a> ).
			05. Switch to renewable energy in retail stores and use electric vehicles to deliver online retail orders.	Reduces carbon emissions.	Review energy supplier and distribution contracts to switch to renewable energy sources.	Direct	High •••	Low •	€€	Delivery and distribution partners, energy suppliers	Commercial division, legal and contract managers	Deliveries using electric vehicles are becoming increasingly common: many supermarkets and delivery partners such as DPD are trialling and rolling out electric fleets.
			06. Stop personalising shirts for youth players (e.g. with names and numbers) where possible so that they can be used by multiple players. Encourage the use of a shared kit bag so that equipment and protective apparel such as shin guards can be shared.	Reduces the number of garments produced by extending their life and enabling multiple users to benefit from them. Reduces financial barriers for those who can't afford to buy kit.	Consult and collaborate with youth coaches to encourage a mindset of sharing items rather than individual ownership.	Direct	Low •	Low •	€	Kit supplier, shirt sponsor(s)	Commercial division, kit manager(s), team staff, youth coaches	
	DOWNSTREAM	Downstream, clubs can create a culture of reuse within their organisation and among fans to reduce the number of new shirts produced.	01. Encourage fans to buy vintage shirts or swap shirts with other fans.	Extends the product life of existing garments, maintains the connection with fans through apparel and reduces the need to produce more new shirts.	Create marketing programmes in partnership with vintage resellers to encourage fans to buy old shirts. Discuss with kit sponsors whether any excess stock can be resold.	Direct	Medium ••	Low •	€	Kit supplier	Commercial, merchandise and retail divisions	Classic Football Shirts buys and resells old shirts from clubs and fans ( <a href="#">see case study 13</a> ).



### → CASE STUDY 7

#### LIVERPOOL FC:

#### REDUCING CARBON EMISSIONS THROUGH DIRECT TO AIR CAPTURE



- To commemorate the 20<sup>th</sup> anniversary of Liverpool FC's (LFC) 2005 Champions League triumph, the club collaborated with carbon removal specialists 1PointFive to launch a commemorative jersey with its carbon footprint removed from the atmosphere via Direct Air Capture (DAC) technology\*.
- LFC conducted a [Life Cycle Assessment \(LCA\)](#) in accordance with ISO 14067, to estimate the Product Carbon Footprint (PCF) of the jersey. LFC polyester jerseys are manufactured with 100% recycled polyester (RP) yarn, which is made from recycled plastic bottles.
- The largest source of the jersey's estimated carbon footprint is from the raw material procurement which makes up 57.5% of the estimated carbon footprint. The largest contributor within the raw material procurement stage to the total emissions calculation arises from the use of 100% recycled polyester (RP) yarn during the knitting process.
- The LFC X 1PointFive commemorative jersey retails at the same price point of other LFC retro jersey's - RRP £55. After making emissions reductions in the supply chain, removing CO<sub>2</sub> from the jersey through Direct Air Capture adds less than \$1 to the item's cost.



\*LFC calculates the total emissions from manufacturing of each jersey up to the point of distribution to an LFC site (and further transport from the LFC site is excluded). This does not include optional added name and number printing.

### CASE STUDY 7 (CONT.)

#### KEY TAKEAWAYS

1 >>>

##### **Scientific credibility builds trust:**

By conducting a Life Cycle Assessment (LCA) ensured transparency and accountability in measuring the product's carbon footprint, an essential step for any credible sustainability claim

2 >>>

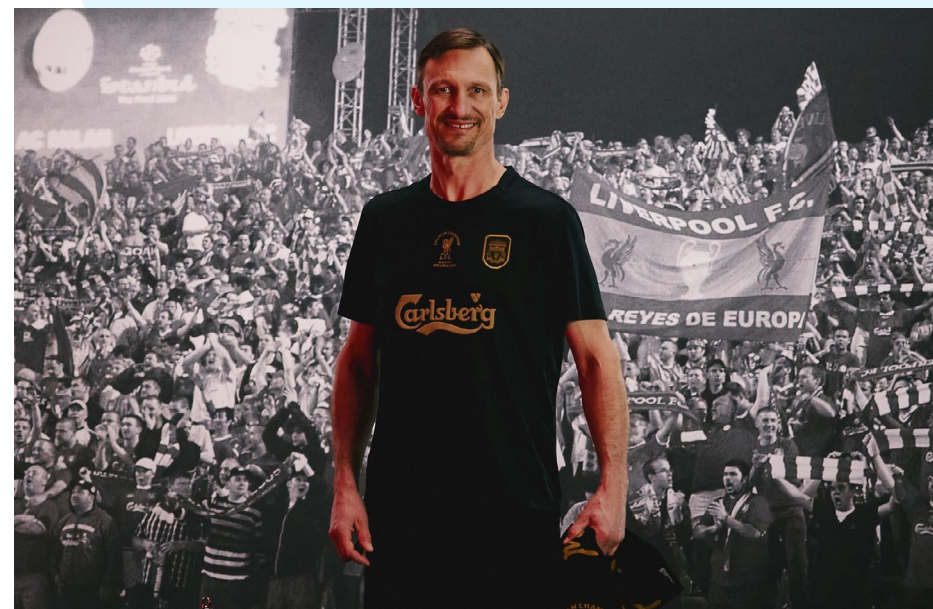
##### **Materials and Manufacturing are the emissions hotspots:**

he largest source of the jersey's estimated carbon footprint is from the raw material procurement. The manufacturing stage is the second largest source of carbon emissions for the jersey, making up 36.7% of the total calculation\*\*. Highlighting the importance of targeting upstream supply chain emissions when seeking climate impact

3 >>>

##### **Climate innovation doesn't have to cost more:**

Incorporating cutting-edge Direct Air Capture (DAC) technology to remove the shirt's emissions added less than \$1 to the retail price, proving that meaningful climate action can be delivered without increasing costs for fans



Former Liverpool defender Sami Hyypia, who played a crucial role in the 2005 victory, modelled the commemorative jersey for its launch

\*\*The dyeing process within manufacturing is the biggest contributor. This dyeing impact comes mainly from burning natural gas and the rest from electricity use. Knitting and the cutting, sewing and assembling of the jerseys also contributes significantly to the energy use during manufacturing due to the use of electricity. The natural gas combustion during the packaging process in the manufacturing stage results in minimal emissions, though as explained above it is significantly higher in the dyeing process. Upstream Transportation: Transportation of all raw materials to the fabric mill and then to the jersey assembly factory accounts for 3.7% of the total emissions. Downstream Transportation: Shipping the finished jerseys to the UK warehouse from China adds another 1.5% carbon emissions and shipping to the Netherlands' warehouse from China contributes 0.7% emissions.



### → CASE STUDY 8

#### FC INTERNATIONALE BERLIN:

#### DAS TRIKOT: GRASSROOTS INNOVATION IN CIRCULAR KIT DESIGN

- In autumn 2024, FC Internationale partnered with kit suppliers runamics and HAKRO to launch DAS TRIKOT the [first football shirt](#) in the world made entirely from Cradle to Cradle Gold-certified materials\*. Produced in Europe to ensure full supply chain transparency and reduce transport-related emissions, the project set a new benchmark for what can be achieved.
- FC Internationale also used a pioneering open tender process that embedded social and environmental sustainability criteria into supplier selection. This approach enabled non-traditional football kit manufacturers to compete, bringing fresh innovation into the grassroots game.
- A powerful anti-racist message was placed on the front of the shirt in place of a commercial sponsor. The initiative attracted significant media coverage across Germany and created the opportunity for new partnerships within and beyond the football community.



\*All materials used were Cradle to Cradle Gold certified, although the final assembled jersey was not certified. The base material, NaNea, is a chemically modified polyester from OceanSafe.

### → CASE STUDY 8 (CONT.)

#### KEY TAKEAWAYS

1 >>>

##### **Embed values in procurement:**

Ensure sustainability criteria are built into the tender process to attract partners who share your principles

2 >>>

##### **Look beyond traditional suppliers:**

Engaging with non-traditional partners can introduce innovative solutions the football industry has yet to explore

3 >>>

##### **Leverage the shirt as a platform:**

Using kit to showcase social messages can generate meaningful impact far beyond the game





### → CASE STUDY 9

#### MACRON:

#### CONSOLIDATING PROFESSIONAL AND FAN SHIRTS TO SUPPORT INVENTORY MANAGEMENT

- Macron is a teamwear supplier providing apparel for UEFA referees. As part of its sustainability programme, [Macron 4 the Planet](#), it has implemented a number of activities across its departments to manage and reduce its environmental impact.
- Firstly, from the 2023/24 season, all professional shirts sponsored by Macron were made using polyester recycled from plastic bottles.
- Secondly, Macron supplies the same high-performance shirts to both professionals and fans, whereas many other suppliers produce cheaper, less technical versions for fans or grassroots players. This enables clubs supplied by Macron to better manage their stock as they can sell excess team player inventory as merchandise rather than destroying it.
- Thirdly, Macron offers a stock catalogue service, allowing clubs to choose from a range of predetermined shirt designs that can then be customised to order

as needed. This means shorter lead times and allows clubs to replenish shirts quickly when needed rather than stockpiling in advance, which often results in excess inventory.

#### KEY TAKEAWAYS

1 >>>

Make sustainability integral to the DNA of your organisation and encourage departments to collaborate on sustainability targets and actions, working towards shared goals

2 >>>

Choose more sustainable materials with a lower environmental impact

3 >>>

Consider choosing from stock services that allow greater inventory management by providing faster replenishment lead times, enabling repeat orders as needed throughout the season

### → CASE STUDY 10

#### BRENTFORD FC:

#### KEEPING THE SAME SHIRT FOR MORE THAN ONE SEASON



- Brentford FC decided to use the same home kit for both the 2021/22 and 2022/23 seasons in the interests of both affordability and sustainability. By extending the lifespan of the official shirts from one season to two, the club increased awareness of the need for sustainability in football while also reducing financial barriers for fans.
- The club conducted market research among fans, and the feedback helped to influence internal stakeholders such as the club's retail division. Along with the support of the CEO, this research also supported external discussions with the club's kit sponsor.
- They found that keeping the same home shirt for two seasons and working closely with their kit sponsor reduced the likelihood of overproduction and overstock. The benefit for fans is that their shirts do not become outdated after just ten months. As a result, they may be more likely to invest in a shirt, knowing that they will be able to wear it for longer.

- In 2025 Brentford FC released [upcycled club shirts](#) made from the last four Premier League campaign kits. Each shirt is one-of-a-kind handmade. The club retailed these at cost price to ensure that the designers and project partners were fairly rewarded.

#### KEY TAKEAWAYS

1 >>>

Sign with sponsors for the full shirt rollover period, i.e. conclude partnerships of two or four years, so that shirts do not need to be replaced due to sponsorship changes

2 >>>

Engage stakeholders internally and externally; buy in from senior management can help to influence discussions with strategic partners such as kit sponsor

3 >>>

Consider waste as a resource, using outdated kit to make bespoke ranges using local upcycling partners



## REUSE

REUSE IS AN AREA IN WHICH CLUBS AND NATIONAL ASSOCIATIONS CAN EXERT SUBSTANTIAL INFLUENCE. THEY HAVE THE POWER TO ENSURE THAT APPAREL IS REUSED WITHIN THEIR OWN ORGANISATIONS AND TO ENCOURAGE FANS TO REUSE SHIRTS BY NOT RELEASING MULTIPLE SHIRTS PER SEASON.

Clubs can also create strong links with community groups, sports providers and charities both in their local areas and overseas to donate apparel that is in a good condition to those in need.



## E2. APPAREL AND FOOTBALL EQUIPMENT

### REUSE | TABLE 7 EXAMPLES OF ACTIONS CLUBS CAN TAKE TO PROMOTE THE REUSE OF APPAREL

		OVERVIEW	POSSIBLE ACTIONS	BENEFITS	APPROACH	INFLUENCE	URGENCY	COMPLEXITY	BUDGET	EXTERNAL STAKEHOLDERS	INTERNAL STAKEHOLDERS	EXAMPLES
STAGE IN SUPPLY CHAIN	UPSTREAM	Clubs can use their influence to encourage shirt sponsors to design with eco-principles such as longevity and reparability in mind.	<p>01. Influence the design of garments to focus on longevity so that products last longer and can have multiple users.</p> <p>02. Influence the design of garments so they can be repaired easily and cheaply.</p> <p>03. Collaborate with partners to innovate within design and R&amp;D, for example by producing reversible home/away shirts.</p>	<p>Extends the product's life.</p> <p>Extends the product's life.</p> <p>Reduces the overall volumes of shirts produced.</p>	<p>Train designers on the ecodesign principles outlined in the EU Strategy for Sustainable and Circular Textiles and collaborate with them to implement these principles.</p> <p>Collaborate with designers to implement the ecodesign principles outlined in the EU Strategy for Sustainable and Circular Textiles, particularly designing for repair. Ensure that replacement components are available.</p> <p>Think creatively, in collaboration with design partners, about how such a shirt can be engineered.</p>	<p>Indirect</p> <p>Indirect</p> <p>Indirect</p>	<p>High •••</p> <p>Medium ••</p> <p>Low •</p>	<p>Medium ••</p> <p>Medium ••</p> <p>Medium ••</p>	<p>€</p> <p>€€</p> <p>€€</p>	<p>Kit supplier, design team</p> <p>Kit supplier, design team</p> <p>Kit supplier, design team</p>	<p>Kit manager(s), commercial, merchandise and retail divisions</p> <p>Kit manager(s), commercial, merchandise and retail divisions</p> <p>Kit manager(s), commercial, merchandise and retail divisions</p>	<p><a href="#">Sokito</a> designs its football boots using ecodesign principles and has a take-back scheme for all brands of football boots to prevent them from going into landfill.</p> <p><a href="#">Patagonia</a> has offered repairs for a number of years and has recently launched an online portal that will allow customers to request a repair directly, 24 hours a day, and track its status.</p> <p>The <a href="#">Maple Leaf hockey team</a> released a reversible jersey in collaboration with adidas.</p>
	USE PHASE	Clubs can instil a mindset of reuse within their own organisation. Club apparel should be seen as a valuable resource holding marketing opportunities.  In line with the <a href="#">EU Strategy for Sustainable and Circular Textiles</a> , retail stores have the potential to become destinations for repair and upcycling as well as offering experiences for fans.	<p>01. Offer repair services within retail stores and online.</p> <p>02. Reuse existing apparel internally and externally. Sell surplus teamwear through retail stores, donate it to charity or use it for marketing purposes.</p> <p>03. Upcycle outdated apparel into new items that do not conflict with the club's new collection or sponsors. Offer upcycling as a service for fans in the retail stores.</p>	<p>Extends the product's life, maintains the connection with fans, encourages a mindset of repairing rather than replacing, offers retail stores a new revenue stream.</p> <p>Extends the product's life and can create new revenue streams or income for charity partners.</p> <p>Extends the product's life for the club and for fans, offers the club a new revenue stream, maintains the connection with fans and provides brand value.</p>	<p>Make retail stores a location for repair of shirts designed with repair in mind.</p> <p>Compile an inventory of available outdated apparel among the teams, staff and retail division. Work with the marketing team to create a road map of opportunities for this inventory to be reused internally or externally. Have players sign shirts to add value and use them as prizes in marketing campaigns.</p> <p>Work with upcycling partners to rework defective apparel or items featuring former sponsors.</p>	<p>Direct</p> <p>Direct</p> <p>Direct</p>	<p>Medium ••</p> <p>High •••</p> <p>High •••</p>	<p>Medium ••</p> <p>Low •</p> <p>Low •</p>	<p>€€</p> <p>€€</p> <p>€€</p>	<p>Kit supplier, design team, repair partners, logistics partners</p> <p>Kit supplier, shirt sponsor(s), retail partner(s)</p> <p>Kit supplier, shirt sponsor(s), retail partner(s)</p>	<p>Commercial, merchandise and retail divisions</p> <p>Kit manager(s), commercial, merchandise and retail divisions</p> <p>Kit manager(s), commercial, merchandise and retail divisions</p>	<p><a href="#">Patagonia</a> has offered repairs for a number of years and has recently launched an online portal that will allow customers to request a repair directly, 24 hours a day, and track its status.</p> <p>FC Porto is partnering with <a href="#">MatchWornShirt</a> to auction off shirts worn by players.</p> <p><a href="#">FC88</a> upcycles Club Brugge and Toulouse FC's old and defective shirts into various items of merchandise (<a href="#">see case study 11</a>).</p>



## E2. APPAREL AND FOOTBALL EQUIPMENT

### REUSE | TABLE 7 EXAMPLES OF ACTIONS CLUBS CAN TAKE TO PROMOTE THE REUSE OF APPAREL

		OVERVIEW	POSSIBLE ACTIONS	BENEFITS	APPROACH	INFLUENCE	URGENCY	COMPLEXITY	BUDGET	EXTERNAL STAKEHOLDERS	INTERNAL STAKEHOLDERS	EXAMPLES
STAGE IN SUPPLY CHAIN	DOWNSTREAM	<p>Clubs can use retail stores as a place where fans can return shirts for repair, upcycling or reuse.</p> <p>Stores can accept donated shirts and work with registered charity partners to provide shirts to those in need.</p>	<p>01. Facilitate the sale of unsold stock through online outlets or specialist retail sites rather than destroying it.</p>	<p>Extends the product's life, reduces affordability barriers for fans and avoids overstock being destroyed.</p>	<p>Sell stock from previous seasons on the club's own retail platform or partner with specialist outlets to resell excess inventory.</p>	<p>Direct</p>	<p>Medium ••</p>	<p>Medium ••</p>	<p>€</p>	<p>Retail partner(s)</p>	<p>Commercial, merchandise and retail divisions</p>	<p>The Portuguese Football Federation's <a href="#">Portugal Legends collection</a> enables fans to buy national team shirts from previous seasons directly from the federation.</p>
			<p>02. Personalise shirts for fans using numbers rather than names, invest in the technology to remove personalisation on shirts, put personalisations on the inside or personalise digitally through apps or augmented reality so that shirts can be reused.</p>	<p>Extends the product's life.</p>	<p>Invest in R&amp;D technologies and collaborate with design teams to review how shirts can be personalised in ways that allow them to be used by multiple people.</p>	<p>Indirect</p>	<p>Low •</p>	<p>Medium ••</p>	<p>€€</p>	<p>Kit supplier, design team</p>	<p>Kit manager(s), commercial, merchandise and retail divisions</p>	<p><a href="#">Connected Fanatics</a> embeds physical products such as shirts with technology linking it to digital experiences that can be updated continually.</p>
			<p>03. Partner with community reuse or charity organisations that can upcycle garments into other items for people in need.</p>	<p>Extends the product's life.</p>	<p>Establish partnerships with charities and community organisations to understand their needs and the opportunities for apparel to be upcycled in a way that helps those in need.</p>	<p>Direct</p>	<p>High •••</p>	<p>Low •</p>	<p>€</p>	<p>Charity partners</p>	<p>Kit manager(s), commercial, merchandise and retail divisions</p>	<p><a href="#">FC Porto</a>, in association with Portugal's Primeira Liga, donated shirts to be upcycled into hospital gowns for children.</p>
			<p>04. Partner with community reuse or charity organisations that can reuse excess apparel.</p>	<p>Extends the product's life.</p>	<p>Establish partnerships with charities and community organisations to understand their needs and the opportunities for apparel to be reused in a way that helps those in need.</p>	<p>Direct</p>	<p>High •••</p>	<p>Low •</p>	<p>€</p>	<p>Charity partners</p>	<p>Kit manager(s), commercial, merchandise and retail divisions</p>	<p>FC Porto donates all surplus apparel to charities in the city. The club maintains a database of the various charities that operate in the city and works with them to understand their needs.</p>
			<p>05. Use donated shirts as a feedstock for new shirts through textile-to-textile recycling.</p>	<p>First step towards closed-loop production of football apparel.</p>	<p>Discuss a roadmap towards textile-to-textile polyester with the kit supplier. Work with specialist partners to set up collection schemes to collect old apparel from teams and fans.</p>	<p>Indirect</p>	<p>High •••</p>	<p>High •••</p>	<p>€€€</p>	<p>Kit supplier</p>	<p>Commercial division</p>	<p>Four clubs encouraged fans to donate old shirts for textile-to-textile recycling (<a href="#">see case study 14</a>) and SATCoL are investing in scaling up technologies and infrastructure for textile-to-textile recycling (<a href="#">see case study 15</a>).</p>

### CASE STUDY 11

#### CLUB BRUGGE AND TOULOUSE FC: UPCYCLING DEFECTIVE OR OLD APPAREL INTO FAN-FOCUSED MERCHANDISE



- Many clubs are contractually prohibited from reselling apparel featuring former sponsors, which can make reuse challenging. As a result, apparel from earlier seasons is often destroyed. Some clubs are working with specialised companies to upcycle these outdated products into new items such as bags and accessories, using only the portions of fabric that do not feature former sponsor logos or branding. They can also upcycle apparel featuring current sponsors that cannot be sold in its current form due to defects.
- For example, Club Brugge collaborated with FC88 to rework defective home shirts that would otherwise have been destroyed into a [fan collection including laptop sleeves and toiletry bags](#), and Toulouse FC worked with the same producer to upcycle fan shirts with printing defects into bucket hats and bags sold in the fan shop.
- In contrast to recycling, where the end product is unrecognisable from the original item, upcycling retains the emotional value of the apparel item for the fan since it features recognisable design elements such as the club badge.
- FC88 upcycles the shirts in studios in Rotterdam, Porto and Brighton. This network of studios across Europe means that items can be upcycled as close to the clubs and stock sources as possible, thereby keeping transportation emissions to a minimum.
- FC88 supports micro- and small studios, each employing between four and 20 members of staff, and the Rotterdam studio provides job opportunities for migrants and refugees.
- FC88 also reuses waste products from other industries where possible; for example, they reused advertising banners on the insides of their upcycled backpacks. Zippers and buckles are the only accessories sourced externally. As all items are individually cut and hand-finished, waste is kept to a minimum.

