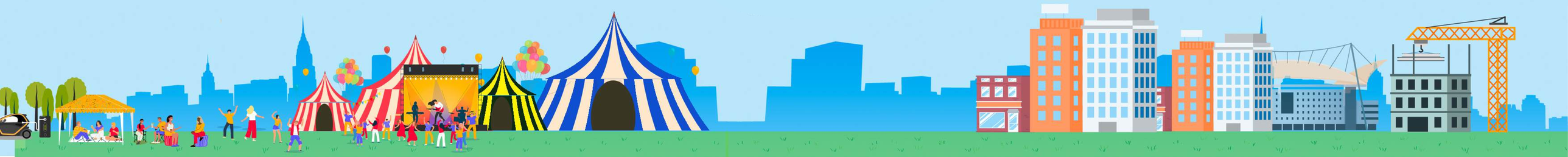
Circular Festivals

SEVEN DECISION TREES

FOR A CIRCULAR & CLIMATE NEUTRAL FESTIVAL



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Introduction

This toolbox aims to support festivals and event professionals in moving step by step towards more circular, resilient, and future-proof events. It consists of seven decision trees on the following themes: materials, merchandise, textiles, energy, travel & transport, food & drinks, and water & sanitation. Together, they offer a practical and structured way to translate sustainable ambition into action.

The content of this toolbox is grounded in the knowledge, experience, and insights developed through the Green Deal Circular Festivals (GDCF). As the Green Deal approaches its conclusion in 2025, it reflects more than six years of collaboration and progress towards circular and climate-neutral festivals. Supported by the Dutch Ministry of Infrastructure and Water Management, over 50 leading festivals from the Netherlands and 17 other European countries joined forces to form a shared movement. Together, the GDCF helped define what circularity means for festivals and how progress can be monitored. Within this network, partners developed innovative collaborations, practical tools, and methods to measure and track environmental impact.

This toolbox is intended as a hands-on and supportive tool. By making complex sustainability choices more transparent and actionable, it helps users in taking concrete, realistic steps, regardless of their starting point.



The end goal per theme is highly ambitious and aligned with the definition of sustainability for the sector in the GDCF model. But the decision trees should not be seen as a final assessment or strict checklist. Instead, they function as a guiding instrument towards that goal - how to navigate complexity, identify opportunities for improvement, and support continuous progress.

The decision-tree format was first developed by Into The Great Wide Open (The Netherlands), who created the initial decision tree for circular procurement of materials in 2024. This clear and accessible way of sharing knowledge proved effective in supporting better decision-making. Inspired by this success, the same approach has now been applied to the other themes in this toolbox. While the toolbox reflects the five core GDCF themes, it places additional emphasis on textiles, including both merchandise and onsite applications. Textiles have been given extra attention because knowledge, guidance, and established best practices in this area are still relatively limited, while the potential environmental impact is significant.

