



ACCESS
Achieving Circularity in Cities through
Environmental Sustainability of Sports

REUSABLE CUPS FOR DRINKS

Wash up after a
party for less
waste



This general practice has the overall objective of contributing to less plastic waste produced at sport events and thus easing the pressure of sporting event on the environment. Not only less waste is produced (what decreases the time of cleaning the stadium, collecting waste and treating it) but it also decreases single use plastic production and thus the use of raw materials, and also encourages visitors to adopt eco-friendly behaviours.

GENERAL DESCRIPTION OF THE PRACTICE

The principle sounds simple – with a purchase of a drink, the buyer leaves the bar with the drink and a reusable cup which should be returned upon finishing the drink or before getting a new one. However, for implementing a practice, we need to look at 3 key aspects: design, financial construction, and logistics – all of them define the success of the practice and determine some key monitoring requirements such as the return rate - how many cups were returned to the venue vs how many were taken home or damaged.

When it comes to design, it encompasses the choice of the material, the design of the cup and the visual identity. The final evaluation of how environmentally friendly or successful the practice was starts from the choice of material. At this step doing more harm than good is something to avoid, simply because different material has different environmental, and CO2 impact.

The reusable PP cup has the least environmental impact, but the material cannot be recycled from cup to cup (circular).

Even though the production process doesn't use raw fossil materials, PLA still has the greatest environmental impact. Currently, rPET is the only material that can be processed in a circular way, which is the preferred option. But a prerequisite for circular recycling is that the cups must be collected in a clean mono-stream (no waste or other types of plastic), and they must be ink free.[1]

The ink-free remark brings us to another aspect of the reusable cups – the branding and visual identity. The example from Ireland, where a stadium is shared between more users.

[1] [Plastic Promise](#)

[2] [Hope Solutions](#)

While the stadium wanted to introduce reusable cups much earlier, the caterer presented the design they developed that met their requirements and the new reusable cups were used during the Ireland – Wales rugby game. The cups were branded with the Irish Rugby Football Union (IRFU) logo. To maximise the use and the resources a discussion was necessary between several different stakeholders involved in this pilot test, namely FAI (Football Association of Ireland), IRFU, the stadium, the caterers and beverage providers. Both FAI and IRFU were happy with the solution before the full implementation which was planned for November 2019 was pushed back to February 2020 and the Rugby 6 Nations Cup. However, studies show that blank unbranded cups have a higher return rate than those branded or decorated because they become souvenirs that visitors take home with them.

The Irish example of the reusable cups was interesting because of another design aspect – of the cup itself. Certain countries have a specific drinking culture which includes certain type of beverages which are served in specific glasses. A sport organisation needs to consult the subcontractors (caterers and other providers) on the shape and the size of the cup – not only to please the sponsors, meet the requirements of certain beverages but also to increase the visitor experience.

The financial side of reusable cups is another dealbreaker – setting it up properly can guarantee a high return rate and thus securing environmental benefits and satisfaction among visitors. If this setup isn't convenient to meet aforementioned objectives, this practice can create more environmental harm than good, as the visitors wouldn't be incentivised to return their used cups and generate waste instead. The math which justifies this statement is that one pint of single use plastic cup requires 20g of raw material and a reusable cup requires 48g of raw material. The same difference is reflected in the carbon footprint, where a single use plastic cup equals 70 g/CO2 equivalent compared to 168 g/CO2 equivalent[2].

This obviously implies that if no incentives or encouragement are present for recuperating the used reusable cups the system can have significant negative environmental impacts compared to deploying single use cups. Deciding what the price would need to be in order to make the return of the cups happen is another deal breaker. The pilot test in Ireland allowed an interesting observation. While a drink, in this case a pint of beer, could cost somewhere between €2 to €4 in southern or central Europe, a pint in Ireland is between €6 and €7. The usual deposit price for a cup, on the other hand, is €1 in both cases. This led to a conclusion that the deposit elsewhere could be a half or a third of a price of a new drink, while in Dublin it's way less. Therefore, a lot of cups were left in the stands (a large share still collected by some visitors, not necessarily the original owners of those cups).

Finally, logistics around the reusable cups is another aspect which determines whether the practice would bring any environmental benefits. They revolve around two actions – collection and storage. Linked to the previous discussion on the economics and the return rate, having a convenient and fast collection system would encourage the visitors to participate and return their cups, and this includes the financial transaction. Separating the serving area from the collection area is a good rule of thumb, as it would minimise the crowds and also take the pressure off the bar staff. The closer to the exit doors and gates, the more convenient it is for the visitors to return their cups. Additionally, the use of signage or additional staff to direct the visitors would contribute to higher return rate. Many solutions exist for the financial transactions apart from manual ones – QR codes, reverse charge on the visitors' bank cards or for recurring events – a personal account with a balance.