## E2. APPAREL AND FOOTBALL EQUIPMENT

### → CASE STUDY 11 (CONT.)

#### KEY TAKEAWAYS

1 >>>

The majority of defective apparel and apparel from past seasons is either sent to landfill or incinerated

2 >>>

Clubs should see these items as a resource that can be reused to engage fans in innovative ways, rather than as a waste product

3 >>>

Upcycling old or defective apparel rather than destroying it allows clubs to recoup some costs and provides employment opportunities in the studios



### → CASE STUDY 12

#### HUDDERSFIELD TOWN AFC:

#### EXTENDING APPAREL LIFESPAN THROUGH LOCAL COLLABORATION



- Huddersfield Town is demonstrating how clubs at all levels can implement practical and community-driven approaches to reduce apparel waste and extend product life. Huddersfield Town aims to reduce textile waste generated from football apparel and extend the lifespan of products through reuse and upcycling to create social value through skills development and local engagement.
- Beginning in the 2024/25 season, the club has launched several initiatives focused on reuse, upcycling, and skill development embedding both environmental and social impact into its operations.
- **Re-loved rail in retail:** New for the 2025/26 season, a dedicated space in the club shop will allow fans to donate and purchase second-hand shirts, giving apparel a second life while promoting affordability and reuse.

- **University collaboration:** Huddersfield Town has partnered with their local university to upcycle previous season's kits, integrating the project into design and fashion courses to support student learning.

**Social enterprise partnership:** A local social enterprise with expertise in upcycling and providing community sewing skills classes is working with the club to transform old shirts into new products for sale in the club store.





### → CASE STUDY 12 (CONT.)

#### KEY TAKEAWAYS

1 >>>

##### **Local collaboration is essential:**

Partnering with the local university, social enterprises, and the wider community strengthens impact and enables shared learning

2 >>>

##### **Upcycling creates new opportunities:**

Football shirts are ideal items for upcycling and can be used as a vehicle to build skills and support training programs as well as create unique products to generate revenue

3 >>>

##### **Retail spaces can drive circularity:**

Club shops can go beyond selling new products, by facilitating donation, resale, and showcasing upcycled items, they become part of the circular solution



### → CASE STUDY 13

#### CLASSIC FOOTBALL SHIRTS:

MANAGING PAST SEASON INVENTORY  
OVERSTOCK USING SPECIALIST RESELLERS



- Because of the volume of shirts released each season, clubs can face issues with excess inventory, particularly past season's stock that they are unable to sell within their own retail arm. It is estimated that between 80,000 and 200,000 pieces of football apparel are classed as excess inventory each month. Much of this stock is either stored in warehouses or is ultimately destroyed. In addition, fans who have previously bought shirts and now want to change to the latest edition face the question of what to do with their old shirts.
- Classic Football Shirts works with clubs to buy their excess inventory to resell on its website, and it also buys from individual fans. It processes 150,000 vintage shirts from 57,000 vendors each season and holds an inventory of over 1.3 million shirts. By providing a platform and expert knowledge of the pricing of vintage shirts, it can extend the life of past seasons' products and make them available to fans and collectors.

#### KEY TAKEAWAYS

1 >>>

There is a substantial amount of excess inventory within clubs that has not been used and has the potential to be reused rather than destroyed

2 >>>

Fans have a high emotional connection with shirts, and many build collections

3 >>>

Destination resellers offer fans access to a back catalogue of shirts, simultaneously prolonging the product life of the shirt and strengthening the connection with the club



### TECH SOLUTIONS SUPPORTING EXTENDING PRODUCT LIFE

Emerging technologies are opening up new opportunities for football clubs to extend the life of their kits. From [trade-in models](#) to [second-life platforms](#), innovative, plug-and-play solutions give clubs the opportunity to manage the reuse, and incentivise the take back of their replica shirts.

New technologies are designed to help clubs increase the lifespan of football apparel through tech-enabled systems that support resale, trade-in, and upcycling. The goal is to make circular solutions more accessible, scalable, and low-effort for clubs to implement.

For example, West Ham fans can now trade in their used shirts via the online store and receive instant credit towards their new 2025/26 Replica Kits. The shirt to be traded in can be any official Club shirt from past seasons, fans are then sent a QR code to send the shirt back for free. Each traded-in shirt will be resold, upcycled or responsibly recycled, keeping shirts in circulation and out of landfill. In addition to resale, many of the shirts collected will be passed on to upcycling partners to be transformed into unique new products such as bucket

hats, washbags and other accessories, extending their life and giving supporters the chance to own something truly one-of-a-kind.<sup>50</sup>

Importantly, these approaches not only support sustainability objectives but also align with commercial and strategic priorities. By embedding circularity into their operations, clubs can unlock new revenue streams, deepen fan engagement, and prepare for evolving regulatory requirements around waste and textiles.

### KEY TAKEAWAYS

1 >>>

#### **Circularity as a Service:**

Plug-and-play tech solutions make resale and trade-in easier for clubs to implement, lowering barriers to circular business models

2 >>>

#### **Fan Engagement:**

With trade-in rewards and unique upcycled products, clubs create value for supporters and invite them to be part of the reuse journey

3 >>>

#### **Strategic Advantage:**

Extending the life of kit supports sustainability targets while creating new revenue streams and preparing clubs for tightening regulations on textiles and waste

<sup>50</sup>. View source

### CHARITIES: EXTENDING PRODUCT LIFE THROUGH COMMUNITY KIT REUSE

Charities play a vital role in extending the life of football apparel and equipment by collecting, sorting, and redistributing usable kit to under-resourced communities globally.

By partnering with charities clubs can support in reducing kit waste, removing barriers to sport participation by providing kits to individuals and teams without resources, create social impact by linking kit reuse with local coaching, education, and community programs.

One of the longest running and most established charity apparel reuse organizations is [KitAid](#) distributing more than 1.1 million kits across 55 countries since they were founded in 1998. Other organisations, such as the UEFA Foundation, also support reuse initiatives particularly in countries where competitions have been held while [Charity Boots](#) focuses specifically on the reuse of football boots. Football clubs and community organizations are encouraged to:

- Establish formal partnerships with kit redistributing charities, integrating collection points and clear donation guidance into their sustainability plans
- Support redistribution alongside local sports development or youth coaching initiatives to maximize social and environmental value
- Monitor the destination and use of donated apparel to ensure transparency, impact, and alignment with community needs

### KEY TAKEAWAYS

1 >>>

#### **Due diligence is critical:**

Ensuring donated kit is clean, usable, and aligned with recipient needs avoids waste and ensures kit can be reused

2 >>>

#### **Reuse expands access:**

Kit redistribution unlocks football participation in communities where buying new apparel is unaffordable enabling more children and teams to play

3 >>>

#### **Impact is maximized when matched to programs:**

Pairing kit provision with local coaching initiatives increases social return

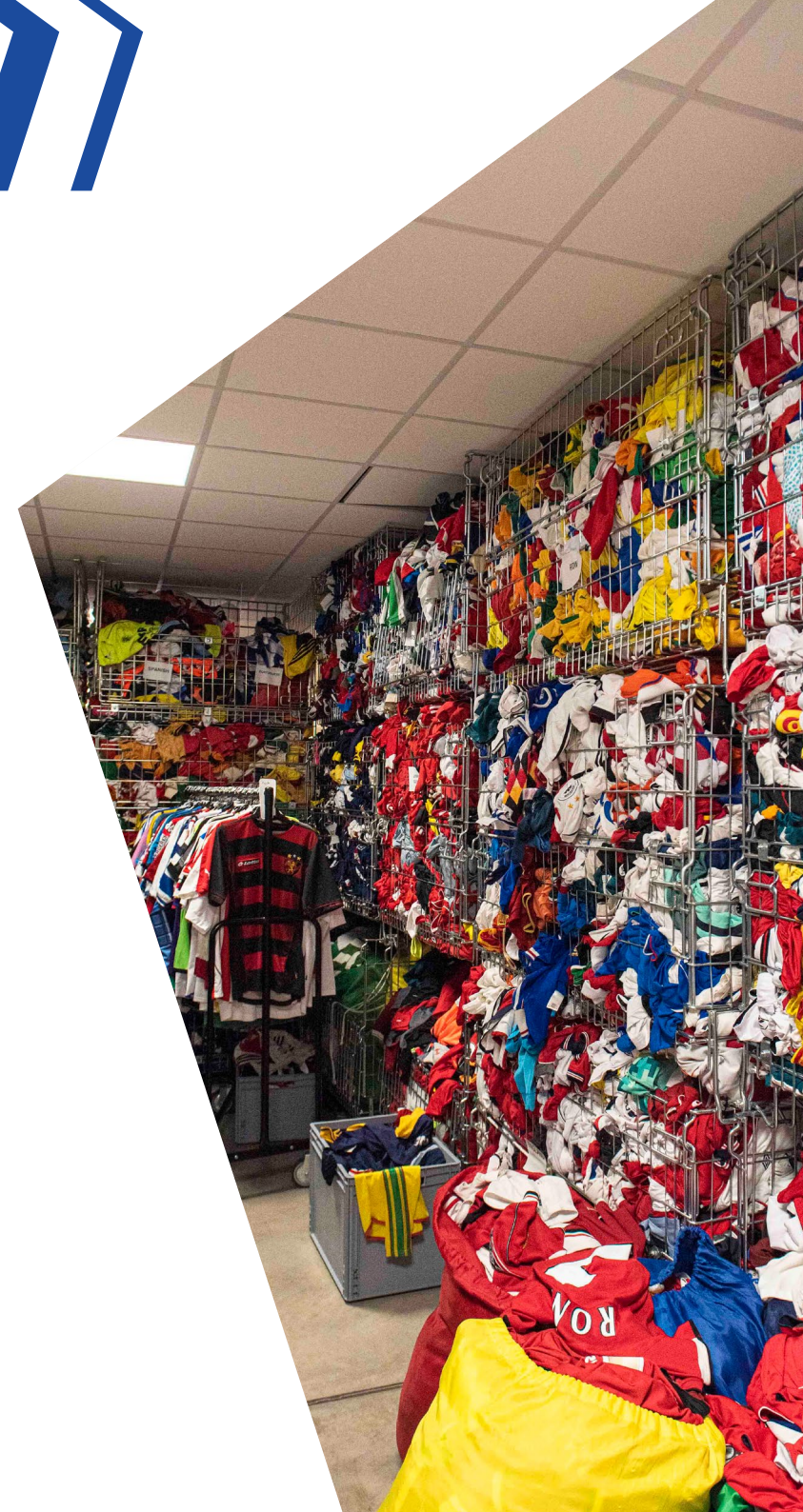
### RECYCLE

Recycling uses energy during processing and transportation, which has an environmental impact, so it should be considered only as a last resort when apparel is damaged beyond repair. Apparel is often disposed of while still in good condition, due to changing fashions or new styles being released.

#### **EXTENDING THE PRODUCT LIFE OF APPAREL THROUGH REUSE SHOULD ALWAYS BE THE PRIORITY BEFORE RECYCLING.**

Football apparel is increasingly being made from recycled polyester. Currently, the main source of feedstock for recycled polyester is PET (plastic bottles). In future, as the infrastructure develops, it is likely that old clothes will be used as a feedstock to make new clothes. However, at the moment, only 1% of old textiles are recycled into new clothes, owing in particular to the limitations of recycling infrastructure. Recycling therefore offers the potential to transition towards circularity through textile-to-textile recycling, but the infrastructure needs investment to ease the logistics of collection and make it more commercially viable. The mandatory household collection of textiles in Europe from 2025 should help to accelerate this process.

The case studies below offer examples of how multiple clubs and national associations can collaborate to achieve scale, improve efficiency and share best practices in this evolving area.



## E2. APPAREL AND FOOTBALL EQUIPMENT

## RECYCLE | TABLE 8 EXAMPLES OF ACTIONS CLUBS CAN TAKE TO PROMOTE THE RECYCLING OF APPAREL

		OVERVIEW	POSSIBLE ACTIONS	BENEFITS	APPROACH	INFLUENCE	URGENCY	COMPLEXITY	BUDGET	EXTERNAL STAKEHOLDERS	INTERNAL STAKEHOLDERS	EXAMPLES
STAGE IN SUPPLY CHAIN	UPSTREAM	Clubs can encourage designers to keep the end of life in mind, so that when a garment can no longer be reused or repaired it can be commercially recycled.	01. Influence design for recyclability using mono-materials that can all be commercially recycled. Mixed fabric blends such as cotton and polyester or polyester and elastane are currently more difficult to recycle than 100% polyester due to the recycling infrastructure available. Carefully consider the use of badges, applications and prints on apparel and check with kit suppliers and manufacturers whether these added components have any impact on the recyclability of the garments.	Facilitates recycling.	Encourage kit suppliers to design using mono-materials within the capabilities of commercially scaled recycling infrastructure.	Indirect	High •••	High •••	€	Kit supplier, equipment supplier	Kit manager(s), merchandise and retail divisions	Four clubs encouraged fans to donate old shirts for textile-to-textile recycling ( <a href="#">see case study 14</a> ) and SATCoL are investing in scaling up technologies and infrastructure for textile-to-textile recycling ( <a href="#">see case study 15</a> ).
	USE PHASE	The priority for clubs is to keep garments in use through reuse schemes, resale or facilitating garments having multiple users.  When this is no longer possible, clubs can engage with partners across industries to collaborate on projects that allow waste products from the clothing industry to be recycled for use in the textile and other sectors.	01. Use outdated football apparel and equipment as raw material in other industries and product areas.	Uses a waste product from one sector as a resource for another.	Incentivise R&D and innovation to reuse materials as feedstock for other industries.	Direct	High •••	Medium ••	€€	Kit supplier, equipment supplier	Kit manager(s), commercial division and facilities manager(s)	<a href="#">Nike Grind</a> uses end-of-life trainers as feedstock for in-store furniture. The idea was a grassroots initiative from an employee's idea, demonstrating that clubs should encourage all staff members to freely share ideas on how products can be made more circular.
			02. Recut defective apparel, salvaging the usable fabric for upcycling into new items.	Salvages usable components, enables sustainable storytelling.	Collate defective products in the retail division or within the club and work with upcycling partners to come up with new products.	Direct	High •••	Medium ••	€€	Retail partner(s), upcycling partners	Kit manager(s), merchandise and retail divisions	<a href="#">FC88</a> upcycles Club Brugge and Toulouse FC's old and defective shirts into various items of merchandise ( <a href="#">see case study 11</a> ).
	DOWNSTREAM	Clubs can use marketing campaigns to encourage fans to participate in their donation and recycling programmes.	01. Set up a recycling programme for fans, in collaboration with kit sponsors or local recycling companies. Make drop-off or donation bins available to fans at all times and place them in convenient locations. Give fans clear guidance as to what items can and cannot be donated for recycling. Work in collaboration with recycling facilities to understand what the challenges and barriers are and educate fans accordingly. Be transparent about how partner recycling facilities collect, sort and recycle the garments.	Gives fans a practical way to dispose of their unwanted garments.	Collaborate with local organisations that reuse or recycle apparel. Work with marketing teams to involve and communicate with fans.	Direct	Medium ••	Low •	€€	Retail partner(s), upcycling partners, collection, sorting and recycling partners.	Commercial, marketing and retail divisions	<a href="#">Vermont Green FC</a> has introduced its Closed Loop Program to recycle clothing waste into new yarn. A used clothing drop-off box will be available at all of the club's matches.



### → CASE STUDY 14

#### MANCHESTER CITY, AC MILAN, BORUSSIA DORTMUND, OLYMPIQUE DE MARSEILLE:

##### TAKING RESPONSIBILITY FOR THE END OF LIFE OF GARMENTS



- In 2022, Manchester City, Borussia Dortmund, AC Milan and Olympique de Marseille launched a proof of concept project with their apparel partner to collect used shirts made of polyester and recycle them into new shirts. The project aims to reduce waste and offer a circular solution to the volume of football shirts produced with no viable end-of-life strategy. The clubs installed collection bins in their stadiums and retail stores and invited fans to donate their old shirts, recycling them into new shirts that consisted of 75% repurposed football jerseys and 25% Seaqual marine plastic. The recycled jerseys were worn on-pitch during the pre-match warm up by all four clubs.
- In the recycling process, the jerseys were chemically broken down and colours were filtered out. The leftover materials were spun into new yarn through a process called repolymerisation, with the result being a recycled yarn with similar performance characteristics to virgin polyester.

- Currently, only around 1% of used textiles are recycled into new textiles, so the project was an important step in the transition toward textile-to-textile recycling. From the learnings gained, the clubs expanded the project to focus on accepting all types of textiles at donation points.
- The new process focused on textile waste as the primary source of material, which is broken down on a chemical level to create new textiles. The clubs accepted all types of textile donations, from any brand, and not just football shirts. Garments can be donated at locations near the stadium, and are then collected and sorted by fibre type. Polyester garments that cannot be reworn are recycled, while garments made from other fibre types that are not suitable for the recycling process due to their composition are repurposed.
- All garments produced from the project are made of at least 95% recycled textile waste and other used materials made of polyester. The recycled material is just as good as new and can be used for recycling again and again without losing quality, making the RE:FIBRE project



### → CASE STUDY 14 (CONT.)

implemented by the clubs with their apparel partner (PUMA) a promising and more sustainable long-term solution for recycling polyester textile waste.

- Manchester City involved and engaged fans in the donation process through an event at a home game in May 2023. Joleon Lescott and Shaun Wright-Phillips championed the event and met with fans who had brought their clothes to the match for donation. The club made the event interactive by setting up collection bins in the shape of shirts with Joleon and Shaun's faces on, and fans could decide which player's collection bin to place their donation in.
- From 2024 onwards, official PUMA football replica jerseys, including those for the Euro and Copa America tournaments are manufactured using Re:Fibre recycled materials made of old garments and factory waste, rather than only recycled plastic bottles.<sup>50</sup>
- PUMA's Home and Away replica kits for the women's Euro's were made using RE:FIBRE, containing at least 95% recycled textile waste and other polyester-based materials.<sup>51</sup>



Textile collection bins at Manchester City's stadium

### KEY TAKEAWAYS

1 >>>

Shared goals and responsibilities between kit sponsors and clubs are important to drive collaborative projects

2 >>>

It is important to test new technologies through proofs of concept and build on the learnings, scaling up projects together with partners

3 >>>

Make it convenient for fans to drop off their donations and engage them in the project through clear communication

50. View source

51. View source

### → CASE STUDY 15

#### SATCOL:

#### PARTNERING WITH SPECIALISTS IN SORTING AND RECYCLING INFRASTRUCTURE

- When fans no longer want to keep their shirts, either because they have bought the new season's shirt or because their current shirt is damaged, they can choose to donate it. SATCoL is the trading arm of The Salvation Army and is the largest charity-owned textile collector in the UK. Its goal is to extend the useful life of products to reduce waste and divert garments away from landfill. SATCoL enabled the reuse and recycling of over 250 million products in 2022.
- SATCoL has invested in technology to sort and recycle garments. Fibersort is an automated materials recovery facility that reprocesses clothing that can no longer be worn. It identifies and classifies non-wearable textile items into grades using an infrared camera and blows items from a conveyor belt into segregated bins using air jets. The process separates items by fibre type and can identify fibre blends more accurately than manual sorting. Fibersort also sorts fibres by specific or mixed colour categories.
- Project Re:claim, a joint venture between Project Plan B and SATCoL, has successfully recycled polyester textiles back into raw material using new technology on a commercial scale. It creates polyester pellets, from which it has successfully produced polyester yarn. SATCoL's ambition is to create the



UK's first fibre farm in order to massively scale up textile-to-textile recycling of all types of materials. The profits raised from the resale of the generous donations SATCoL receives are given to The Salvation Army to support its work throughout the UK. These technologies maximise the potential of charitable textile donations by creating more opportunities for garments to be repurposed and diverted away from landfill, thereby reducing the environmental impact of textiles. In 2023/2024 they collected 67,000 tonnes of clothing and 18,000 tonnes of other items - this positively contributed to 453,000 tonnes of avoided emissions.

#### KEY TAKEAWAYS

1 »»»

Even damaged and torn polyester garments can be donated for recycling

2 »»»

Sorting and recycling infrastructure is evolving, and investment, collaboration and partnerships are needed to maximise efficiency

3 »»»

Products that are in good condition should be reused before recycling is considered

### RECOVER

**UEFA'S GOAL IS THAT NO FOOTBALL APPAREL OR EQUIPMENT IS SENT TO LANDFILL AND THAT PRODUCT LIFESPANS ARE INCREASED AS A RESULT OF FOLLOWING THE 4R FRAMEWORK.**

We do not see recovering value by harnessing the energy produced when waste is incinerated as a solution for football apparel, since the process itself has an environmental impact and other options, such as keeping products in use for as long as possible and recycling textiles, are available.