A MODEL FOR A CIRCULAR & CLIMATE NEUTRAL FESTIVAL

REDUCE FOOTPRINT OF MATERIALS TO ZERO

NET ZERO CARBON EMISSIONS

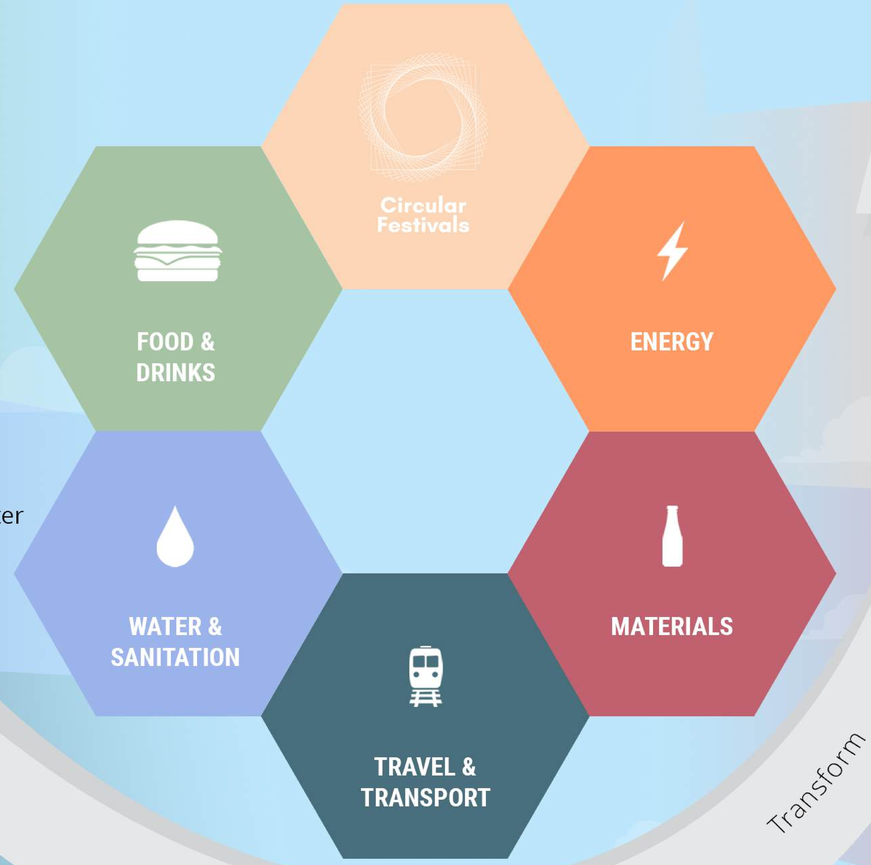
ZERO IMPACT ON ENVIRONMENT AND BIODIVERSITY

Circular Festivals

- Minimize spillage of food and drinks
- Plant based and organic certified menus
- Seasonal and local products
- Zero residual waste: use of left-overs and spillage
- Net Zero carbon emissions from all food & drinks

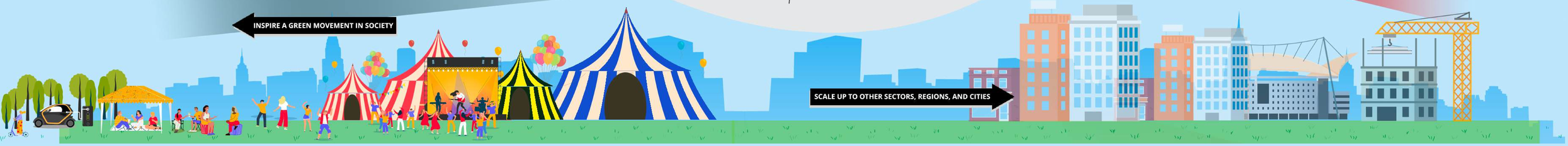
- Minimize (safe) usage of potable water
- 100% renewable sources for non-drinking water requirements
- All water is treated on site and is as clean than it came in
- Zero pollution to the local environment
- Net Zero carbon emissions from transport and processing of (waste)water

- Minimize travel distance crew, volunteers, artists and audience
- Minimize transportation movements for logistics and supplies
- Optimize use of sustainable modes of transport
- All transportation by festival with renewable sources
- Net Zero carbon emissions from all travel & transport



- Minimize use of energy and fuel
- 100% Renewable energy sources
- Locally produced energy and/or from grid
- Net Zero carbon emissions from all equipment

- Minimize use of materials
- Zero residual waste: all materials cycled at highest value
- Eliminate single-use plastics: unavoidable recycled
- 100% Materials from renewable resources
- Net Zero carbon emissions from (re)use, recycling and disposal



Materials Decision Tree

Circular Festivals

Created by Tijl Couzij
Editing by Luise Härtel

The production, use and processing of products and materials have a significant environmental impact. This decision tree is designed to support circular procurement for events and other organisations, helping to ensure that circular ambitions can be realised in practice.

By following the guidance in this decision tree, organisers can make more informed choices throughout procurement, use, collection and end-of-life processing. The framework is grounded in the 7R principles: Refuse, Rethink, Reduce, Reuse, Repair, Refurbish and Recycle.