The storage is another aspect which can have at least two scenarios – washing and storing cups on site or transporting the cups to a washing and storage facility elsewhere. Washing and storing the cups at the venue certainly eliminates the negative environmental (and financial) impact caused by road transport.

CHALLENGE

Reusable cups are turning into a more and more common practice across Europe. While certain events, especially cultural ones pioneered this practice some years ago, the world of sports are picking it up at a fast pace. After all, an average stadium that hosts 300 events annually uses 5.4 million single-use cups – creating a whopping 64 tonnes of plastic waste. If these were replaced with reusable polypropylene (PP) cups used 300 times and then discarded, that would generate less than one tonne of waste.[3]

Nevertheless, implementing a reusable cup system carries certain challenges, adaptation and finetuning – all revolving around communication, logistics, finances, infrastructure, behaviour and more. This practice thus brings you an agglomerated overview of good practices and key lessons learnt from different implementations.

Cities and regions are already taking actions for banning single-use cups in cultural and sport events – the regions of Brussels and Flanders in Belgium, the Netherlands only being among the latest one to see this ban in 2023 and 2024.

RESULTS

One of the cases that we can highlight in this publication come from Dublin. At the end of the Ireland – Scotland rugby game in February 2020, 52360 reusable cups were returned to the washing facility. If these 52360 were replaced with single-use plastic pint cups, they would amount up to 418.88 kg.

In terms of CO₂ savings, a saving of above 2 tonnes of CO₂eq. This includes savings by avoiding incineration and manufacturing new single use cups, losses by not incinerating them and the emissions coming from washing. Furthermore, the waste composition drastically changed too with the introduction of reusable cups. Only during the month of February 2020, when the stadium hosted two matches with reusable cups the amount of mixed packaging waste going to incinerators decreased to 3.1 tonne from 4.54 t, 3.02 t and 3.96 t in March, September, and November 2019 respectively. At the same time, the dry mixed recycling rate increased to 17% from 14%, 10% and 14% during those same months in 2019.

[3] [UpstreamSolutions](#)

Many other benefits were observed in other cases which are available for reading on the ACCESS website. We would also like to suggest to the readers the comprehensive study titled “A study of the waste free cup systems at events as commissioned by Rijkswaterstaat in cooperation with Plastic Promise” from 2020, which covers the entire lifetime of cups through a comprehensive LCA analysis.

LESSONS LEARNT

The system must make the visitor fully responsible for the cup return, with the event host acting as an enabler for that to happen by setting the system up properly.

Enough access to reverse vending or return counters needs to be secured throughout the event but especially at the end. In the case that the cups were to contain a RFID chip or other active track and trace devices, this could act to set off an alarm when the person leaves the event with the cup. Large warning signs could communicate this fact and bins could be made available at the exit. This could be operated with or without a deposit return system.

Providing unprinted cups that do not encourage keeping the cup as a souvenir or not keeping the cup because it has an attractive generic design.

Printing the cup with the clearly explained deposit return system rules. At the same time, the venue should have sufficient signage and some pre-event communication made to visitors could be helpful.

Worth mentioning is also the users' willingness to use cups. People visiting music events or other cultural events, or some sport events have already experienced reusable cups and got used to them. However, the optimal solution for the system needs to be set up in order to guarantee visitors' experience.

REPLICABILITY POTENTIAL

The replicability potential of reusable cups is obviously rather high as they are being deployed in more and more venues. As the ACCESS project deals with stadium sports, the fact that the event is taking place in an enclosed space rather than in the countryside or the great outdoors, allows the system to have well-defined barriers. The issue certainly lies in the size of the venue and the available financial and human resources as reusable cups require attention in terms of distribution, collection and reverse charge, providing guidance and signage among others.

In terms of the environmental impact, what could determine the overall environmental impact and expected benefits are three key aspects – material the cup was made from, the number of uses, the use of water for washing, whether the venue can wash and store cups on site, and financially speaking what is the charge for unreturned cups.





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This factsheet is a part of a larger collection of good practices available on the project's website

www.access-cc.eu

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The **ACCESS project** is one of the latest European projects which explores and challenges environmental sustainability and environmental management in sports. Co-funded by the European Union's Erasmus+ programme, ACCESS is looking at narrowing the gaps between the current environmental performances of sport organisations, their strategies, and practices on one side and strategies and targets of their respective cities or regions with the overall objective – making these sport organisations a reference point for sustainability in sports in their countries and turning them into replicators of solutions for achieving it.



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