# 4 IMPLEMENTATION

IN ORDER TO IMPLEMENT THE 4R FRAMEWORK EFFECTIVELY, UEFA RECOMMENDS THAT FOOTBALL ORGANISATIONS AND OTHER STAKEHOLDERS ADOPT A STRATEGIC APPROACH TO IMPLEMENTING THE 4RS FOR APPAREL, COMPRISING THE FOLLOWING EIGHT STEPS:

## 1. INVOLVE

all relevant stakeholders from the start to avoid silos and aid communication

## 2. COLLABORATE

both internally and externally, designating key contacts, to identify any issues or conflicting KPIs

## 3. ANALYSE

stock and sales data and feedback from all stakeholders to understand the volumes involved and potential supply chain impacts

## 4. PLAN

strategically and communicate the plan to all stakeholders, requesting feedback and input

## 5. EDUCATE

all stakeholders and departments on the importance of the 4Rs for apparel and hold workshops to roll out the plan

## 6. IMPLEMENT

the plan, setting milestone dates and KPIs

## 7. TRACK

progress in relation to the milestones and KPIs, encouraging feedback from all stakeholders on the benefits, barriers and learnings

## 8. REPORT

progress back to all stakeholders and use the report as a baseline for future projects

### STEP 1

INVOLVE ALL RELEVANT STAKEHOLDERS  
ACROSS ALL LEVELS FROM THE START TO  
AVOID SILOS AND AID COMMUNICATION

#### WHY IT IS IMPORTANT:

Multiple stakeholders are involved in the design, manufacture and retail of apparel. Moreover, our research found that many organisations continue to work in silos, and the goals of the sustainability department are often in direct conflict with those of the sales team.

It is important that the views of all stakeholders are understood to ensure that any conflicts of interest are addressed and recorded from the start.

#### WHAT YOU COULD DO:

- Begin by sharing these guidelines and asking for feedback and suggestions on how the 4Rs could be implemented across all roles and responsibilities
- Encourage open dialogue across your organisation, capturing feedback and suggestions
- Ensure that the 4R strategy is understood by all levels of an organisation, not just management, and encourage people within your organisation who want to take more responsibility in leading the 4R agenda to do so

### STEP 2

COLLABORATE BOTH INTERNALLY AND  
EXTERNALLY, DESIGNATING KEY CONTACTS, TO  
IDENTIFY ANY ISSUES OR CONFLICTING KPIS

#### WHY IT IS IMPORTANT:

Many of the stakeholders in the apparel supply chain are likely to be outside your organisation.

It is important to create strong strategic relationships to ensure that your plans and goals are aligned.

#### WHAT YOU COULD DO:

- Arrange meetings with external stakeholders to share these guidelines and begin strategic discussions around the collaborative implementation of the 4Rs
- Hold workshops and site visits with external stakeholders to better understand each other's roles and responsibilities in implementing the 4Rs
- Designate key contacts across organisations and make fostering strategic collaborative discussions part of their KPIs
- Set a roadmap of actions and regular review meetings to ensure that the collaboration continues throughout the remaining steps



### STEP 3

ANALYSE STOCK AND SALES DATA AND FEEDBACK FROM ALL STAKEHOLDERS TO UNDERSTAND THE VOLUMES INVOLVED AND POTENTIAL SUPPLY CHAIN IMPACTS

#### WHY IT IS IMPORTANT:

Quantifying your organisation's current position in relation to the 4Rs is important to establish a data point against which future progress can be measured.

Analysing qualitative feedback ensures that all input is considered when developing a strategic plan.

#### WHAT YOU COULD DO:

- Collaborate across departments to analyse the volume of unsold stock left at the end of the season
- Understand what other factors may impede the implementation of the 4Rs, e.g. high minimum order quantities leading to overstock
- Look at what happens to unsold stock, considering both the number of units and the cost that it represents in order to quantify the current impact
- Consider any actions that could be taken to reduce and reuse in line with the UEFA 4R strategy
- Perform new analyses at regular intervals

### STEP 4

PLAN STRATEGICALLY AND COMMUNICATE THE PLAN TO ALL STAKEHOLDERS, REQUESTING FEEDBACK AND INPUT

#### WHY IT IS IMPORTANT:

After analysing the data and input from all stakeholders, it is important to create a strategic plan on which everyone agrees.

This plan should be a clear, practical set of actions that can be implemented within a specific time frame. It is important that the plan is owned by all the designated key contacts.

#### WHAT YOU COULD DO:

- Have all key contacts work together to create the plan so that the views of all stakeholders are heard, considered and addressed
- Consider short-, mid- and long-term actions that can be taken and think about how complex the resources needed to implement them are
- Ensure that the plan is signed off by all designated contacts on behalf of the stakeholders they represent
- Set KPIs for your organisation that align with the strategic plan

### STEP 5

EDUCATE ALL STAKEHOLDERS AND DEPARTMENTS ON THE IMPORTANCE OF THE 4RS FOR APPAREL AND HOLD WORKSHOPS TO ROLL OUT THE PLAN

#### WHY IT IS IMPORTANT:

In order for the plan to be successful, it is important to educate both internal and external stakeholders on the environmental issues at stake in the apparel industry and how football apparel fits into that.

Giving stakeholders context helps them to understand their role in implementing the 4Rs and why it is important for the organisation to invest time and resources into it.

#### WHAT YOU COULD DO:

- Share the strategic plan across the organisation
- Create educational material for internal stakeholders to explain why the plan needs to be implemented
- Hold educational workshops internally, allowing for discussion and questions
- Provide a platform where team members can find up-to-date information at any time
- Involve your creative and marketing departments to involve and engage external stakeholders such as fans, highlighting key messages and priority actions
- Provide new recruits with training on the strategic plan
- Remember that education is an ongoing process

### STEP 6

IMPLEMENT THE PLAN, SETTING MILESTONE DATES AND KPIS

#### WHY IT IS IMPORTANT:

It is vital that all members of the organisation are aware of the organisation's strategic plan and that those who are directly responsible have defined KPIs and timelines for delivery.

This avoids ambiguity and ensures that there are clear steps to achieving the plan.

#### WHAT YOU COULD DO:

- Ensure that people in key roles understand their accountability and have a plan of action for how they will achieve their KPIs
- Provide a support network through the designated key contacts to enable knowledge-sharing and foster collaboration

### STEP 7

TRACK PROGRESS IN RELATION TO THE MILESTONES AND KPIS, ENCOURAGING FEEDBACK FROM ALL STAKEHOLDERS ON THE BENEFITS, BARRIERS AND LEARNINGS

#### WHY IT IS IMPORTANT:

Tracking progress will enable you to identify, understand and immediately address any challenges or barriers as they arise.

It will also give you data that can serve as a benchmark for future actions.

#### WHAT YOU COULD DO:

- Regularly review the progress that key people make on their KPIs
- Support team members who encounter any barriers or challenges
- Discuss any common issues among key contacts at regular meeting
- Incentivise and recognise progress

### STEP 8

REPORT PROGRESS BACK TO ALL STAKEHOLDERS AND USE THE REPORT AS A BASELINE FOR FUTURE PROJECTS

#### WHY IT IS IMPORTANT:

All stakeholders should be informed and aware of progress so that they understand that sustainability is an organisational priority and that the actions taken are being reviewed in line with the defined milestones and KPIs.

#### WHAT YOU COULD DO:

- Recognise the hard work and commitment of team members
- Discuss any necessary adaptations to the plan and KPIs based on the experience and progress achieved
- Make recommendations for future actions and additions to the strategic plan

# SUMMARY

### THE CURRENT SITUATION:

- Football apparel and equipment is a multi-billion-dollar industry, traditionally built on selling a high volume of products each season
- Football apparel manufacturing can have multiple environmental and social implications; it is associated with high carbon emissions, water contamination, high chemical use and human rights violations
- Most football apparel ends up in second-hand markets overseas or in landfill; only 1% of used clothes are recycled into new clothes
- An estimated 60% of the football apparel used by a football club or association is destroyed each season, representing between €43.2m and €108m of wholesale value

### INFLUENCE AND COLLABORATION

- Clubs have the power and platform to influence other stakeholders, champion change and set good examples
- 80% of a garment's environmental impact is determined at the design stage, so this is a key area that clubs must influence

- Collaboration and shared goals across clubs, sponsors, suppliers, manufacturers and fans are essential to transition to circularity
- Less is more, and the most sustainable shirt is the one a fan already owns

### THE FUTURE

- Exploring new ways to lengthen the life cycle of football apparel is both a legal necessity and a commercial opportunity
- New business models need to be explored and tested to unlock opportunities and transition away from the current volume-based business model to value-based models
- Clubs should consider reporting on their environmental impacts within their annual reporting
- Apparel should be:
  - Designed with circular principles in mind: for longevity, for recyclability or in modular ways so that its components can be repaired or replaced as needed
  - Made using recyclable materials and using processes with minimum environmental impact
  - Worn multiple times by each user
  - Shared by multiple users where appropriate
  - Produced only as needed thanks to accurate forecasting, preorder models and dynamic and ethical supply chains

# EU3 EVENT MATERIALS

SIGNAGE

BRAND  
PRODUCTION

FURNITURE

ICT  
EQUIPMENT

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1

2

3

4

As an event organiser, UEFA has a responsibility to organise events with sustainability in mind. This is a huge challenge, and one of the main obstacles is the fact that events move around between numerous venues, meaning that many processes cannot be optimised. UEFA plans to undertake an in-depth review of suppliers and processes and of the material composition of the products purchased with a view to identifying initiatives, best practices and concrete projects that can be put in place to optimise product life cycles, minimise waste and eventually achieve zero-waste football matches.

This section provides concrete examples of measures taken in four areas of activity that are used recurrently during UEFA events: signage, brand production, furniture and ICT. Each subsection has been compiled by UEFA experts in the area concerned.



# 1 EVENT MATERIALS SIGNAGE

## WHAT IS SIGNAGE?

UEFA's signage team (SIGN) is responsible for branding and dressing UEFA's venues, using visual elements to ensure that all UEFA competitions and events are clearly recognisable as such.

SIGN is involved in the planning, management and implementation of all event signage and aesthetics at all official venues and sites. The team's objective is to ensure optimal visibility and implement the relevant UEFA event brand identity.

This team also ensures the visibility of UEFA's partners and sponsors, for example in media backdrops, LED boards, pitch perimeter advertising, outside stadium branding and partner hospitality areas.



### E3. EVENT MATERIALS



SIGN is also responsible for providing structures, signs and backdrops in relation to other on-site activities including the accreditation centre, crowd control barriers, and wayfinding elements around the venue, to name just a few. The team provides signage not only at stadiums but also at airports, hotels, training grounds, team base camps and international broadcast centres.

The level of service that SIGN provides varies from competition to competition and the team is responsible for the production, installation and dismantling of every sign and structure according to the agreed service level. At the highest level, namely the UEFA Champions League final and the EURO, those structures may include divider walls, TV studios with or without presenter desks, wayfinding 'lollipops' or signs identifying event transport such as shuttle buses.

#### CONTEXT

Our materiality assessment identified signage as a significant source of waste. Due to its nature, signage is often designed to be event-specific and therefore tends to be single-use. SIGN cares about sustainability and is committed to reducing its carbon footprint by planning the use and disposal of materials mindfully and aligning with UEFA's environmental policy.

The team's corporate social responsibility activities are presented in reports shared with UEFA's social and environmental sustainability division.

### THE 4RS IN SIGNAGE

Various measures have been introduced to improve sustainability, such as reusing and recycling season and final branding materials, tracking waste management KPIs and testing new eco-friendly branding materials.

#### REDUCE

SIGN reviews all orders received from internal stakeholders to see if the quantities can be reduced in order to minimise the amount of unused material kept on-site as spare, with the objective of ending each event with no material having been wasted. When it comes to the signage crews present on-site at UEFA events, SIGN endeavours to employ local staff rather than flying its own teams in. For LED boards, SIGN aims to use systems already in place at the venue. If a suitable system is not available, SIGN and its suppliers source one from the closest location possible to keep the delivery distance, and therefore emissions, to a minimum. At the end of the event, the LED system is dismantled and taken either to the next event at which it is needed or back to its original location.

UEFA has also been using virtual board replacement (VBR) technology at matches since the August 2021 UEFA Super Cup in Belfast. VBR is delivered on-site at



LED perimeter boards

VBR technology used for perimeter boards

finals for technical and operational reasons, but we have moved to remote operations from a central broadcast centre during the rest of the season.

This remote system was tested in the 2021/22 season and went live in 2022/23. Today's technology and ICT infrastructure allow for big data from the venue to be sent to the remote broadcast centre for implementation of VBR, and then sent back to the venue or the distribution hub (e.g. the European Broadcasting Union) from which TV feeds are sent around the world. This remote system massively reduces the emissions generated by flying crews and equipment around Europe.



### E3. EVENT MATERIALS

#### REUSE

SIGN aims to reduce the amount of material that it orders by reusing material for as long as possible throughout a season or a commercial cycle. Most decorative or functional signage structures, including certain branded elements like centre circles, have been used for many (i.e. more than ten) years and will continue to be used in the future.

Competition branding does not change during a commercial cycle, so a lot of branded signage can be reused for at least the full three-season cycle, and longer if the branding is not changed between cycles. However, partners may sometimes change their logo or message at the beginning of a season within a cycle, so in some cases items featuring partner logos, such as interview and welcome backdrops, can be used for only one season.

SIGN is also currently increasingly looking into upcycling solutions for materials that can no longer be used due to damage or branding changes. The aim of this solution is to give materials a second life as an alternative to the well-established recycling process in place. For one-off events, SIGN tries to find local partners such as printing companies who can reuse or upcycle signage items.



### E3. EVENT MATERIALS

#### RECYCLE

Since 2015, SIGN has been recycling material that can no longer be used due to damage or a change of design and material produced for one-off events such as national team tournaments. The network of companies able to recycle signage material is expanding, and the team works in particular with a company close to the warehouse that can handle such materials. Potential suppliers for UEFA EURO 2024 were asked to indicate in their tender a solution for handling waste after the event.

For one-off events, SIGN is working towards a goal of identifying local solutions for the recycling of used material, though this is not always feasible as the infrastructure is simply not yet sufficient in some countries.

#### RECOVER

SIGN's overall objective, in line with UEFA's [Football Sustainability Strategy](#), is to work towards zero plastic waste being sent to landfill. Taking into account all the team's initiatives to reduce, reuse and recycle, SIGN estimates that less than 5% of all signage materials produced by UEFA are disposed of as general waste.

Furthermore, by collaborating with local authorities, the team ensures that the small amount of waste that cannot be reused or recycled is incinerated and the energy recovered rather sent to landfill.





## 2 EVENT MATERIALS BRAND PRODUCTION

### WHAT IS BRAND PRODUCTION?

UEFA's brand production (BPRO) team is responsible for the procurement, design and production of all non-signage branded materials and clothing, including bibs, gifts and giveaways for most UEFA competitions. The team's activities encompass sourcing, purchasing, quality control, budget control, product research, development and testing, internal stakeholder research and collecting regular feedback on all items.

### CONTEXT

Many branded materials are made of plastic, and about 8% of the world's oil is used to make plastic, even though substitutes requiring fewer fossil fuels and greenhouse gas emissions exist (namely recycled, bio-based and biodegradable plastics). In addition, filler materials such as plastic air cushions and polystyrene are commonly used when packaging goods for transit. In some instances, these filler materials make up nearly 70% of the total package volume. This not only results in significant waste, but also inefficient packaging practices that lead to less shipping space and so more journeys being made.



International freight is estimated to account for around 30% of all transport-related CO<sub>2</sub> emissions and more than 7% of all global emissions.

Our materiality assessment identified brand production as a significant source of waste. Due to their nature, branding materials are often designed to be event-specific and therefore tend to be single-use. The transportation of branded items also has an impact as UEFA competitions take place all over Europe and BPRO's suppliers are situated in various parts of the world, so the products have to be transported considerable distances.

#### THE 4RS IN BRAND PRODUCTION

The brand production team is committed to producing less waste by implementing best practices, producing durable items and aligning with UEFA's environmental policy. In its quest for sustainability, BPRO opts for materials offering a reduced environmental impact throughout their entire life cycle, from the extraction of the raw materials, through the production process to use and disposal. It prioritises items made from a higher percentage of recycled materials or made using less water or chemicals.

#### REDUCE

One of BPRO's primary goals is to eliminate all plastic and non-recyclable materials from its logistics operations by the end of the 2026/27 season. The team has already taken a significant first step in this direction for EURO 2024 by monitoring the way branded items are packaged and actively avoiding the use of harmful materials wherever possible. The use of plastic in the packaging of branded products has been reduced by 70% over the last two years.

The team is also taking steps to reduce the carbon emissions generated during shipping by combining the production and shipment of items for different competitions into grouped orders, which it has been doing since 2018. Currently, 20% of the items produced for finals are ordered in this way and the team's goal is to increase this to 40% by the end of the 2026/27 season. Optimising transportation in this way to reduce the number of shipments not only reduces BPRO's carbon footprint but also saves money.

The team is also actively seeking out like-minded local suppliers in order to reduce its reliance on manufacturers based outside of Europe and therefore reduce emissions.



The proportion of branded products manufactured in Europe has already been increased by 60% over the last two years. For example, BPRO is in the process of moving the production of lanyards for EURO 2024 from China to Germany, with an initial focus on wristbands. The long-term goal is to produce all types of lanyard within Europe by the end of the 2026/27 season.

When items do have to be produced further afield, the team favours slower transportation modes such as trains and boats, whose emissions are up to 150 times lower than those of planes.

#### REUSE

Together with its partners and suppliers, BPRO is looking for solutions to repurpose shipping material after delivery, recognising that the repurposing process must be both efficient and cost-effective with minimal impact on the environment. Some of the branded items themselves, such as bibs, can also be repurposed or upcycled, as shown in the case study below.

BPRO is also exploring creative approaches such as upcycling some of these bibs, along with outdated signage material ([see page 132](#)) into unique and sustainable venue gifts for the 2024-27 cycle. A comprehensive briefing for potential suppliers of these gifts was sent out in June 2023 with a view to finding a suitable supplier by the end of 2023 and commencing production in 2024.



#### → CASE STUDY 16 MODA RE

→ The brand production team has produced over 380,000 bibs for the 2021-24 club competition cycle, which will all become waste once the competitions are over. These bibs cannot be recycled using conventional methods because they contain a mix of polyester and PVC.

- The team managed to find a non-profit organisation, [Moda Re](#), based in Madrid, to repurpose the material of 26,459 bibs for use in the car industry as seat upholstery.
- The collaboration has been initiated and the logistics determined, and Moda Re is currently in the process of collecting the material to transport to the recycling plants in Barcelona and prepare them for upcycling.
- This preparation includes removing or covering up any logos, wording or other UEFA branding.
- The cost of this bib upcycling project is being entirely absorbed by UEFA.



### RECYCLE

As described in [section E2](#) of these guidelines, recycling is a true challenge in the apparel industry. Nonetheless, the brand production team is in constant discussions with commercial partners and suppliers to influence the use of recycled material and ensure that the apparel products that it orders can be recycled at the end of their life.

### RECOVER

Recovering energy generated during the incineration of waste is the last resort to avoid any UEFA products ending up in a landfill at the end of their life and releasing microplastics into the soil. However, every effort is made upstream to ensure that as many products as possible can be reused, upcycled or recycled instead of being incinerated.

### SUMMARY

UEFA's brand production team is dedicated to waste reduction, and working towards this goal is a major part of its everyday work. The team believes that sustainability is not just a buzzword but a responsibility.

As well as reducing the environmental impact of branded items, a focus on reducing, reusing and recycling is expected to lead to financial savings, for example due to better management of order quantities.

The journey towards a low-carbon, circular economy has only just begun and BPRO is committed to improving practices and implementing performance indicators. The team started collecting production data relating to branding during events in May 2023 and works closely with its suppliers and with the Social and Environmental Sustainability division to track progress and try to identify every opportunity for improvement. The team will continue to explore new ways of reducing waste and promoting sustainable practices in line with UEFA's 4R framework.



## 3 EVENT MATERIALS FURNITURE

### WHAT FURNITURE IS COVERED?

Furniture used at events includes welcome desks, support structures for signs, desks, chairs, tables, dividers and partitions and retractable barriers.

At UEFA, this is managed by the venue logistics (VLOG) team, whose mission is to provide support services to all staff working on-site at event venues for the tournaments and finals concerned.

These services include setting up all working areas, managing venue offices and providing office materials, petty cash and staff break stations at all event venues.

The team currently oversees the provision of furniture for:

- UEFA EURO
- UEFA Nations League final
- UEFA Champions League final
- UEFA Europa League final
- UEFA Europa Conference League final
- UEFA Super Cup

### CONTEXT

A large amount of furniture is used during UEFA events, so this was identified in the materiality assessment as having a significant impact. Due to its nature, furniture is often designed for a specific season or event, meaning that it has a limited lifespan and tends to be single-use or not used to its full potential.