These principles provide a pathway for shifting from linear to circular material flows. The order reflects their priority: first preventing impact by avoiding unnecessary products, then keeping materials in use for as long as possible. Recycling forms the last viable option to recover resources.

Two parts of fully circular procurement

1

Part 1: use and processing
All products and materials should be reused (renting, borrowing, or direct-reuse) or at minimum, be recycled or composted after use. This minimises residual waste that would otherwise be incinerated or landfilled.

2

Part 2: manufacturing and procurement
All procured products and materials must either be; used items or made from previously used materials (second-hand, refurbished) or, at a minimum, made from bio-based or recycled raw materials.

Definitions

Recycling
The processing method that turns used products and materials into new raw materials for new products. Examples include cleanly collected glass bottles, paper, (bio-)plastic-PE/PP/PET, wood, etc.

Products from Recycled Materials
Products created from raw materials derived from processed waste streams. Examples include T-shirts made from recycled PET bottles, particle board from recycled wood, printer paper made from recycled paper.

Compostable Materials
Products and materials that can be actually composted by waste processors after use, such as vegetable, fruit, and food waste, as well as wax paper. Most bioplastics (PLA, etc.) compost too slowly and are thus currently incinerated instead of composted in the Netherlands.

Bio-based Materials
Products and materials directly made from renewable organic/biological sources, such as plants, fungi and algae, instead of fossil resources like petroleum, natural gas, and coal. Examples include wood, paper & cardboard, cotton, and bio-plastics.

Materials Decision Tree

Circular Festivals

Phase 1: Use

Is this product really necessary to realise your goal?

Yes → Do you have something similar? Or can you make it from something you have?

- Yes → **Fantastic** — Borrowing, renting and preventing means circular material use (1 and 2).
- No → Can you get it made from bio-based or recycled materials?

No → **Fantastic** — Prevented use of materials has the lowest impact.

Phase 2: Production

Could you borrow or rent the product?

- Yes → **Fantastic** — Borrowing, renting and preventing means circular material use (1 and 2).
- No → Can you also get it 2nd hand or refurbished?

Can you also get it 2nd hand or refurbished?

- Yes → Can you get it made from bio-based or recycled materials?
- No → Can you get it made from bio-based or recycled materials?

Can you get it made from bio-based or recycled materials?

- Yes → Too bad! Can you at least reuse it after use?
- No → Can you reuse it after use? More often is better!

Phase 3: Processing

Can you reuse it after use? More often is better!

- No → Can it be recycled or composted after use?
  - No → **Good** — You're already applying circular methods in *procuring* this product. Improve the *use* & *production* phase to make it fully circular!
  - Yes → **Fantastic** — This is fully circular procurement.
- Yes → Can it be recycled or composted after reuse?
  - Yes → **Fantastic** — This is fully circular procurement.
  - No → **Good** — You're already applying circular methods in *procuring and using* this product. Improve the end-of-life phase next, to make it fully circular!

Too bad! Can you at least reuse it after use?

- Yes → Nice. Can it be recycled or composted after reuse?
  - No → **Challenging** — You're already applying circular methods in *re-using* this product, but this is not fully circular procurement. Improve the *production* and *end-of-life* phase next, to make it fully circular!
  - Yes → **Good** — You're already applying circular methods in *re-using* and *recycling* this product. Improve the *production* phase next, to make it fully circular!
- No → Too bad! Can you recycle or compost it after use?
  - No → **Poor** — Sadly, this is not circular: this product is bought new, and is not made from refurbished, bio-based or recycled materials, and the product ends up as residual waste!
  - Yes → **Challenging** — You're already applying circular methods in the *end-of-life processing* phase. Improve the *procurement* & *use* phase next, to make it fully circular!

Two parts of fully circular procurement

1

Part 1: use and processing
All products and materials should be reused (renting, borrowing, or direct-reuse) or at minimum, be recycled or composted after use. This minimises residual waste that would otherwise be incinerated or landfilled.

2

Part 2: manufacturing and procurement
All procured products and materials must either be; used items or made from previously used materials (second-hand, refurbished) or, at a minimum, made from bio-based or recycled raw materials.