### THE 4RS IN FURNITURE MANAGEMENT

#### REDUCE

Before each event, VLOG contacts the competence centres involved to identify their furniture requirements for office and working areas. The team then creates an inventory of existing furniture at the venues and works closely with its venue contacts to agree on what can and cannot be used by UEFA for the operational period. They then compare the furniture required with that already available, and wherever possible existing furniture is used in order to reduce the amount produced.

If the furniture needed is not available or sufficient, it is rented. Local furniture suppliers are favoured for logistical, financial and sustainability reasons, so VLOG asks its contacts at the venues for recommendations. However, local companies cannot always deliver the quantities or types of items needed.

#### REUSE

Using existing furniture or renting furniture ensures that all items are reused for as long as possible. VLOG, in cooperation with UEFA's procurement team, conducts a thorough tender process to select its furniture rental suppliers and the applicant's sustainability credentials are an important selection criterion. The following is an extract from the request for proposals (RFP):

##### *Good governance and sustainability*

The Successful Applicant shall perform the Services in accordance with the governance and sustainability requirements as specified in the UEFA Supplier Code and employ good governance and enhance sustainable solutions when providing the Services which reflect the minimum requirements set out in the UEFA Supplier Code.

Factors taken into account include whether the supplier uses its own stock instead of buying and selling for the event, as well as its rates, means of transportation, distance from the event, personnel, company structure and experience.

### E3. EVENT MATERIALS

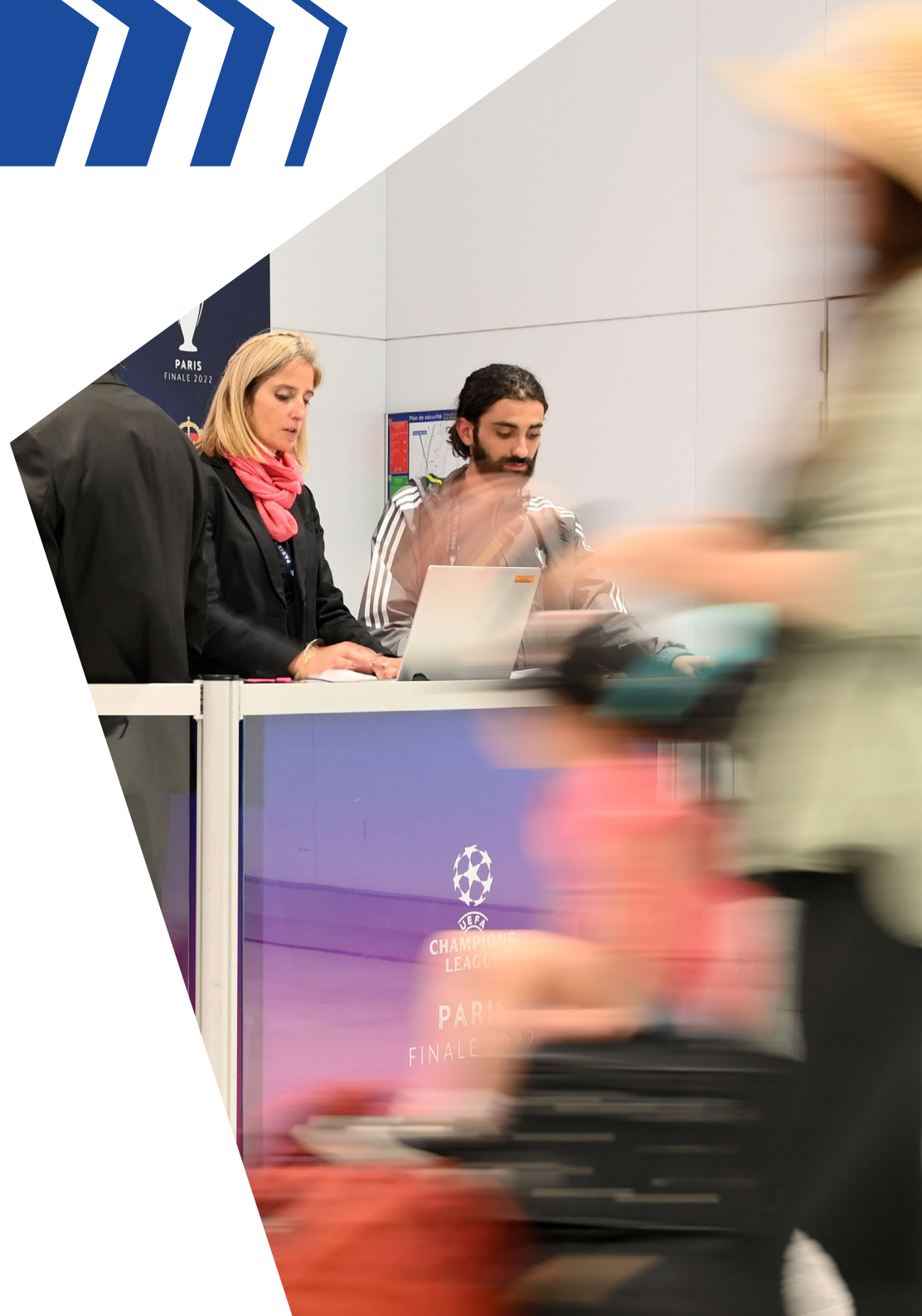
#### RECYCLE

As most furniture either belongs to the venue or is rented, it is only disposed of when damaged beyond repair, and these items are recycled whenever possible.

For EURO 2024, the RFP for furniture suppliers requires them to take responsibility for removing and processing waste:

#### *Waste management*

[...] Single-use packaging and waste in general should be avoided or minimised as far as possible. Any waste created during the Successful Applicant's works on-site, such as but not limited to, packaging, carpets, lining, construction materials, plastic shall be removed by the Successful Applicant at the end of each day of operations.



# 4 EVENT MATERIALS ICT EQUIPMENT

### WHAT ICT EQUIPMENT IS COVERED?

Information and communication technology (ICT) hardware includes laptops, screens, phones, TV sets, headsets, projectors, printers, conference devices, and so on. Such equipment has become integral to various aspects of events, from performance analysis to providing Wi-Fi for fans.

### CONTEXT

Waste from electrical and electronic equipment, also known as e-waste, includes a large range of devices such as computers, fridges and mobile phones once they have reached the end of their useful life. This type of waste contains a complex mixture of materials, some of which are hazardous and can cause major environmental and health problems if not managed properly.

In addition, modern electronics contain elements made from finite, and sometimes rare and expensive, resources, which can be recycled and reused if the

waste is effectively managed. Ensuring the sustainable management of ICT equipment is therefore crucial to aligning the football industry with environmental goals.

### LEGISLATION

The EU's [Waste from Electrical and Electronic Equipment \(WEEE\) Directive](#) and [Restriction of Hazardous Substances in Electrical and Electronic Equipment \(RoHS\) Directive](#) both tackle the issue of the rapidly growing amount of WEEE.

These complex directives are in the process of being reviewed and updated but their overall aims are to:

- Improve the end-of-life collection, treatment and recycling of electrical and electronic equipment
- Make production and consumption more sustainable
- Increase resource efficiency
- Contribute to the circular economy





#### THE 4RS IN ICT EQUIPMENT

Here are some ideas for the sustainable management of ICT equipment:

- Opt for energy-efficient servers, data centres and networking equipment to minimise the carbon footprint of your ICT infrastructure
- Implement proper e-waste management systems to handle discarded hardware, including safe disposal and recycling of valuable components
- Use virtualisation and cloud computing to reduce the need for physical hardware
- Regularly maintain and upgrade hardware to extend its life and minimise electronic waste

These solutions form part of a comprehensive and sustainable framework for managing ICT equipment at football events while minimising waste in line with the applicable legislation. This holistic approach promises economic savings as well as contributing to a greener and more environmentally conscious football ecosystem.

UEFA's ICT hardware team has drawn up a four-year life cycle for ICT hardware at football events, based on the EURO cycle. This approach, guided by the 4R framework, underlines our dedication to environmentally friendly practices and waste reduction.



### REDUCE

The hardware team carefully evaluates each project's technology needs, aiming to minimise the quantity of equipment transported to events. By better choosing and using ICT hardware, it is possible to minimise any surplus, thereby reducing waste and the environmental impact of transporting equipment.

A Bring Your Own Device (BYOD) policy, whereby staff are encouraged to use their own personal devices for event tasks, has also been introduced. This means fewer devices being bought and therefore conserves resources and reduces e-waste.

Furthermore, the team now uses reusable boxes to move equipment, which minimises packaging and the number of pallets needed to ship equipment around Europe.

### REUSE

The ICT equipment used at each EURO tournament will be reused for at least four years after the competition, for example on the UEFA campus and at other events. UEFA also offers old hardware for resale to staff to reduce waste and grant devices a second life.

### RECYCLE

When ICT equipment reaches the end of its operational life, it is meticulously disassembled so that its components can be reclaimed. They are kept in a resource pool that is then used to repair and refurbish other devices, thereby prolonging their operational life cycle. As well as decreasing the amount of electronic waste discarded, recycling components reduces the need for new raw materials, mitigating the overall environmental impact of ICT equipment even further.

### RECOVER

The WEEE directive prohibits the disposal of e-waste as general waste, so energy recovery during incineration is not applicable.

### SUMMARY

Incorporating the 4R principles into UEFA's four-year ICT hardware life cycle model results in a strong plan to cut down on e-waste. This approach demonstrates that the ICT team is committed to taking care of the environment while meeting all technology needs at events. By reducing the amount of hardware needed, reusing equipment and recycling components, the team is working to reduce waste, make better use of resources, cultivate a culture of sustainability within UEFA and establish a sustainable model for ICT in the wider sports industry.

# E4 ENERGY AND WATER

THE CIRCULAR ECONOMY IS A VITAL PILLAR OF THE ENERGY TRANSITION AND VICE VERSA. REFLECTING OUR HOLISTIC APPROACH TO THE CIRCULAR ECONOMY, THIS SECTION FOCUSES ON WASTED ENERGY AND WATER IN THE FOOTBALL CONTEXT.

CONTEXT

LEGISLATION

THE 4RS  
IN ENERGY  
AND WATER

IMPLEMENTATION

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## E4. ENERGY AND WATER

The circular economy entails getting the most out of materials, keeping products and resources in use and designing them to be cycled back into the economy, thereby eliminating waste. As shown in the previous three sections, the opportunities to reduce the impact of products used in football are numerous.

**THE WASTE DISCUSSED IN THIS SECTION, HOWEVER, IS WATER WASTE AND GREENHOUSE GAS EMISSIONS, RATHER THAN DISCARDED PRODUCTS.**

This section aims to provide guidance and best practices on how to best use these resources within the 4R framework and in accordance with international standards such as those used by the [World Bank](#) and the [Ellen MacArthur Foundation](#). It will share knowledge and best practices in relation to:

- Energy use reduction, recycling and recovery
- The role of renewable energy
- The full water cycle





### SCOPE

This section will focus on all the facilities in the European football sphere, from professional to amateur clubs. The challenges that these facilities and clubs face as a result of climate change vary considerably depending on their size, budget and geographical location. For example, a professional football club in a dry region of southern Europe faces different challenges than an amateur Scandinavian club with a single pitch. The measures that they can take to effectively reduce their energy and water use vary too.

The first part of this section will provide context by discussing the potential impact of climate change on football and the impact that football facilities have on the environment. The second part will provide guidelines on how to reduce the environmental impact of stadiums and sports facilities by reducing water and energy use and transitioning to renewable energy sources in accordance with UEFA's 4R framework.

Note that the comprehensive [UEFA Sustainable Infrastructure Guidelines](#) provide additional information about sustainability in football facilities beyond energy and water.



## THE LINEAR ENERGY SYSTEM

1. Finite fossil fuels (oil, coal and gas) are extracted from the earth
2. These fossil fuels are burned to produce electricity in a centralised power plant or heat in a building
3. Energy is distributed to the location of use
4. The energy is consumed
5. Waste products are disposed of into the atmosphere throughout this life cycle in the form of greenhouse gas emissions (e.g. CO<sub>2</sub>), methane leaks and heat

Infinite resources

RESOURCE EXTRACTION

PRODUCTION

DISTRIBUTION

CONSUMPTION

DISPOSAL

- > Greenhouse gas emissions
- > Air pollution
- > Waste heat

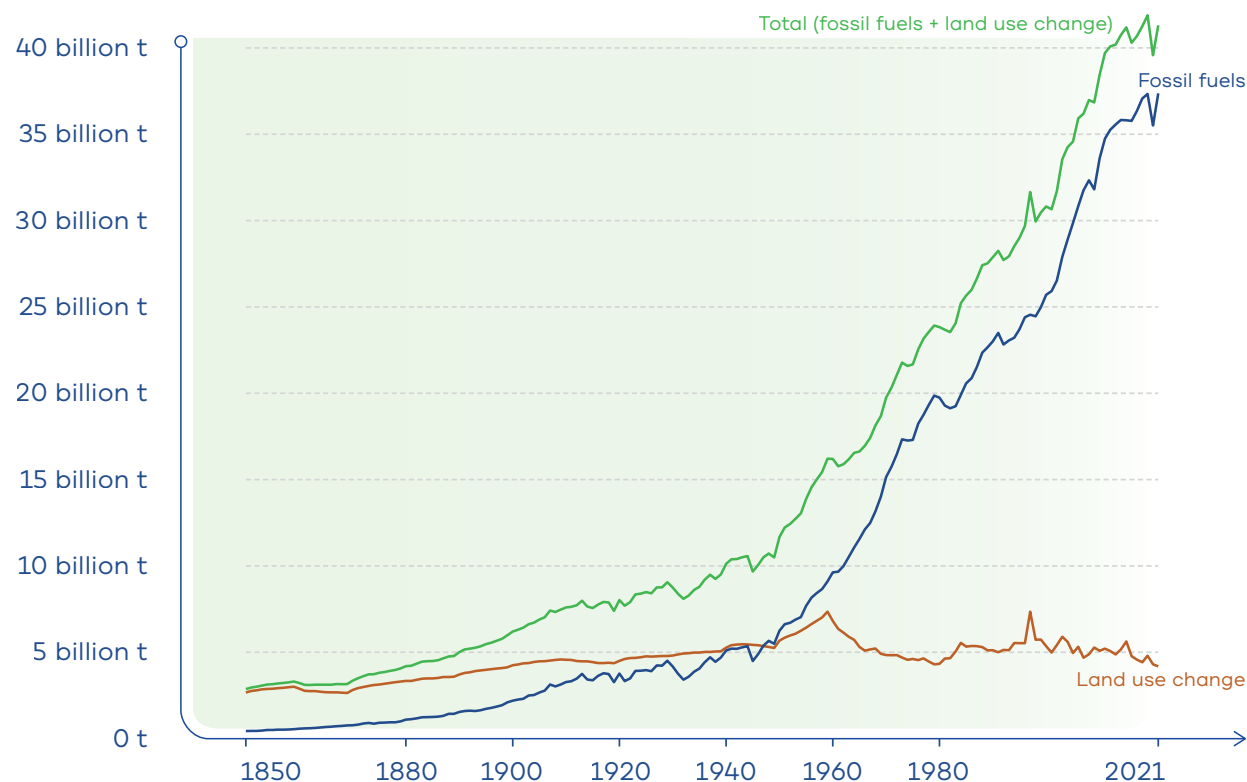
**TAKE**      **MAKE**      **WASTE (emissions)**



**Human activity has accelerated climate change through the burning of fossil fuels and a change in land use.**

**Global surface temperatures in the period between 2011 and 2020 were 1.1°C above the pre-industrial average in the period from 1850 to 1900.<sup>52</sup>**

The [World Meteorological Organisation](#) expects temperatures to reach new records before 2028, likely close to or above 1.5°C above pre-industrial levels. This is due to a combination of the naturally occurring El Niño weather event and an ongoing increase in greenhouse gas emissions caused by human activity.



**FIGURE 10**

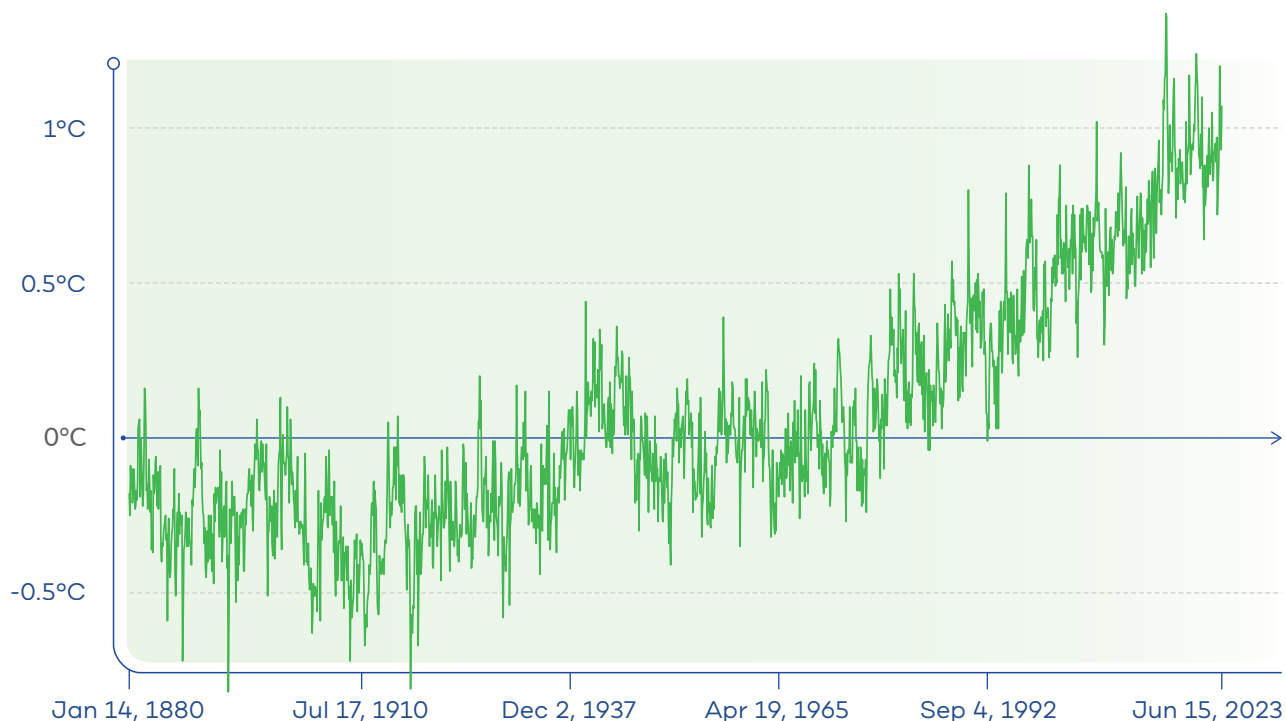
Global CO<sub>2</sub> emissions and changing land use since the pre-industrial period<sup>53</sup>

52. View source

53. View source

**The increase in temperatures affects ecosystems and humans alike, and the higher the temperature increase, the bigger the impact:**

- Weather patterns change and become more extreme (heatwaves, heavy precipitation and droughts)
- Arctic sea ice shrinks, resulting in rising sea levels
- Ecosystems change, e.g. glaciers retreat, coral reefs die and native species struggle to survive
- Food and water security are threatened



**FIGURE 11**  
Increasing monthly  
temperatures<sup>54</sup>

<sup>54</sup>. View source

### LIMITING GLOBAL WARMING: THE 2015 PARIS AGREEMENT

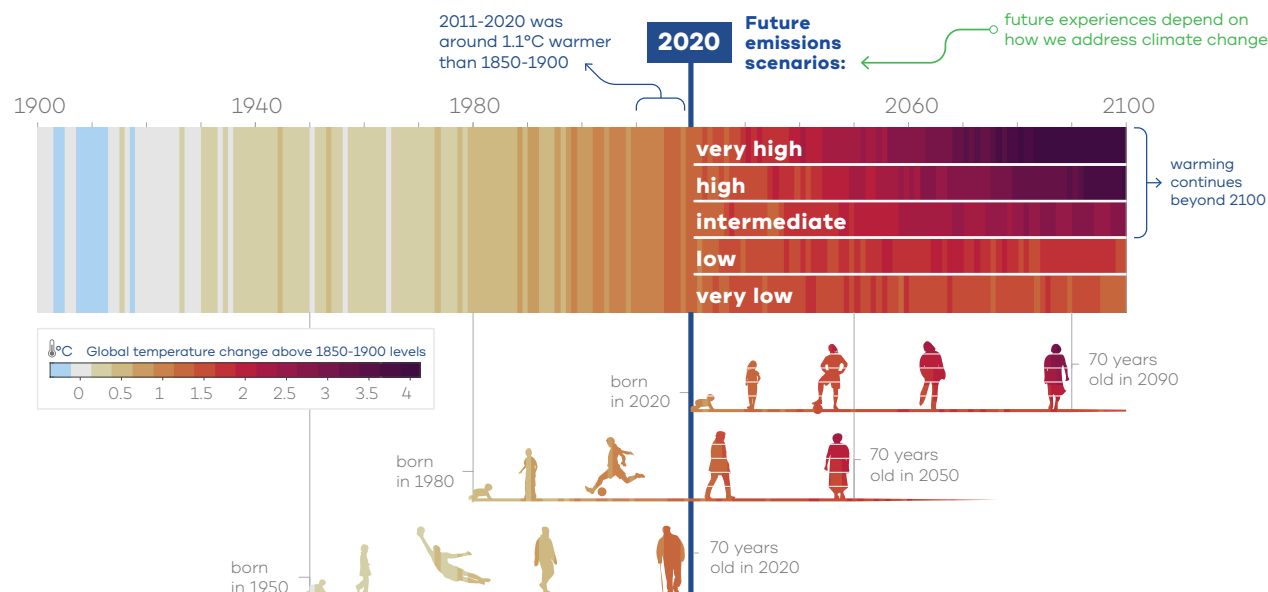
In 2015, governments from around the world signed the legally binding [Paris Agreement](#), which set the goal of reducing greenhouse gas emissions sufficiently to limit the global temperature increase in this century to 2°C above pre-industrial levels, and ideally no more than 1.5°C. This will significantly reduce the risks and impacts of climate change.

At the same time, the agreement acknowledges the need to adapt to the effects of climate change and make our

societies resilient to rising temperatures. Figure 12 below shows five potential warming scenarios over the life of three generations of people: those born in 1950, 1980 and 2000.

Future projections (2021–2100) of changes in global surface temperature are shown for very low, low, intermediate, high, and very high greenhouse gas emissions scenarios. It shows that immediate and significant reductions are required to limit the temperature increase to 2°C – the low emissions scenario. To achieve this, global CO<sub>2</sub> emissions need to peak no later than 2025.<sup>55</sup> This means that everyone – including the football community – has a role to play.

**FIGURE 12**  
Observed (1900–2020) and projected (2021–2100) changes in global surface temperature relative to 1850–1900 along the lifespan of three generations<sup>55</sup>



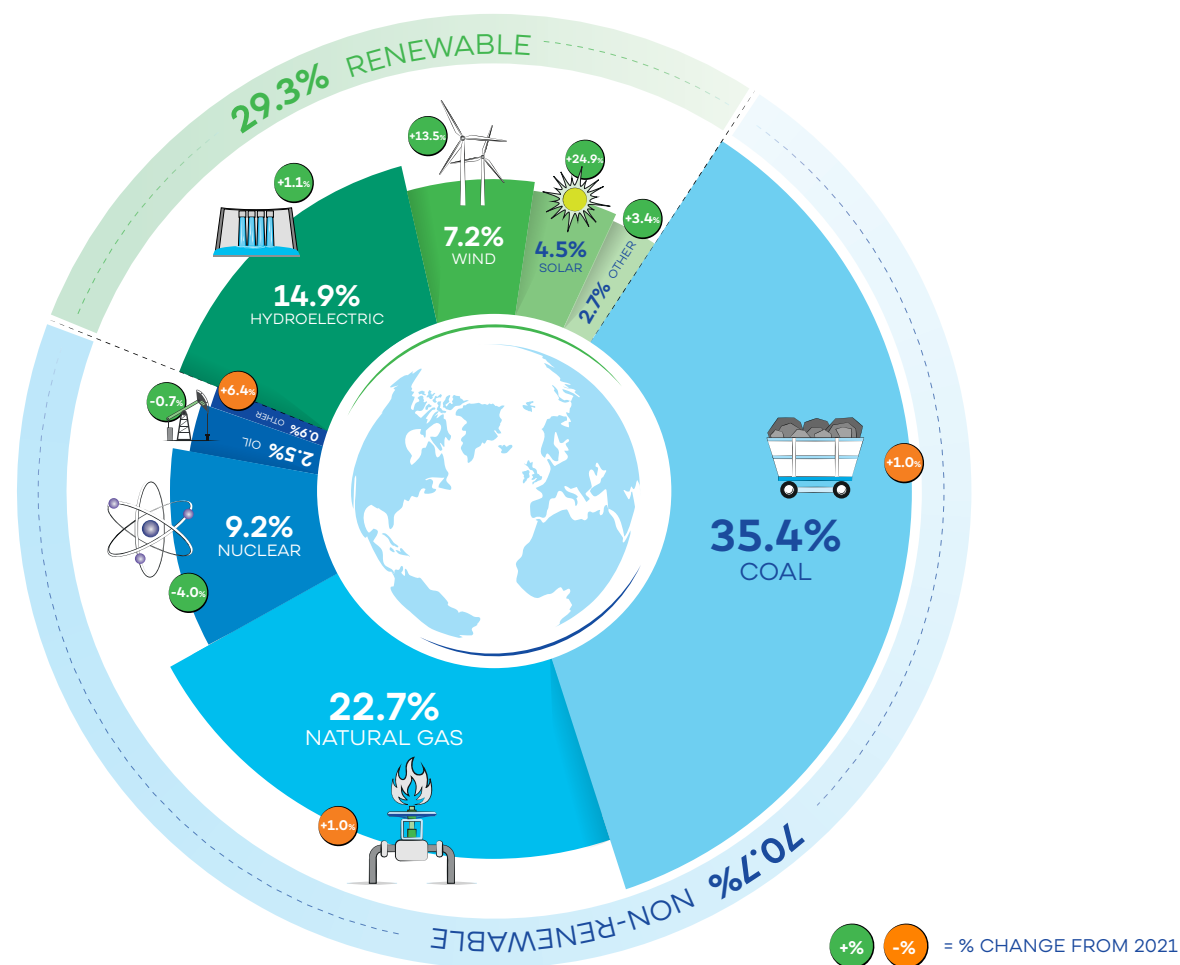
55. View source

## WHAT POWERED THE WORLD IN 2022?

**A shift toward clean energy is paramount, but the latest numbers indicate that we are not transitioning as fast as necessary.**

As of 2022, a majority of the electricity produced still comes from fossil fuels, as shown in figure 13.

**FIGURE 13**  
Breakdown of energy sources used globally in 2022<sup>56</sup>



56. View source

### CLIMATE CHANGE AND FOOTBALL

Continued climate change will impact football, and at the same time football has an impact on the climate.

#### IMPACT OF CLIMATE CHANGE ON FOOTBALL:

- Higher temperatures may have a negative effect on players' and spectators' health, increasing the risk of heat cramps, heat exhaustion and heat stroke
- Extreme rainfall and droughts will negatively impact pitch quality
- Extreme weather events will lead to more matches being cancelled at the last minute

Climate change will also have a financial impact as additional measures will need to be taken to make facilities more resilient to climate change. Moreover, water and energy costs are likely to increase to reflect scarcity if insufficient measures are taken to save resources.

#### IMPACT OF FOOTBALL ON THE CLIMATE:

- Stadiums and other sports facilities use energy, contributing to greenhouse gas emissions that negatively affect the climate
- Emissions caused by player, staff and fan travel contribute to climate change

### AIR POLLUTION AND FOOTBALL:

#### CLEANER AIR, BETTER GAME

As well as accelerating the pace of climate change, burning fossil fuels causes air pollution. This not only impacts the environment, but also has a negative impact on footballers' health; studies show that higher levels of air pollution can reduce the pace of matches by up to 15%. UEFA's [Cleaner Air, Better Game campaign](#) raises awareness of the impact of air pollution and plays a pivotal role in promoting collective action to monitor and reduce carbon emissions throughout the European youth tournaments.

#### ENERGY COSTS

The price of energy in Europe has more than doubled since 2008<sup>57</sup> and the recent energy crisis caused by the conflict in Ukraine was in effect a fossil fuel crisis. The spike in energy costs has had a big impact on many football clubs, both professional and amateur. Taking measures to reduce the reliance on fossil fuels according to the 4R approach will therefore not only help to combat climate change, but will also benefit clubs financially.

<sup>57</sup>. View source



### → CASE STUDY 17 MANCHESTER CITY'S CARBON FOOTPRINT

- Manchester City has been measuring and reducing its operational carbon footprint for about two decades. The carbon footprint over the operational year of 2023/24 was equal to 40,271 tonnes of CO<sub>2</sub>eq.<sup>58</sup> This is equivalent to the annual CO<sub>2</sub> emission of around 6,943 Brits.<sup>59</sup>

<sup>58</sup>. View source  
<sup>59</sup>. View source



## WATER

### THE WATER CYCLE

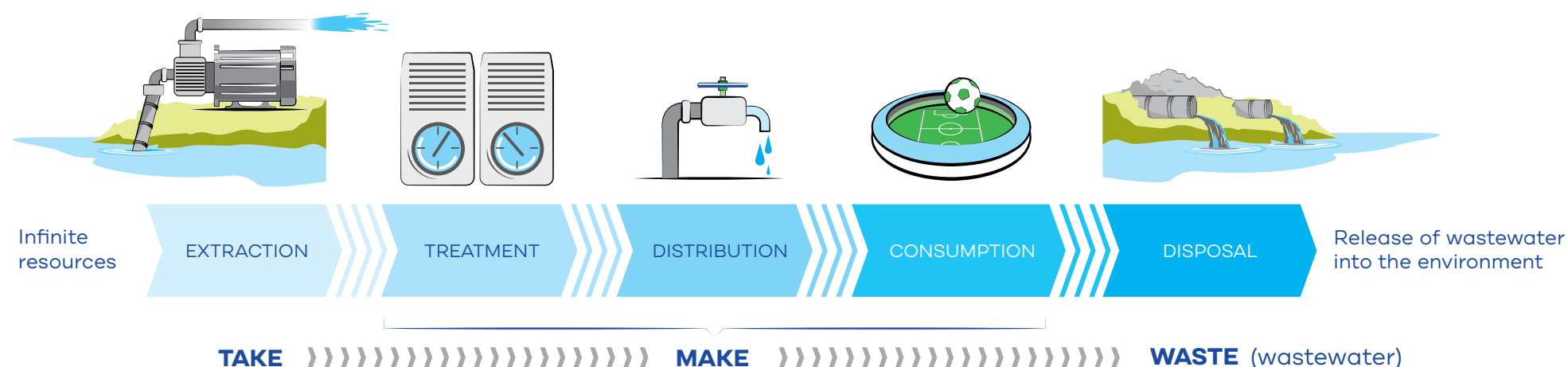
The water cycle has always been a circular system of evaporation, condensation and precipitation, as explained by the US's [National Oceanic and Atmospheric Administration](#).

However, human activity influences this cycle in a linear process:

1. Water is extracted from various sources
2. If required, the water is treated to improve the quality and be drinkable
3. Water is distributed to the user through an extensive and complex network infrastructure
4. Water is consumed as drinking water or for crop and pitch watering and industrial processes such as the production of apparel
5. Contaminated water is released into the environment with or without having been treated

**FIGURE 14**

The linear economy in water use



Clean water is a scarce commodity, even in countries with adequate rainwater. Water is essential for drinking, watering food crops, and industrial processes. All over the world, droughts, excessive rain and contamination show that the availability of clean water is not a given.

### WATER USE IN FOOTBALL

The use of water in sports facilities competes with human needs: stadiums consume a considerable amount of water, especially to water the pitch. In areas where water is scarce, this puts pressure on water availability for human consumption and agricultural irrigation.

### FIVE KEY TAKEAWAYS FOR FOOTBALL STAKEHOLDERS

In a world with rising temperatures, extreme weather events like heatwaves, droughts and heavy rain will become more common. Making football clubs resilient to these extreme events will be important in order to limit the impact of climate change.

At the same time, studies also show the opportunities for clubs to limit their own impact on a changing climate by taking measures to reduce energy and water use and by using renewable energy sources. Which measures work best depends on the local climate and the size of the club.

### ENERGY AND WATER: KEY TAKEAWAYS

1 >>>

To limit their impact on the environment, football facilities need to reduce their energy and water use

2 >>>

Any remaining energy and water required to run the facility should come from renewable sources

3 >>>

As global temperatures rise, football facilities will need to become more resilient to the effects of climate change and able to deal with extreme rainfall, heatwaves and droughts to protect players, spectators and the pitch

4 >>>

The impact of climate change will vary based on the geographical location, size, and design of the facility – there is no ‘one size fits all’ approach

5 >>>

To avoid the worst climate scenarios and global temperatures rising above 2°C, every football stakeholder needs to act now; a swift reduction in greenhouse gas emissions and long-term planning is required for football to become a net-zero sport by 2050

## 2 LEGISLATION

SINCE 2015, GOVERNMENTS HAVE BEEN WORKING ON TRANSLATING THE PARIS AGREEMENT INTO NATIONAL AND INTERNATIONAL LAW. THE [EUROPEAN GREEN DEAL](#) IS A LEADING EXAMPLE. THE GOAL IS CLEAR: EUROPE IS TO BECOME A CLIMATE-NEUTRAL CONTINENT BY 2050 AND REDUCE EMISSIONS BY AT LEAST 55% BY 2030 COMPARED TO 1990 LEVELS.

### EUROPEAN GREEN DEAL

The EU has adopted the '[energy efficiency first](#)' [principle](#), focusing on cost-effective energy efficiency measures designed to reduce energy use as the top priority ahead of more complex and costly investments in clean energy generation.

The [revised Energy Efficiency Directive \(EED\)](#) has set a target to reduce energy consumption in the EU by 11.7% by 2030 compared to 2020. The revised EED requires small and medium-sized enterprises with an energy use of 10 TJ or more per year (approximately 2,777 MWh) to perform an energy audit and prepare an action plan in response to the various recommendations. At the same time, [REPowerEU](#) aims to increase the EU's renewables capacity to at least 42.5% by 2030, almost doubling that of 2022.

Clean water and air are important topics of the European Green Deal too. By 2050, the EU should be free of harmful pollution, which includes air pollution (especially fine particulate matter, PM2.5, caused by, for example, the burning of fossil fuels) and water pollution.<sup>60</sup>

Transparent reporting is another integral part of the European Green Deal, and the [Corporate Sustainability Reporting Directive \(CSRD\)](#) requires companies to report on sustainability issues such as climate change and water use. The phased introduction of these rules starts with large listed companies reporting by 2024 and listed SMEs by 2028.

<sup>60</sup>. [View source](#)



The reporting required by the CSRD covers the following non-financial aspects:

- **ENVIRONMENTAL:** Impact on climate change; water and air pollution; water and marine resources; biodiversity and ecosystems; resource use; and the circular economy
- **SOCIAL STANDARDS:** Own workforce; workers in the value chain; affected communities; and consumers and end-users
- **GOVERNANCE:** Business conduct

### WHAT DOES THIS MEAN FOR FOOTBALL?

- The CSRD will require the bigger European football clubs to start reporting their environmental, social and governance impact along with their financial reporting starting in 2024
- Stadiums and clubs will be required to take energy efficiency and water-saving measures in line with European, and possibly national and local, legislation
- Local regulations to limit air pollution, often on a city level, may require football clubs' suppliers to use low- or zero-emission vehicles



# 3 THE 4RS IN ENERGY AND WATER

In an ideal circular model, all the energy and water we use comes from renewable sources, and no waste is generated during the process or at the end of the cycle. The transition to a circular model can be done by applying the 4R method to both new and existing facilities:

**REDUCE:** Rethink the use of energy and water to provide the services required without consuming energy or water, combine the generation of energy for various services and minimise the use of services requiring energy

**REUSE:** Reuse infinite natural sources of renewable energy like solar and wind power

**RECYCLE:** Capture wasted energy to convert it back into electricity or heat<sup>61</sup>, and recycle wastewater for uses such as irrigation, toilet flushing or even drinking

**RECOVER:** Generate energy using wastewater

THIS SECTION OUTLINES HOW UEFA'S 4R METHODOLOGY CAN BE APPLIED TO ENERGY AND WATER USE IN FOOTBALL FACILITIES. THE APPROACH IS SLIGHTLY DIFFERENT FROM THAT PRESENTED FOR THE PHYSICAL PRODUCTS IN SECTIONS E1 TO E3, AS WATER AND ESPECIALLY ENERGY ARE CONSUMED WITHOUT GENERATING SOLID WASTE.

As mentioned elsewhere, reducing usage has the most impact and should be prioritised.

A bonus of this is that reducing energy and water use automatically reduces the associated costs, whereas reusing and recycling energy and water require more investment and have less impact.

There is no 'one size fits all' approach to the application of the 4R framework. A brand-new stadium belonging to a club in a top league will have very different characteristics to a small stadium owned by a third-division club built in the 1960s.

<sup>61</sup>. View source

## E4. ENERGY AND WATER

Which measures work in specific situations depends on:

- Geography and local climate
- The size of the facility
- The age of the facility
- Measures taken during construction
- Measures implemented during previous renovations

### MEASURING ENERGY AND WATER USE

The most effective energy and water reductions are based on reliable data. This data can be gathered using traditional energy and water meters, or modern, digital smart meters. These enable users to track energy and water use very accurately, often in real time or with hourly intervals. This offers insights as to when and where the bulk of the energy and water is consumed; for example, a club can compare its energy use on a matchday and a non-matchday. This data opens the door to significant cost savings by better managing the facility's energy and water use.

If your stadium or facility has not been fitted with smart meters, reach out to your utility provider to have them installed. Ideally, multiple meters should be installed in order to measure the energy and water consumed by every 'heavy user' in the facility. This will also allow you to track the effectiveness of reduction measures.

Heavy energy use:  
TV and broadcast  
facilities at the UEFA  
EURO 2024 match  
between France and  
Belgium at Düsseldorf  
Arena, in Germany, on  
July 2024

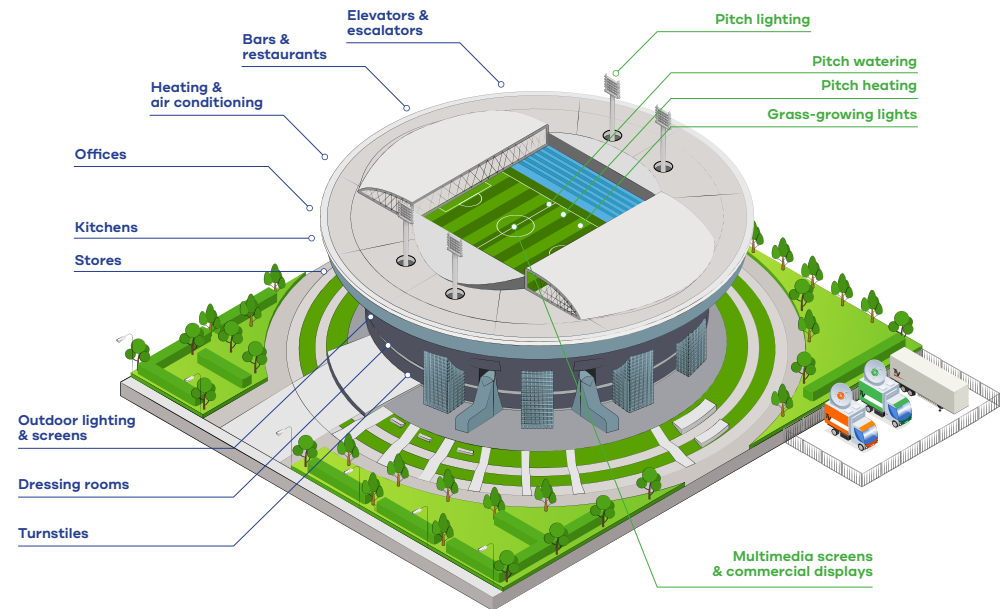


### CALCULATING YOUR CARBON FOOTPRINT

The next step is to use the data collected by the meters to calculate the facility's carbon footprint. The [UEFA Sustainable Infrastructure Guidelines](#) explain how to do this.



**FIGURE 15**  
Main energy and water  
users at a small club



**FIGURE 16**  
Main energy and water  
users at a stadium

### REDUCE

Every football facility in Europe, big or small, can reduce its energy and water consumption.

A football stadium is a special building with very specific energy and water use. Pitch floodlighting, grass-growing lamps, pitch heating and watering, screens and security measures all use significant amounts of energy or water.

Transitioning to energy-efficient appliances and systems has become the norm, especially the use of LEDs for floodlights, growing lamps and screens.

On the other hand, large parts of a football facility are like a regular building: its clubhouses, dressing rooms, offices, shops, bars, dining areas and outdoor lighting are no different from those found in other office buildings and restaurants. These areas have typically been given less attention than stadium-specific areas of resource use, meaning that they offer even bigger potential reductions.

### ENERGY REDUCTION

The range of energy-reduction measures that can be put in place is endless, and many can be taken with little effort and have an immediate effect. Just think about

the number of areas in football facilities where the lights and heating/cooling systems are turned on even when no one is using the area, or appliances such as TV screens, refrigerators, freezers and computers that are turned on even when not in use.

A review of the use of appliances all around the stadium is the starting point to reduce energy. For every appliance, from floodlights to fridges, consider the following:

- **Refuse:** Is the appliance a necessity for the operation of the stadium? If not, turn it off
- **Rethink:** Can the energy consumption be reduced by limiting the operating hours of the appliance, reducing the temperature in the case of heating, raising the temperature in the case of cooling or otherwise?
- **Reduce:** Is a next-generation product offering lower energy consumption available?

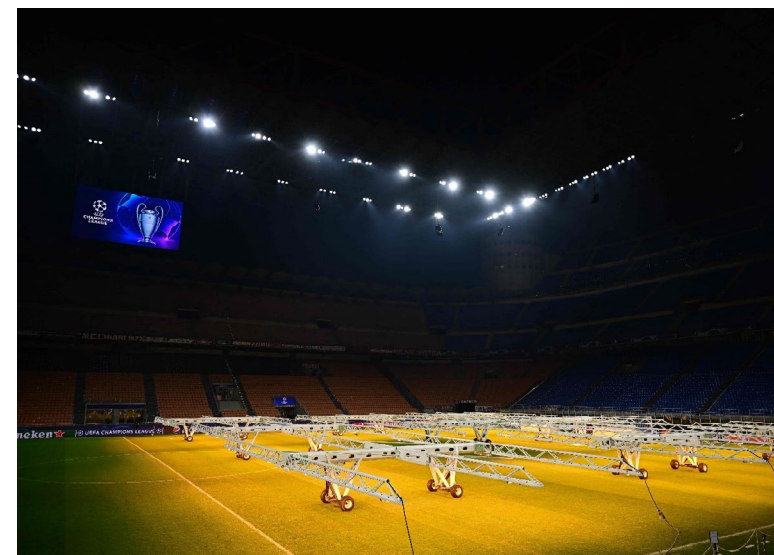
Local energy-saving experts who may not have in-depth knowledge of football-specific appliances can nonetheless conduct an energy audit for the other parts of the building. This will help to identify the main sources of energy consumption and the reduction measures offering the best cost/benefit ratios.



### → CASE STUDY 18 LED GRASS-GROWING LIGHTS

→ How technology can be used to realise energy savings and improve the performance of appliances becomes very clear when looking at the application of LEDs for grass-growing lights.

- Grass-growing lights promote the growth of grass on the football pitch or on parts of the pitch that get less sunlight than other parts.
- Depending on the number of days the pitch is used, the geographical location and the stadium layout, the area and number of days on which grass-growing lights are required vary.
- LED lights are more energy-efficient than traditional high-pressure sodium bulbs.
- LED technology can be tuned to the ideal light spectrum for the grass to grow. By leaving out other light spectra that are not used in the photosynthetic process of grass growth, energy is saved.



Grass-growing lights  
at the San Siro  
stadium in Milan



### EMBEDDED ENERGY

Embedded energy is the energy required to make products, and it accounts for about 45% of the world's CO<sub>2</sub> emissions, so it must be taken into consideration.

Installing energy-reduction measures or building a new stadium to save energy may help to reduce the direct use of energy at a facility, but it may involve the production of new products, and this also consumes energy. Materials like concrete, steel and aluminium generate particularly high CO<sub>2</sub> emissions during production.<sup>62</sup> For example: producing and transporting a 1kg stainless steel sign saying 'Please turn off the lights' causes CO<sub>2</sub> emissions equivalent to leaving an A-label LED light on for almost 6,000 hours (750 working days).

Before investing in energy-reduction measures, you should therefore ask yourself:

1. Do we really need this energy or water-saving product or appliance?
2. Can we make the same reduction in a different way (i.e. would another measure or material achieve the same effect)?

Whenever energy and water-reduction measures are taken, apply the UEFA 4R approach and make sure that the measure itself does not require more energy to make than it saves.

### WATER REDUCTION

Choosing water-efficient appliances is a fundamental sustainability measure in modern buildings.

All appliances that use water, i.e. taps, showers, toilets and urinals, should be equipped with systems that reduce their water consumption. When next investing in washing machines and dishwashers, the water use per cycle should be one of the buying criteria.

Pitch watering, depending on the location, can also consume a lot of water. Using monitoring systems for the pitch and irrigation systems instead of sprinklers can help to reduce the amount of water consumed.

<sup>62</sup>. View source

### → CASE STUDY 19 WEMBLEY STADIUM RENOVATION

→ England's national stadium, Wembley, first opened in 1923. The stadium has been renovated numerous times since.

- One of the recent upgrades led by The FA was the installation of low-flow taps and toilet flushers.
- Prior to the installation, it was found that approximately 75% of the water used in toilets, showers and urinals could be saved.



### REUSE

When it comes to energy, the principle of reuse in the 4R framework means making the most of the infinite energy sources available in nature: solar, wind and geothermal power. We can reuse the never-ending supply of energy from the sun, wind and heat stored in the ground without depleting finite resources and without creating waste.

The same goes for water: rainwater can be reused to replace tap water.

### ENERGY REUSE

In recent years, major developments have been made in renewable energy sources. The availability of renewable energy is increasing every year, both through local generation (i.e. solar panels on the roof of a stadium), as well as through the grid from hydroelectric power, wind turbines and solar parks. The cost of both solar and wind energy has come down significantly and is likely to drop even further as additional production capacity becomes available.

Renewable energy sources suitable for football facilities include the following technologies:

#### - *Solar energy*

Two types of solar energy system can be installed on a football facility's roof or at ground level if enough space is available:

- Solar thermal systems convert the incoming solar radiation into hot water for taps, showers, and space heating
- Photovoltaic panels convert the incoming solar radiation into electricity

A lightweight, passive solar energy system is very suitable for installation on the roofs of existing and new buildings. The return on investment is good, even when only a small installation can be accommodated for. Note that solar power is not always generated at the time it is required, so when collected it needs to be either fed back into the electricity grid or stored in a battery for later use.

#### - *Wind energy*

Wind is a major and growing source of energy in many parts of Europe. The most efficient wind turbines are extremely large and usually concentrated in large wind farms on land or at sea. These turbines provide electricity to the grid, and this electricity can be bought from energy suppliers.

## E4. ENERGY AND WATER

Smaller wind turbines are available to install in the vicinity of a sports facility to produce electricity for internal use. This could significantly reduce the facility's reliance on the grid, and any surplus could be fed into the grid. However, installing even small turbines is challenging in urban areas, and the cost per kWh is often higher than wind energy bought off the grid.

### - *Geothermal systems*

The earth's crust contains an abundance of geothermal energy. This energy is stored in layers of rock, soil or water deep underground and can be harvested to provide heating for a large number of buildings and greenhouses. In addition, at locations with volcanic activity such as Iceland, Italy and Turkey, the temperature of the soil is high enough to generate electricity. Geothermal heating and electricity systems both require significant investment and produce more energy than a football facility would use, and so are likely to be out of reach for football organisations on their own. However, an alternative solution is to look at layers closer to the surface. A ground source heat pump requires much less investment and can use heat stored close to the surface (six metres or deeper) can be used to heat buildings and pitches.

### - *Renewable energy certificates*

If generating your own renewable electricity on your own premises is not an option, buy renewable electricity from the grid under recognised certificates, if available. Contact your energy supplier to discuss the most suitable option for your local context.





### → CASE STUDY 20 STADE DE TRABZONSPOR, TURKEY

- Wave energy -  
Trabzonspor Energy  
Revolution
- First In Europe:  
The Black Sea's turbulent  
waves are supplying energy  
to football

- This initiative envisions converting Trabzonspor's home stadium, located on the Black Sea coast, into Europe's first football stadium powered entirely by wave energy.
- The system is designed to generate over 4,000 MWh of clean electricity annually, preventing approximately 480 tons of CO<sub>2</sub> emissions annually, and offering a replicable, symbolic model for sustainable infrastructure in sport.







### WATER REUSE

One of the simplest ways to collect and store water for use in the building is rainwater harvesting. Rainwater can be collected from the roof of the stadium and other buildings in water storage tanks. With the right installations, rain falling on the pitches and other outdoor areas can also be collected and stored for later use.

Rainwater should not be used as drinking water, but can fill all grey water needs, such as in toilets or for pitch irrigation. In some locations, it may also be worthwhile to install stormwater catchment tanks or natural water buffers, which serve the dual purpose of providing additional water while also reducing the risk of flooding in the area around the stadium.



**FIGURE 17**  
Harvesting rainwater  
on a stadium roof

### → CASE STUDY 21 STADE DE NICE, FRANCE

→ See the [UEFA Sustainable Infrastructure Guidelines](#).

→ Located in the Plaine du Var Éco Vallée, this stadium is a national project based on exemplary environmental principles:

- 95% self-sufficiency for pitch watering thanks to water collection containers
- Geothermal heat pumps maintaining the pitch temperature
- Photovoltaic panels on the roof
- Ventilation system inspired by the Romans, using the flow of air through the valley to ventilate the arena naturally
- Smart lighting



### RECYCLE

Wasted energy can be converted back into electricity or heat and wastewater into water for irrigation, flushing toilets or even drinking water. However, these recycling options all require specific installations and should therefore be considered only after reduction measures.

### ENERGY RECYCLING

Football facilities often comprise numerous buildings with varying energy demands. Large electrical appliances, air conditioning installations, server rooms and kitchens all lose a considerable amount of heat that can be captured and recycled for use elsewhere in the stadium. This can be done in several ways, and the technology to capture and recycle energy is developing quickly.

#### *- Heat recycling from heated air*

A heat recovery ventilation system extracts heat from warm air before it leaves a building. The energy can be recycled to raise the air temperature elsewhere in the building or to heat water either in taps or in the heating system. Various types of exhaust air heat pumps can be retrofitted to an existing building or installed in new buildings.

**ONCE ENERGY OR WATER HAS BEEN USED, IT IS OFTEN POSSIBLE TO CAPTURE SOME OF THE WASTE ENERGY OR WATER FOR RECYCLING**

#### *- Heat recycling from air conditioning*

An air conditioner extracts energy from the ambient air to cool it. This energy is normally transported to a fan unit outside the building and released into the atmosphere in the form of hot air, and the amount of energy lost can be considerable. By capturing this energy using a heat recovery unit, the waste energy from the air conditioning unit can be used to heat water either for taps or in the heating system.

### WATER RECYCLING

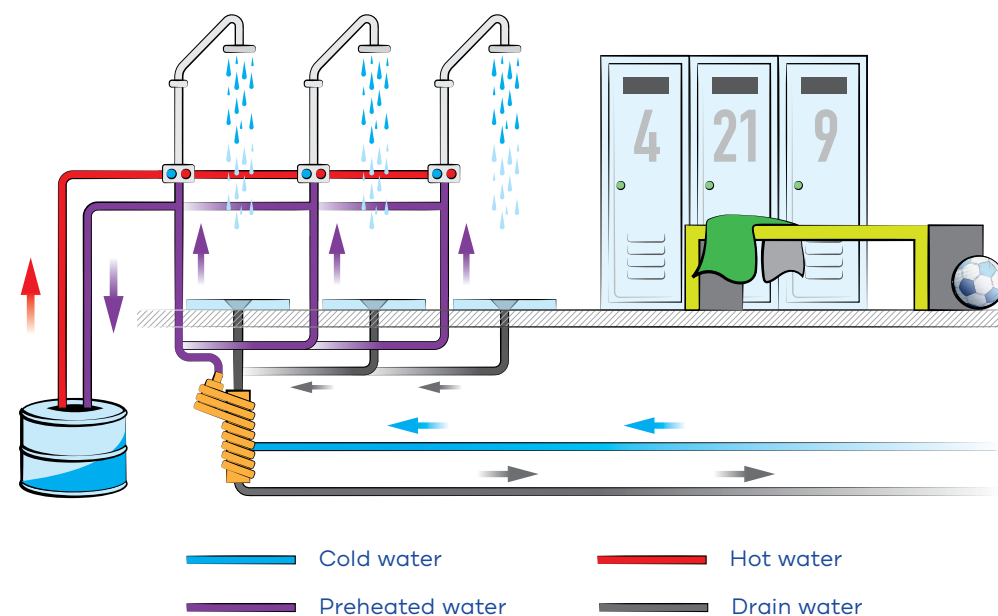
Water recycling or water reclamation means cleaning wastewater into water that can be reused as grey water to irrigate pitches or flush toilets, or released as surface water or groundwater. In theory, wastewater can even be treated to become drinkable again, but this process is costly on a decentralised scale.

### RECOVER

Recovery in the context of energy means extracting energy from waste streams, namely wastewater, before it leaves the facility. Wastewater originating from kitchens, washing machines and showers is often hot water.

Using drain water heat recovery exchangers, the heat in this water can be captured, transferred to fresh water, stored and reused to heat water in the stadium at a later time. This can reduce the amount of energy needed for heating water by up to 50%.<sup>63</sup>

The cost and installation of a heat recovery system depends on the type of installation, which may either be local, for example in a shower, or a centralised heat exchanger. Installing a heat exchanger requires some construction work and should ideally be done when renovating dressing rooms and kitchens.



**FIGURE 18**  
Recovering heat from wastewater

<sup>63</sup>. View source

# IMPLEMENTATION

IN ORDER TO IMPLEMENT THE 4R FRAMEWORK EFFECTIVELY, UEFA RECOMMENDS THAT FOOTBALL ORGANISATIONS AND OTHER STAKEHOLDERS ADOPT A STRATEGIC APPROACH TO IMPLEMENTING THE 4RS FOR ENERGY AND WATER, COMPRISING THE FOLLOWING EIGHT STEPS:

## 1. INVOLVE

all relevant stakeholders from the start to avoid silos and aid communication

## 2. COLLABORATE

both internally and externally, designating key contacts, to identify any issues or conflicting KPIs

## 3. ANALYSE

energy and water consumption as well as information and feedback from all stakeholders

## 4. PLAN

strategically and communicate the plan to all stakeholders, requesting feedback and input

## 5. EDUCATE

all stakeholders and departments on the importance of the 4Rs for energy and water use and hold workshops to roll out the plan

## 6. IMPLEMENT

the plan, setting milestone dates and KPIs

## 7. TRACK

progress in relation to the milestones and KPIs, encouraging feedback from all stakeholders on the benefits, barriers and learnings

## 8. REPORT

progress back to all stakeholders and use the report as a baseline for future projects



### STEP 1

INVOLVE ALL RELEVANT STAKEHOLDERS FROM THE START TO AVOID SILOS AND AID COMMUNICATION

#### WHY IT IS IMPORTANT:

Reducing a facility's energy and water use should not be done by the facilities manager alone. Energy and water are required to run the facilities and they serve an important purpose.

Understanding the energy and water requirements is essential to realising reductions without harming the operations.

#### WHAT YOU COULD DO:

- Begin by sharing these guidelines and asking for feedback and suggestions on how the 4Rs could be implemented across all roles and responsibilities
- Involve external stakeholders including companies renting an office or restaurant inside the stadium
- Encourage open dialogue across your organisation, capturing feedback and suggestions
- Ensure that the 4R strategy is understood by all levels of an organisation, not just management, and encourage people within your organisation who want to take more responsibility in leading the 4R agenda to do so

### STEP 2

COLLABORATE BOTH INTERNALLY AND EXTERNALLY, DESIGNATING KEY CONTACTS, TO IDENTIFY ANY ISSUES OR CONFLICTING KPIS

#### WHY IT IS IMPORTANT:

Many stakeholders in the energy and water cycle are outside your organisation. Your energy and water suppliers, the energy and water network operators and wastewater management companies are responsible for providing your facility with enough energy and water and handling some of the waste.

Companies renting spaces or running services such as catering inside the facility also use energy and water. Working with these partners will result in better long-term results.

#### WHAT YOU COULD DO:

- Arrange meetings with external stakeholders to share these guidelines and begin strategic discussions around the collaborative implementation of the 4Rs
- Hold workshops and site visits with external stakeholders to better understand each other's roles and responsibilities in implementing the 4Rs
- Designate key contacts across organisations and make fostering strategic collaborative discussions part of their KPIs
- Set a roadmap of actions and regular review meetings to ensure that the collaboration continues throughout the remaining steps

### STEP 3

ANALYSE ENERGY AND WATER CONSUMPTION AS WELL AS INFORMATION AND FEEDBACK FROM ALL STAKEHOLDERS

#### WHY IT IS IMPORTANT:

Based on the discussions held with internal and external stakeholders in the previous steps, draw up a set of requirements to manage energy and water use effectively.

Measuring and monitoring energy and water use is critical to identifying effective reduction measures.

#### WHAT YOU COULD DO:

- Ask your utility provider to install smart water and energy meters
- Find a local expert to perform an energy and water audit of the facilities, which will give an insight into your use and will help to identify the potential savings, including the most cost-effective measures
- Check whether any subsidies are available to help cover the cost of energy and water-efficiency measures
- Set up a continuous energy and water monitoring system

### STEP 4

PLAN STRATEGICALLY AND COMMUNICATE THE PLAN TO ALL STAKEHOLDERS, REQUESTING FEEDBACK AND INPUT

#### WHY IT IS IMPORTANT:

After analysing the facility's energy and water use and the interests of internal and external stakeholders, it is important to create a strategic plan upon which all the relevant stakeholders agree.

#### WHAT YOU COULD DO:

- Work with stakeholders to create the plan so that all interests are taken into account
- Ensure that the plan contains a clear overview of measures, including both 'low-hanging fruit' and long-term investments
- Make a distinction between low-hanging fruit and long-term measures and start implementing the low-hanging fruit measures as soon as possible
- Make sure that all the measures in the plan have clear owners
- Ensure that the plan is signed off by all designated contacts on behalf of the stakeholders they represent
- Set KPIs for your organisation that align with the strategic plan

### STEP 5

EDUCATE ALL STAKEHOLDERS AND DEPARTMENTS ON THE IMPORTANCE OF THE 4RS FOR ENERGY AND WATER USE AND HOLD WORKSHOPS TO ROLL OUT THE PLAN

#### WHY IT IS IMPORTANT:

Reducing energy and water consumption is the responsibility of everyone using the facilities. In order for the plan to be successful, it is important to inform both internal and external stakeholders about the energy and water use reduction efforts.

Giving stakeholders context helps them to understand their role in implementing the 4Rs and why it is important for the organisation to invest time and resources into it.

#### WHAT YOU COULD DO:

- Make all the staff working in the facilities aware that they can reduce their own consumption, as well as flagging up potential reduction measures

### STEP 6

IMPLEMENT THE PLAN, SETTING MILESTONE DATES AND KPIS

#### WHY IT IS IMPORTANT:

It is vital that all the people within the organisation that have a role in implementing the strategic plan have clear KPIs and timelines for delivery.

This avoids ambiguity and ensures that there are clear steps to achieving the plan.

#### WHAT YOU COULD DO:

- Ensure that people in key roles understand their accountability and have a plan of action for how they will achieve their KPIs
- Provide a support network through the designated key contacts to enable knowledge-sharing and foster collaboration
- Provide new recruits with training on the strategic plan

### STEP 7

TRACK PROGRESS IN RELATION TO THE MILESTONES AND KPIS, ENCOURAGING FEEDBACK FROM ALL STAKEHOLDERS ON THE BENEFITS, BARRIERS AND LEARNINGS

#### WHY IT IS IMPORTANT:

Tracking progress is crucial to meeting the goals set in the strategic plan, understanding the effect of the measures and ensuring continual improvement.

This is also a critical step to comply with future legislation such as the CSRD.

#### WHAT YOU COULD DO:

- Ensure that an energy and water measurement system is part of the regular management reporting cycle
- Regularly review progress and address any barriers
- Make energy and water use a regular topic of discussion with external stakeholders, especially if they are involved in measures that are part of the strategic plan
- Incentivise and recognise progress

### STEP 8

REPORT PROGRESS BACK TO ALL STAKEHOLDERS AND USE THE REPORT AS A BASELINE FOR FUTURE PROJECTS

#### WHY IT IS IMPORTANT:

All stakeholders should be informed and aware of progress so that they understand that sustainability is an organisational priority and that the actions taken are being reviewed in line with the defined milestones and KPIS.

#### WHAT YOU COULD DO:

- Recognise the hard work and commitment of team members
- Discuss any necessary adaptations to the plan and KPIS based on the experience and progress achieved
- Make recommendations for future actions and additions to the strategic plan

### 'LOW-HANGING FRUIT' MEASURES

Some energy- and water-reduction measures, such as those listed below, can be implemented without a strategy in place as they have a quick return on investment. These are often simple measures with immediate and visible results.

Implementing these visible measures and communicating about their success will help to raise awareness and increase motivation to proceed with the more complex measures. Pay extra attention to the lighting and

displays outside the stadium; addressing this can help to reduce light pollution, especially at night, and so the club's energy-reduction efforts will be noticed by the local community.<sup>64</sup>

### LOCATION

As mentioned earlier, geographical location plays a major role in the management of energy and water. The case studies that follow highlight the challenges posed by the contrasting climates of Real Betis Balompié in Seville, southern Spain, and the Football Association of Iceland.

ACTION	EFFORT	RETURN ON INVESTMENT
Switch off: turn off lights and appliances that are not a necessity	Easy	Immediate
Turn down the heating or air-conditioning	Easy	Immediate
Change all incandescent and halogen lights to LED	Easy	<2 years
Install motion sensors and timers that turn lights and appliances on and off automatically	Easy	<5 years (less for appliances with high power use)
Ask your utility provider to install smart water and energy meters	Easy	-

<sup>64</sup>. View source (available only in Dutch)





### CASE STUDY 22

#### REAL BETIS BALOMPIÉ

→ Seville is one of Europe's southernmost cities, situated in southwest Spain. It is one of the hottest cities in Europe, with little or no rain in the summer and average daily maximum temperatures around 36°C.<sup>65</sup> Playing, or even watching, football in the middle of the day is almost impossible.

- Consequently, the local football club's matches normally kick off at 21:00 or even 21:30. Extra water breaks are standard to make sure that the players do not get dehydrated during the match.
- The extreme climate is one of the reasons why Real Betis has been managing its sustainability in a structured way for many years. An internal sustainability team works on raising awareness, saving energy and water, implementing measures and monitoring progress. The club also started [Forever Green](#), a platform to share knowledge and resources.
- Home matches are played in the Benito Villamarín stadium, which first opened in 1929. The stadium will be modernised over the next few years, which is the perfect opportunity to make the stadium more comfortable and resilient to increasing temperatures: a roof will be added and measures will be taken to improve air flow inside the stadium.
- Green walls and gardens will help to reduce temperatures in and around the stadium. The roof will be connected to a stormwater catchment tank so that rainwater can be reused for irrigation, and energy reduction measures will be combined with renewable energy production.
- The club's new training ground in nearby Dos Hermanas is one of the largest in Europe. Its pitches have been constructed in a terrace layout so that rainwater and irrigation water from the highest pitch filters down through the pitches into a retention tank with a total capacity of 1,400m<sup>3</sup>. This is enough to irrigate the pitches for four to five days.

<sup>65</sup>. View source



### → CASE STUDY 23 FOOTBALL ASSOCIATION OF ICELAND (KSÍ)

→ The harsh Icelandic climate is one of the most challenging in Europe. Due to the long, dark and cold winters, football is a summer sport: the national league runs from April to October.

→ Iceland has a population of less than 400,000 people, but football is very popular.

- Most clubs have switched to artificial grass to deal with the limited grass-growing season. The national stadium, Laugardalsvöllur, in the capital of Reykjavík, is one of the exceptions.
- The multifunctional stadium, used for athletics, fencing and football, is used by the Icelandic national football team and for the Icelandic cup finals.
- The stadium also serves as a back-up stadium for Icelandic clubs competing in UEFA club competitions in the event that their own stadiums do not meet UEFA standards.
- Despite the KSÍ's limited budget and the age of the stadium (first built in 1960), the pitch quality has increased over recent decades as the pitch maintenance team's knowledge increases.
- The team now monitors the pitch quality and weather forecast all year round to limit the impact of heavy rain, snow and ice on the grass.
- Without a roof, permanent pitch heating or grass-growing lights, maintaining the pitch is a real challenge.
- However, renewable energy sources are abundant in Iceland, with hydropower and geothermal energy being used to produce electricity and for heating.
- A future stadium renovation would offer the opportunity to increase the energy efficiency of the buildings, as well as implementing permanent geothermal pitch heating and water recycling facilities.

# SUMMARY

To limit the effects of climate change, it is important for every football stakeholder, big or small, to take action to reduce their energy and water consumption as soon as possible. This will reduce the impact of football on the environment, and can also lead to significant cost savings. At the same time, football facilities need to be more resilient to the effects of a changing climate.

### THE CURRENT SITUATION:

- Climate change has an impact on football operations, and if we do nothing, this will increase as the concentration of greenhouse gases in the atmosphere keeps rising due to the burning of fossil fuels; global warming will cause increasingly extreme weather events like storms, droughts and heatwaves; higher temperatures will have a negative effect on players' and spectators' health and extreme rainfall and droughts will negatively impact pitch quality
- Football clubs contribute to climate change as they consume energy for buildings and travel
- Energy is a major expense for football clubs and costs will continue to rise

- Measures need to be taken to limit the impact of climate change on the operations of football clubs

### INFLUENCE AND COLLABORATION

- Clubs have the power and platform to influence other stakeholders, champion change and set good examples
- Visible energy and water reduction measures will inspire others to do the same
- Collaboration and shared goals are needed to include all the stakeholders in and around the football facilities for maximum effect
- Less is more: reducing energy and water use should be done before investing in technology to generate renewable electricity, recycle energy and water or recover energy from waste water

### THE FUTURE

- Clubs should measure and continuously reduce their energy and water use
- All electricity should be generated by renewable sources as energy from fossil fuels is phased out
- Water use should be minimised, rainwater and irrigation water harvested and wastewater recycled
- Clubs should report their environmental impacts in their annual reporting

### → CASE STUDY 24 THE GREEN CLUB

→ The Royal Dutch Football Association (KNVB) has been helping amateur clubs to reduce their energy consumption since 2017.

→ Clubs can reach out to [De Groene Club](#) for assistance in implementing energy reduction measures.

- Clubs can reach out to De Groene Club for assistance in implementing energy reduction measures.
- To date, over 2,100 clubs have saved an average of €7809, 14,157 Wh of electricity and 405m<sup>3</sup> of gas per year.
- The programme comprises five steps to help clubs reduce their energy use:
  - 01.** Energy audit at the club, finding potential savings and subsidies
  - 02.** Help creating the reduction plan with the best business case
  - 03.** Support with best-value procurement
  - 04.** Financial advice on funding
  - 05.** Realisation



De Groene Club advertisement

# → APPENDIX

SUPPORTING  
DOCUMENTS  
AND ADDITIONAL  
INFORMATION







### METHODOLOGY

#### DATA WAS OBTAINED FROM THE FOLLOWING SOURCES:

- The [Life Tackle](#) website (an international project co-funded by the EU LIFE programme that aims to improve the environmental management of football matches and the overall level of awareness and attention towards environmental issues in the football sector)
- Surveys of 15 clubs participating in the 2021/22 UEFA Champions League
- Individual interviews with representatives of five clubs
- A consultation group involving ten clubs
- Pilot projects in selected football facilities

#### POSSIBLE ACTIONS IDENTIFIED FELL INTO THE FOLLOWING CLUSTERS:

- **Governance and strategy:** the strategy, decision-making process, management and system of responsibility needed to make sure that the most pressing issues are tackled and the most effective actions are taken
- **F&B offer:** the food, beverages and packaging selected with a view to minimising waste and maximising the useful life of materials
- **Waste collection and management:** the handling of waste to minimise the amount sent to landfill or incinerated

**THE ACTIONS IDENTIFIED WERE PRIORITISED USING AN IMPACT AND FEASIBILITY ANALYSIS INVOLVING SUSTAINABILITY CONSULTANTS, UEFA'S FSR DIVISION, EIGHT CLUBS RANDOMLY SELECTED FROM THOSE PARTICIPATING IN THE CONSULTATION GROUP AND AN F&B SPONSOR.**

### THE IMPACT AND FEASIBILITY ANALYSIS COMPRISED THREE STEPS:

- 1.** Each group of stakeholders ranked each action against the criteria of 'Environmental relevance', 'Technical feasibility' and 'Economic feasibility'. The FSR team also ranked each action for its 'Consistency with UEFA's sustainability strategy'.
- 2.** The stakeholders' rankings were averaged and each action's overall priority was calculated, taking into account the weightings of the different criteria ('Environmental relevance' weighted 60%; 'Technical feasibility', 'Economic feasibility' and 'Consistency with UEFA's sustainability strategy' each weighted 13.33%).
- 3.** Rankings were reparameterised on a scale of 0 to 100 using a logistic function and actions were grouped into three priority levels ('very high priority', 'high priority' and 'medium priority') based on these reparameterised scores. Activities with an 'Environmental relevance' ranking lower than 15/100 were automatically considered to be 'low priority'.

The resulting analysis is presented below.

**TABLE 9**  
 EXPERT IMPACT AND  
 FEASIBILITY ANALYSIS

AREA	ACTION	ENVIRONMENTAL RELEVANCE	TECHNICAL FEASIBILITY	ECONOMIC FEASIBILITY	CONSISTENCY WITH UEFA'S SUSTAINABILITY STRATEGY	FINAL SCORE	REPARAMETERISED FINAL SCORE	REPARAMETERISED ENVIRONMENTAL SCORE	OVERALL PRIORITY LEVEL	ENVIRONMENTAL IMPACT PRIORITY LEVEL
F&B OFFER	Offer vegetarian or plant-based options in the hospitality area	2.81	2.88	2.63	3	2.82	88	81	Very high priority	Very high priority
F&B OFFER	Offer vegetarian or plant-based options in concessions	2.86	2.89	2.36	2	2.68	80	83	Very high priority	Very high priority
F&B OFFER	Optimise menu planning and implement an effective inventory management system to minimise food waste	2.8	2.11	2.39	3	2.68	80	80	Very high priority	Very high priority
GOVERNANCE AND STRATEGY	Carry out regular meetings with the caterer to discuss initiatives related to environmental sustainability	2.53	2.72	2.69	3	2.64	77	62	Very high priority	High priority
GOVERNANCE AND STRATEGY	Define an overall circular economy strategy for F&B	2.72	2.09	2.44	3	2.64	76	75	Very high priority	Very high priority
F&B PACKAGING OFFER	Choose foods with minimal or no packaging	2.69	1.91	2.57	3	2.61	74	73	Very high priority	Very high priority
WASTE COLLECTION AND MANAGEMENT	Provide separate bins (plastic, glass, aluminium, organic, paper) to enable separate waste collection throughout the entire football facility, particularly in hospitality areas and concessions	2.75	2	2	3	2.58	72	77	Very high priority	Very high priority
WASTE COLLECTION AND MANAGEMENT	Organise initiatives to encourage separate waste collection outside the football facility	2.48	2.36	2.64	3	2.56	70	57	Very high priority	High priority
WASTE COLLECTION AND MANAGEMENT	Donate unused prepared food	2.34	2.88	2.66	3	2.54	68	45	Very high priority	High priority
F&B PACKAGING OFFER	Compost leftover food and compostable tableware	2.59	2.25	1.91	3	2.51	65	67	High priority	Very high priority
GOVERNANCE AND STRATEGY	Train the cleaning service provider on how to sort and separate F&B waste	2.59	1.97	2.09	3	2.5	64	67	High priority	Very high priority

**TABLE 9**  
 EXPERT IMPACT AND  
 FEASIBILITY ANALYSIS

AREA	ACTION	ENVIRONMENTAL RELEVANCE	TECHNICAL FEASIBILITY	ECONOMIC FEASIBILITY	CONSISTENCY WITH UEFA'S SUSTAINABILITY STRATEGY	FINAL SCORE	REPARAMETERISED FINAL SCORE	REPARAMETERISED ENVIRONMENTAL SCORE	OVERALL PRIORITY LEVEL	ENVIRONMENTAL IMPACT PRIORITY LEVEL
GOVERNANCE RELATED TO F&B AND STRATEGY	Collect and analyse performance indicators in terms of waste production and recycling, especially in F&B	2.56	2.03	2.18	3	2.5	64	64	High priority	High priority
GOVERNANCE RELATED TO F&B AND STRATEGY	Organise waste assessments to understand waste composition	2.47	2.38	2.21	3	2.49	64	56	High priority	High priority
GOVERNANCE AND STRATEGY	Train staff (including concessions staff) on how to reduce the environmental impact of F&B	2.34	2.28	2.14	3	2.4	54	45	High priority	High priority
F&B OFFER	Promote reusable cups for drinks	2.53	2.5	1.93	2	2.38	52	62	High priority	High priority
F&B OFFER	Use reusable tableware in the hospitality area	2.41	2.41	2.34	2	2.34	48	51	High priority	High priority
F&B OFFER	Use cups made of bio-based or recycled material in concessions	2.22	2.41	1.94	3	2.31	45	35	High priority	High priority
F&B PACKAGING OFFER	Install refill stations for water and other beverages to reduce bottle purchases	2.64	1.8	1.61	2	2.31	44	70	High priority	Very high priority
F&B OFFER	Use compostable tableware in concessions	2.29	2.18	1.71	3	2.29	42	40	High priority	High priority
WASTE COLLECTION AND MANAGEMENT	Promote the recycling of PET bottles by offering monetary rewards or prizes such as tickets (e.g. install machinery that collects PET bottles in exchange for a reward)	2.38	1.79	1.63	3	2.28	41	48	High priority	High priority
WASTE COLLECTION AND MANAGEMENT	Engage fans in waste collection campaigns (e.g. implement a reward system for waste collection)	2.43	2.07	1.89	2	2.25	39	53	High priority	High priority
F&B OFFER	Use compostable tableware in hospitality areas	2.29	1.93	1.71	3	2.26	39	40	High priority	High priority
F&B OFFER	Use cups made of bio-based or recycled material in hospitality areas	2.19	2.16	1.91	3	2.25	39	33	High priority	Medium priority

**TABLE 9**  
 EXPERT IMPACT AND  
 FEASIBILITY ANALYSIS

AREA	ACTION	ENVIRONMENTAL RELEVANCE	TECHNICAL FEASIBILITY	ECONOMIC FEASIBILITY	CONSISTENCY WITH UEFA'S SUSTAINABILITY STRATEGY	FINAL SCORE	REPARAMETERISED FINAL SCORE	REPARAMETERISED ENVIRONMENTAL SCORE	OVERALL PRIORITY LEVEL	ENVIRONMENTAL IMPACT PRIORITY LEVEL
WASTE COLLECTION AND MANAGEMENT	Install biodigesters (machines that decompose pre-consumer food waste)	2.44	1.38	1.25	3	2.21	35	54	High priority	High priority
GOVERNANCE RELATED TO F&B AND STRATEGY	Provide suppliers with packaging and F&B procurement guidelines, including waste minimisation targets	2	2.5	2.09	3	2.21	35	20	High priority	Medium priority
WASTE COLLECTION AND MANAGEMENT	Install organic dehydrators (machines that heat waste and dehydrate the product into a soil additive used to nourish gardens)	2.41	1.28	1.25	3	2.18	32	51	Medium priority	High priority
WASTE COLLECTION AND MANAGEMENT	Display panels informing fans about separate waste collection near concessions	2	2.44	1.88	3	2.18	31	20	Medium priority	Medium priority
WASTE COLLECTION AND MANAGEMENT	Collect all waste together but have an agreement with the waste management operator to sort it and channel each component to the appropriate recycling scheme	2.32	2.29	1.36	2	2.15	28	43	Medium priority	High priority
F&B OFFER	Use reusable tableware in concessions	2.11	1.38	1.61	2	1.93	14	27	Medium priority	Medium priority
WASTE COLLECTION AND MANAGEMENT	Use smart bins that separate different types of plastics and measure their amounts	1.95	1.38	1.06	3	1.89	12	17	Medium priority	Medium priority
GOVERNANCE AND STRATEGY	Carry out surveys to understand fans' environmental awareness and behaviour	1.77	2.61	2.71	2	2.04	20	10	Low priority	Low priority
WASTE COLLECTION AND MANAGEMENT	Close the loop by recycling waste to produce football items or promotional products (e.g. recycle plastic bottles into seats)	1.79	1.71	2	3	1.97	16	11	Low priority	Low priority



### STUDY 1 OF DIFFERENT TYPES OF SINGLE-USE AND REUSABLE CUPS

→ To verify whether best practices to reduce waste would also reduce emissions, we performed a screening assessment using secondary data relating to the carbon footprint of different solutions for cups used during football matches.

- The objective of the study was to understand the different impacts of the various solutions analysed and to provide a basis for future, more in-depth studies involving primary data collection.
- The methodology adopted was life cycle assessment (LCA): an analytical and systematic means of assessing the environmental footprint of a product or service along its entire life cycle (i.e. from the production/extraction of raw materials up to the end of its life). Owing to the lack of primary data, the methodology was simplified for the purposes of this assessment. Processes were modelled using datasets available in version 3.6 of the [Ecoinvent](#) database and the [SimaPro](#) calculation software.
- [The Product Environmental Footprint \(PEF\)](#) methodology, which uses the Circular Footprint Formula (CFF), was used only for the end-of-life assessment. This formula determines how the impacts and benefits derived from the processes of material and/or energy recovery are distributed among the different actors in the value chain of a product (i.e. the producer of the waste and the user of the secondary raw material or recovered energy).
- This summary outlines how the LCA method (specifically considering the carbon footprint) was applied to compare different cup options at professional football events. However, this analysis cannot be considered a complete LCA, because no data was collected from primary sources (for example from the manufacturers of the various solutions).
- The products compared were 0.5l single-use cups (11.5g) made of various different materials and with different end-of-life scenarios, and 0.5l reusable cups (30g).

→ **STUDY 1**  
OF DIFFERENT TYPES  
OF SINGLE-USE AND  
REUSABLE CUPS  
(CONT.)

• **THE FOLLOWING PHASES WERE  
CONSIDERED IN THE ASSESSMENT:**

1. Production of raw materials
2. Transportation of raw materials
3. Product manufacture
4. Product distribution
5. Washing (in the dishwasher) in the case of reusable cups
6. End-of-life disposal (transportation, end-of-life treatment process and whether sent to landfill)

• **ASSUMPTIONS:**

1. Cups with a plastic inner film are assumed to be coated with low-density polyethylene (LDPE)

2. Compostable cups are assumed to be made of polylactic acid (PLA)
3. Disposable cups are assumed to have the same weight regardless of the material
4. 50km was used as a conservative estimate of the transportation distance of raw materials
5. The water-based plastic film was modelled by replacing the quantity of washing solvent with an equal quantity of water in the production process, thereby eliminating solvent emissions
6. The process of washing a cup in the dishwasher was modelled on the basis of the indications given in the document [Product Environmental Footprint Category Rules Guidance, version 6.3](#) (May 2018)
7. The process of recovering paper cups coated with a plastic film is simplified; it takes into account transportation to the plant for pretreatment (separation of the

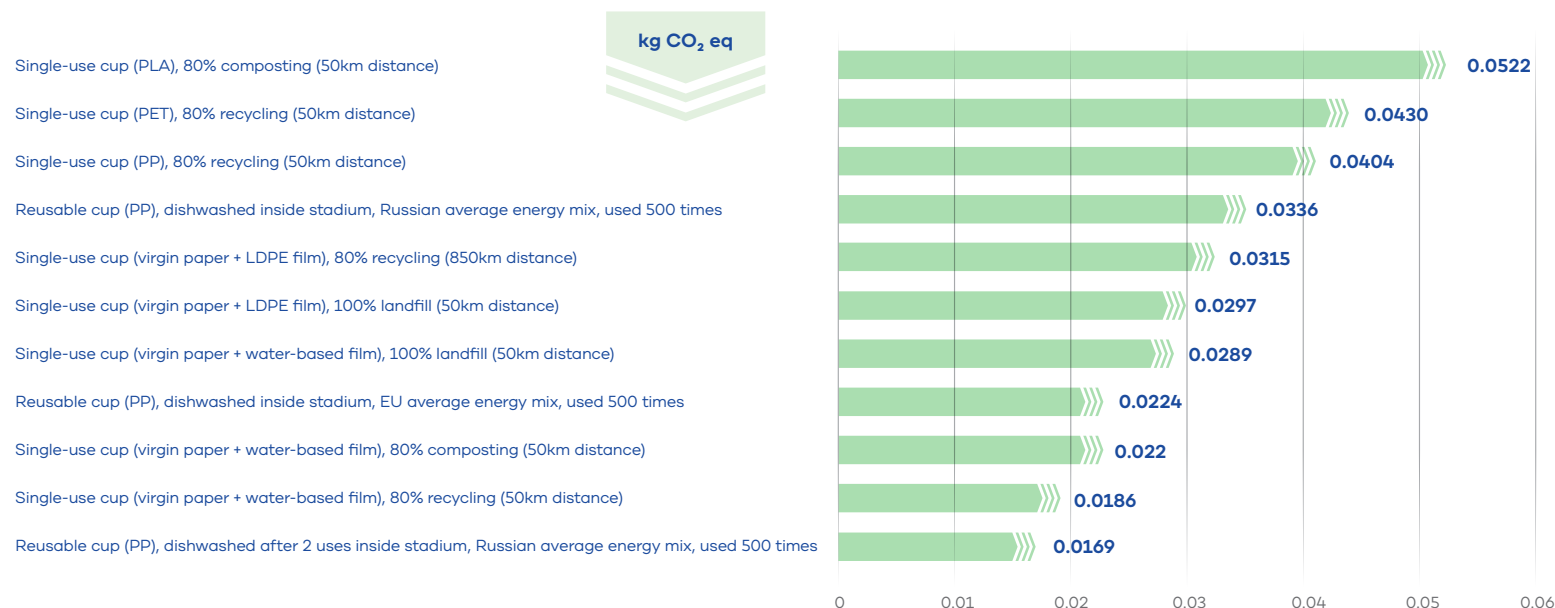
two components) but ignores the impact of that pretreatment; both the recovery process and transportation to the plant are considered in relation to recycling of the two components

• The impact is assessed using the EU's [environmental footprint methodology](#), version 2.0, adapted by [PRé Consultants](#) in order to be compatible with the SimaPro databases.

• The impact category analysed is climate change, defined as the ability of a greenhouse gas to influence changes in the global average air temperature at ground level along with subsequent changes in various climatic parameters and their effects (expressed in CO<sub>2</sub>-equivalent units (CO<sub>2</sub> eq) and over 100 years).

→ **STUDY 1**  
 OF DIFFERENT TYPES  
 OF SINGLE-USE AND  
 REUSABLE CUPS  
 (CONT.)

**FIGURE 19**  
 Impact category  
 assessment



**RESULTS:**

1. The solution with the highest impact is compostable disposable cups made of PLA
2. The solution with the lowest impact is reusable PP cups washed at the football facility after two uses, with a difference in footprint of more than 65%

**FOCUSING ON REUSABLE CUPS:**

1. When washed after each use using the average Russian energy mix (heavily dependent on non-renewable sources), their footprint is higher than that of disposable cups coated with LDPE film and sent to landfill

→ **STUDY 1**  
OF DIFFERENT TYPES  
OF SINGLE-USE AND  
REUSABLE CUPS  
(CONT.)

2. When washed using the average European energy mix, they become the fourth best solution; this is in line with the findings of the United Nations Environment Program's report on [single-use beverage cups and their alternatives \(2021\)](#), which highlights how the impact of reusable cups depends on the efficiency of the dishwashing process
3. When used more than once before being washed, they have by far the lowest impact, even in the Russian energy mix scenario

4. In all cases, we have assumed that washing takes place inside the football facility, requiring no transportation to a different location

• **FOCUSING ON RECYCLING  
SINGLE-USE CUPS:**

1. While recycling single-use cups made of paper and a water-based coating is the second-best solution, various recycling facilities in the country where the study was carried out refuse to recycle used paper cups; football organisations considering this solution are therefore advised to research recycling possibilities in the local area
2. A cup made of paper and an LDPE plastic film sent to a landfill located 50km away has a smaller footprint than the same cup sent to a recovery plant located 850km away (this distance was

- chosen due to the absence of closer facilities able to separate paper from LDPE plastic film in the country where the study was carried out); this simulation demonstrates the relevance of the transportation process, which can outweigh the benefits of a lower-impact end-of-life process (i.e. recycling), meaning that a higher-impact process (i.e. landfill) is preferable overall.
3. The transportation distance at which sending a cup for recycling at a specialist recovery plant has the same carbon footprint as sending it to a landfill nearby is 727km; if the recovery plant is closer than this, recycling has a lower impact than sending it to a landfill 50km away

### STUDY 1 OF DIFFERENT TYPES OF SINGLE-USE AND REUSABLE CUPS (CONT.)

- All the findings presented in this report could change substantially if the analyses were repeated using primary data, so they should be considered indicative only, taking into account the limitations of the assessment, and not exhaustive.
- To further support and contextualize these findings, a comparative study was reviewed. This external analysis, which uses a similar methodology, reinforces the conclusions of the SimaPro-based assessment and provides additional insights into the environmental impacts of various cup types.

### COMPARATIVE STUDY:

The external study was reviewed to provide further context to the environmental assessment of single-use and reusable cups. It was selected for its methodological compatibility and the alignment of its findings with those of the present report.

### OVERVIEW OF CUP TYPES AND MATERIALS

The external study analyses four main categories of cups:

- Single-use paper cups
- Single-use plastic cups
- Reusable plastic cups
- Reusable stainless-steel cups

For the purposes of this report, the focus remains on single-use paper cups and reusable plastic cups, as these are most relevant to the scope of the assessment.

### IMPACT OF MATERIAL CHOICE

Both studies highlight the significant influence of material selection on the overall environmental footprint of a cup.

- Single-use paper cups with a water-based (aqueous) lining are currently the most environmentally friendly option among disposable cups. Unlike traditional linings (such as polyethylene or PLA), aqueous linings allow the cups to be processed through conventional recycling streams without requiring specialized facilities.
- For reusable cups, polypropylene (PP) is the most favourable material due to its low impact during production and high durability. Recycled plastics do not perform as well because they degrade more quickly, meaning the cups withstand fewer use cycles.



### STUDY 1 OF DIFFERENT TYPES OF SINGLE-USE AND REUSABLE CUPS (CONT.)

#### THE ROLE OF WASHING LOGISTICS

The environmental impact of reusable cups depends on washing logistics. Industrial off-site facilities within 50 km are the most efficient, using less energy and water per wash. If the facility is farther than 50 km, on-site washing becomes the better option due to transport-related emissions.

#### MINIMUM USAGE THRESHOLD FOR REUSABLES

An important factor in comparing reusable and single-use cups is the number of use cycles. Since reusable cups require more energy and materials to produce, they must be used at least three times to become environmentally preferable to a single-use option.

#### CONCLUSIONS ALIGNED WITH OUR FINDINGS

Both the SimaPro-based analysis and the external study identify two cup types as having the lowest environmental impact:

1. Single-use paper cups with a water-based lining, recyclable in standard facilities.
2. Reusable PP cups, unbranded, washed either in an efficient facility within 50 km of the venue or on-site if no such facility is available.



Reusable cup deposit during the UEFA EURO 2024 match between Switzerland and Italy, in Berlin, Germany

#### DECISION-MAKING SUPPORT: CHOOSE THE RIGHT CUP

To assist in selecting the most suitable cup solution, a decision tree is provided. It considers cup type, number of uses, washing logistics, and recycling availability to guide sustainable choices.

## MOST COMMON BENEFITS

## ECONOMIC

No specific benefits identified. A common objection to this action is that selling bottles earns profit. However, users can also be charged to use refill stations, and the cost to the facility is usually lower than bottles.

## BRANDING

This action is very visible to spectators.

## MOST COMMON CHALLENGES

## CULTURE

No challenges identified.

## EFFORT

The logistical effort needs to be taken into account.

## INFRASTRUCTURE/LOCATION

No challenges identified.

## TECHNICAL WARNINGS

Some suppliers/countries recycle refill tanks instead of reusing them. This significantly reduces the benefit (see the study below).

BEST PRACTICES  
BASIC

- Start by installing refill stations in offices and staff areas.

BEST PRACTICES  
INTERMEDIATE

- Incentivise the use of reusable bottles in offices and staff areas.

BEST PRACTICES  
ADVANCED

- Expand the activity to spectator areas, possibly combining it with the introduction of reusable cups (after performing an analysis to confirm the environmental benefit of reusable cups; [see the dedicated implementation data sheet](#))

→ **STUDY 2**  
OF DIFFERENT  
WATER DISPENSING  
SYSTEMS

→ To verify whether best practices to reduce waste would also reduce emissions, we performed a screening assessment using secondary data relating to the carbon footprint of different water dispensing solutions that can be used during a football match.

- The objective of the study was to understand the different impacts of the various solutions analysed and to provide a basis for future, more in-depth studies involving primary data collection.
- The methodology adopted was the life cycle assessment (LCA): an analytical and systematic means of assessing the environmental footprint of a product or service along its entire life cycle (i.e. from the production/extraction of raw materials up to the end of its life). Owing to the lack of primary data, the methodology was simplified for the purposes of this assessment. Processes were modelled using datasets available in version 3.6 of the [Ecoinvent](#) database and the [SimaPro](#) calculation software.
- The [Product Environmental Footprint \(PEF\)](#) methodology, which uses the Circular Footprint Formula (CFF), was used only for the end-of-life assessment. This formula determines how the impacts and benefits derived from the processes of material and/or energy recovery are distributed among the different actors in the value chain of a product (i.e. the producer of the waste and the user of the secondary raw material or recovered energy).
- This summary outlines how the LCA method (specifically considering the carbon footprint) was applied to compare different beverage dispensing solutions at professional football events. However, this analysis cannot be considered a complete LCA, because no data was collected from primary sources (for example from the manufacturers of the various solutions).
- Functional unit used for comparison: 0.5l container (beverage excluded).

→ **STUDY 2**  
OF DIFFERENT  
WATER DISPENSING  
SYSTEMS (CONT.)

**THE FOLLOWING PHASES WERE  
CONSIDERED IN THE ASSESSMENT  
OF THE BEVERAGE DISPENSING  
SERVICE:**

- Production of raw materials
- Transportation of raw materials
- Product manufacture
- Product distribution
- Washing in the case of water tanks for water refill stations
- End-of-life disposal (transportation, end-of-life treatment process and whether sent to landfill)

**ASSUMPTIONS:**

Washable water tanks, regardless of the type of end-of-life treatment (reuse or recycle) are always returned to the supplier (round trip). The transportation of water refill stations from the supplier to the football facility is included, but the return journey is excluded because it is assumed that refill stations will be kept on-site.

Water refill stations are used in combination with different types of 0.2l cups. Scenarios involving 100% single-use cups and 30% single-use cups/70% reusable bottles brought from home by customers were analysed.

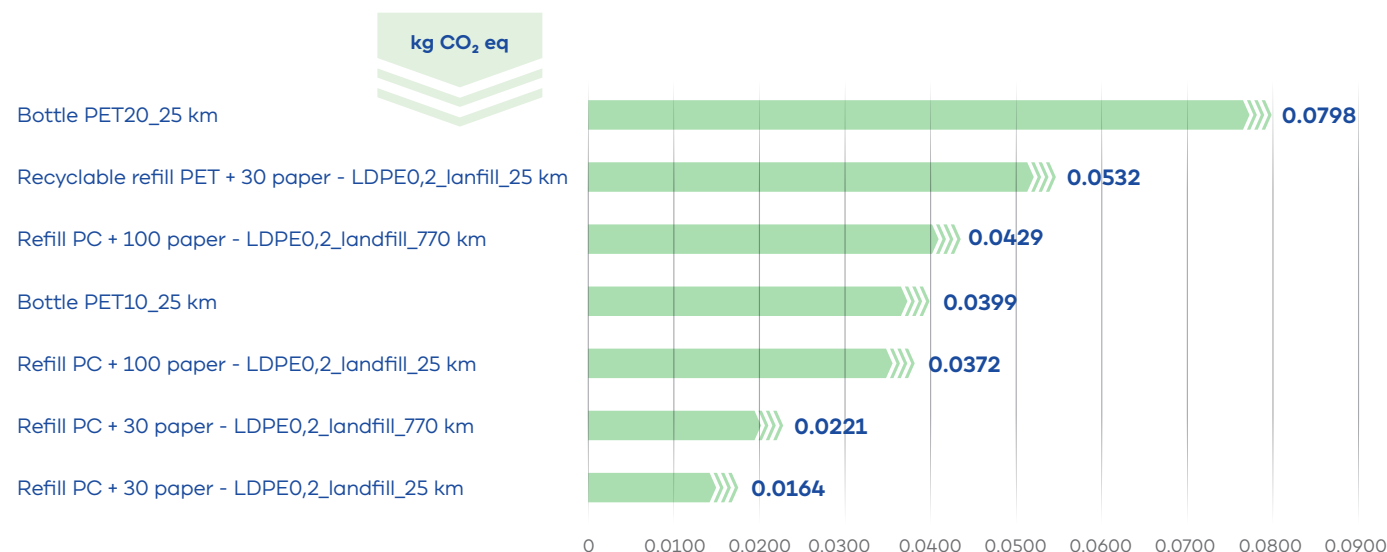
- The impact is assessed using the EU's [environmental footprint methodology](#), version 2.0, adapted by [PRé Consultants](#) in order to be compatible with the SimaPro databases.
- The impact category analysed is climate change, defined as the ability of a greenhouse gas to influence changes in the global average air temperature at ground level along with subsequent changes in various climatic parameters and their effects (expressed in CO<sub>2</sub>-equivalent units (CO<sub>2</sub> eq) and over 100 years).

→ **STUDY 2**  
 OF DIFFERENT  
 WATER DISPENSING  
 SYSTEMS (CONT.)

PRODUCT	PRODUCT CODE	KG CO <sub>2</sub> eq
Washable water PC tank, supply distance 25km, tank sent back to supplier for reuse. Combined with 30% paper + LDPE cups sent to landfill.	Refill PC+30paper-LDPE0,2_landfill_25km	0.0164
Washable water PC tank, supply distance 770km, tank sent back to supplier for reuse. Combined with 30% paper + LDPE cups sent to landfill.	Refill PC+30paper-LDPE0,2_landfill_770km	0.0221
Washable water PC tank, supply distance 25km, tank sent back to supplier for reuse. Combined with 100% paper + LDPE cups sent to landfill.	Refill PC+100paper-LDPE0,2_landfill_25km	0.0372
10g PET bottle, supply distance 25km, 80% recycled (50km away).	Bottle PET10_25km	0.0399
Washable water PC tank, supply distance 770km, tank sent back to supplier for reuse. Combined with 100% paper + LDPE cups sent to landfill.	Refill PC+100paper-LDPE0,2_landfill_770km	0.0429
PET water tank, supply distance 25km, tank sent back to supplier for recycling. Combined with 30% paper + LDPE cups to landfill.	Recyclable refill PET+30paper-LDPE0,2_landfill_25km	0.0532
20g PET bottle, supply distance 25km, 80% recycled (50km away).	Bottle PET20_25km	0.0798



→ **STUDY 2**  
 OF DIFFERENT  
 WATER DISPENSING  
 SYSTEMS (CONT.)



**FIGURE 20**  
 Comparison of  
 different water  
 dispensing  
 systems

**RESULTS:**

1. The 20g PET bottles has the highest impact, followed by disposable PET water tanks
2. Refill stations with washable or reusable water tanks have the lowest impact, especially if combined with only 30% of drinks being served in 0.2l disposable cups (and the remainder in consumers' own bottles)
3. Increasing the distance from the supplier to the water refill station from 25km to 770km results in an increase in the carbon footprint of about 10%

**All the findings presented in this report could change substantially if the analyses were repeated using primary data, so they should be considered indicative only, taking into account the limitations of the assessment, and not exhaustive.**

### IMPLEMENTATION RESPONSIBILITIES

Roles and responsibilities in relation to the implementation roadmap have been defined using the RACI matrix:

#### RESPONSIBLE (R):

Responsible stakeholders are those who actively implement the action concerned.

#### ACCOUNTABLE (A):

The accountable stakeholder has ownership of the action concerned and gives final approval. There should be only one accountable stakeholder for each action.

#### CONSULTED (C):

Consulted stakeholders for a given action are those who can provide relevant expertise, information and insights and need to be actively involved in decision-making.

#### INFORMED (I):

Informed stakeholders for a given action are those who are not actively involved in its decision-making or implementation but need to be informed of its progress as they might be affected.



**TABLE 10**  
**RACI MATRIX OF STAKEHOLDER**  
**INVOLVEMENT**

## STAKEHOLDERS INVOLVED

ACTION	UEFA	FOOTBALL FACILITY OPERATORS/CLUBS	NATIONAL ASSOCIATIONS	F&B SPONSORS AND SUPPLIERS	CATERING SUPPLIERS	CLEANING AND WASTE MANAGEMENT SERVICE PROVIDERS
Define an overall circular economy strategy for F&B	C	R/A	C	C	C	C
Organise waste assessments to understand waste composition	I	A	-	I	I	R
Measure and analyse performance indicators in terms of waste production and recycling, especially in F&B	I	R/A	I	I	I	R
Train staff (including concessions staff) on how to reduce the environmental impact of F&B	C	R/A	C	C	C	C
Provide suppliers with packaging and F&B procurement guidelines, including with waste minimisation targets	C (R/A for matches managed by UEFA)	R/A	-	C	C	I
Guarantee an effective waste management supply chain by: <ul style="list-style-type: none"> <li>- Choosing materials that can be recovered through the local waste management supply chain</li> <li>- Providing separate bins (plastic, glass, aluminium, organic, paper) to enable separate waste collection throughout the entire football facility (hospitality areas, concessions and offices/staff areas)</li> <li>- Educating spectators and encouraging them to use bins correctly</li> </ul>	I	R/A	I	C	C	R
Optimise menu planning and implement an effective inventory management system to minimise food waste (concessions)	-	A	-	I	R	I
Choose foods with minimal or no packaging	- (R/A for matches managed by UEFA)	R/A	-	R	R	I
Install refill stations for water and other beverages to reduce bottle purchases	- (R/A for matches managed by UEFA)	R/A	-	R	I	I
Promote reusable cups for drinks	- (R/A for matches managed by UEFA)	R/A	-	R	R	I
Use reusable tableware	- (R/A for matches managed by UEFA)	R/A	-	R	R	I
Donate unused prepared food	- (R/A for finals)	A	-	R/I	R	R
Organise initiatives to encourage separate waste collection outside the football facility	-	R/A	-	I	-	R
Train the cleaning service provider on how to sort and separate F&B waste	-	R/A	-	I	I	C

# COMMON DEFINITIONS IN RELATION TO CIRCULARITY IN FOOTBALL



**CARBON FOOTPRINT**

A widely used term referring to the overall quantity of CO<sub>2</sub> and other greenhouse gas emissions associated with the activities of an individual or an organisation (measured according to [ISO 14064](#)), or caused directly and indirectly by a product or an activity, from the extraction of its raw materials to the end of its life (measured according to [ISO 14067](#)). It is measured in carbon dioxide equivalents (CO<sub>2</sub> eq).

**CARBON NEUTRALITY**

According to the [Carbon Trust](#): "Carbon neutrality is defined by an internationally-recognised standard – PAS 2060 – which sets out requirements for the quantification, reduction and offsetting of greenhouse gas emissions. In this standard, the definition of a carbon-neutral footprint is a 'condition in which during a specified period there has been no net increase in the global emission of greenhouse gases to the atmosphere as a result of the greenhouse gas

emissions associated with the subject during the same period'."

*Compare with 'net zero' (see below).*

**CIRCULAR ECONOMY**

A systems solution framework that tackles global challenges like climate change, biodiversity loss, waste and pollution. It is based on three principles, driven by design: eliminate waste and pollution, circulate products and materials at their highest value, and regenerate nature.<sup>66</sup> *Compare with 'linear economy' (see below).*

**DOWNSTREAM**

The phase after the first user has finished with a product. This term is used to refer to how the product can be used for longer and how it is ultimately disposed of.

**FEEDSTOCK**

The raw material used for an industrial process or to make an item. For example, the feedstock for recycled polyester is derived from plastic bottles.

**FOOTBALL APPAREL**

Any garment, footwear or protective equipment worn during play. This term also covers replica football shirts.

**FOOTBALL EQUIPMENT**

Any equipment needed to play football.

**KIT MANUFACTURER**

The entity, usually a factory, that physically produces a club's apparel. The kit supplier (see below) may have its own factories or manufacturing units or may outsource production, often to kit manufacturers based overseas, for example in China.

**KIT SPONSOR**

The brand or organisation that sponsors a club or national association's kit and whose logo is generally displayed on all sponsored apparel. Examples include brands such as adidas and Macron.

<sup>66</sup>. View source



**KIT SUPPLIER**

The organisation or company that supplies a club or national association's apparel. This is usually the kit sponsor (see above), but grassroots clubs, for example, may buy directly from a kit supplier without being sponsored by them.

*Note: It is important to acknowledge the difference between the kit manufacturer, kit sponsor and kit supplier as they relate to the supply chain. A club may not have visibility or contact with the kit manufacturer and may therefore rely on the kit sponsor or supplier to manage that relationship. The club nonetheless has a responsibility to influence changes towards circularity upstream through its relationship with the kit sponsor or supplier.*

**LIFE CYCLE ASSESSMENT (LCA)**

A methodology used to quantify the environmental aspects of goods and services (products), defined in [ISO 14040](#) as "compilation and evaluation of the inputs, outputs and the potential

environmental impacts of a product system throughout its life cycle," from raw material acquisition through production, use, end-of-life treatment and recycling to final disposal. It consists of four phases: goal and scope definition, inventory analysis, impact assessment, and interpretation.

**LINEAR ECONOMY**

Society's current model, whereby we take materials from the Earth, make products from them, and eventually throw them away as waste.<sup>67</sup>

Compare with 'circular economy' (see above).

**MANUFACTURING UNIT**

The factory where a product is made. In the context of apparel, the fabric production and garment sewing generally take place in two different manufacturing units, possibly even based in different countries. For example, polyester for a football shirt may be produced in a manufacturing unit in China and then shipped to a

manufacturing unit in Vietnam to be cut and sewn into garments before being transported to Europe for sale.

**NET ZERO**

A more ambitious goal than carbon neutrality (see above) that applies to an entire organisation and its value chain. According to the [Carbon Trust](#), it means achieving a scale of value-chain emission reductions consistent with the depth of abatement achieved in pathways that limit warming to 1.5°C, with no or limited overshoot, and neutralising the impact of any source of residual emissions that remains unfeasible to be eliminated by permanently removing an equivalent amount of atmospheric carbon dioxide.

**RECOVER**

Capture the energy generated when incinerating material. More broadly, recovery refers to waste that is not recycled, but that is used as a source of energy or valuable biochemical compounds.<sup>68</sup>

<sup>67</sup>. View source

<sup>68</sup>. View source

**RECYCLE**

Transform a product or component into its basic materials or substances and for reprocessing into new items.<sup>69</sup>

**REDUCE**

Minimise the amount of waste generated by changing the design, manufacture, purchase or use of materials or products.<sup>70</sup>

**REUSE**

Use a product or component for its intended purpose repeatedly without significant modification.<sup>69</sup>

**SUSTAINABLE DEVELOPMENT**

Defined in the World Commission on Environment and Development's 1987 report, [Our Common Future](#), as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." It seeks to reconcile economic development with the protection of social and environmental balance.

**UPSTREAM**

The phase of processes that take place before a product is delivered to the seller (i.e. the club). This phase covers all aspects from design through manufacture to shipping.

**USE PHASE**

The period from the moment a product is bought from a retailer to the moment the first user finishes with it and no longer wants to keep it. This term includes the retail process.

**VALUE CHAIN**

The full product life cycle and all stakeholders, from product conception and design through to disposal and end of life.

**ZERO WASTE**

The conservation of all resources by means of responsible production, consumption, reuse and recovery of products, packaging and materials without burning and with no discharges to land, water or air that threaten the environment or human health.<sup>71</sup>

**ZERO WASTE TO LANDFILL**

A situation in which no material from a given entity or activity goes to landfill. The focus only on landfill implies that it is preferable, for example, to derive energy from waste by burning it. Therefore, unlike the term 'zero waste' (see above), this term does not demand a redesign of our entire cycle of extraction, production, consumption and waste management.<sup>72</sup>

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69. [View source](#)

70. [View source](#)

71. [View source](#)

72. [View source](#)

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## UEFA CIRCULAR ECONOMY GUIDELINES

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# UEFA

## CIRCULAR ECONOMY

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**RESPECT**