Merchandise Decision Tree

Circular Festivals

Created by Doris Hondtong
Editing by Luise Härtel

The production of clothing has a significant environmental impact. This decision tree is designed to support circular decision-making for textile merchandise, helping to reduce that impact. The material table below references the most common low-environmental impact alternatives to traditional textile materials. The decision trees on the next pages provides recommendations for the most common merchandise products. Additionally, it adds detailed guidance on other aspects of clothing production, such as working conditions, dyeing, or recyclability. By following the guidance provided in this toolbox, your visitors can take home a sustainable reminder of their great time at your festival or event.

Material Table

Together with the following design principles, the Material Table can guide sustainable material selection.

To support low-impact and regenerative production

- Prioritize plant-based fibers over animal-based over synthetic fibers
- Choose materials with low or average environmental impact materials

To increase the recyclability of a product

- Use a single material throughout the product (mono-material)
- When mixing materials, choose combinations that remain within the same column of the Material Table (for example, recycled cotton with organic cotton)

Additional insights for selecting materials

Natural fibers: Linen and hemp require little water and few chemicals to grow, making them sustainable plants to use in garment production.
Plant-based man-made fibers: Bamboo plant fibers aren't directly used in yarns. Instead, the plant is processed into pulp, which is then spun into yarn. Due to this process, bamboo fabrics often have a high environmental impact. TENCEL™ uses a sustainable viscose process, so the impact of this material is lower.
Animal fibers: There is considerable discussion about the environmental impact of animal fibers. On one hand, livestock farming consumes a lot of resources, but on the other hand, it is a natural and regenerative material. When animal welfare is protected, it can therefore be argued that animal fibers are a sustainable material to use.
Synthetic materials: Recycled polyester and nylon are generally not made from disposed garments but from non-textile materials, ultimately representing downcycling. Recycled polyester and nylon can also be made from disposed clothing, but this currently represents only a small part of the market.

Environmental impact	Plant fibers				Animal fibers		Synthetic fibers		
	Natural			Man-made					
High	Cotton				Wool	Silk	Polyester	Nylon	Elastane
Medium	Organic cotton	Linen	Hemp	Modal (TENCEL™)	Organic or certified wool		Recycled polyester	Recycled nylon	
Low	Recycled cotton	Organic linen	Organic hemp	Lycell (TENCEL™)	Recycled wool				

The Material Table is based on: *Modint Fiber Matrix*, *Made-By Environmental Benchmarkt for Fibers* and *Textile Exchange Preferred Fibers & Materials Matrix*

Merchandise Decision Tree

Circular Festivals

Phase 1: Rethink and reduce demand

Is the merchandise product **really necessary** for your event?

- No → Fantastic! Preventing material use is always the most sustainable option.
- Yes → Can the product be bought **2nd hand** or made of already existing materials?
  - Yes → Good! Reducing material use lowers the environmental impact.
  - No → Can you **avoid overproduction** by limiting quantities based on a well-considered demand forecast?
    - Yes → Do you **share the product's sustainability** with visitors? E.g. highlighting production details, offering price incentives or giving guidance on extending its lifespan and proper disposal.
      - Yes → Good! The user is essential in a product's lifecycle. It's important to take them along in the sustainability of the merchandise.
      - No → A missed chance if you've actively worked on creating more sustainable merchandise.
    - No → Watch out, more resources will create a higher environmental impact.

Phase 2: Material Selection

Which **type of merchandise product** do you want to purchase?

T-SHIRT / SWEATER/HOODIE

From which **materials** is this product made?

- Made of **recycled cotton** with **organic cotton*** → Good
- Made of **recycled cotton** with **conventional cotton** → Challenging
- Completely made of **organic cotton** → Challenging
- Made of **organic cotton** with **conventional cotton** → Challenging
- Completely made of **cotton** or **bamboo**** → Poor
- Made of a **cotton polyester** blend → Poor

SPORTSWEAR

From which materials is this product made?

- **Completely** made of **one recycled synthetic material** (polyester or nylon) with **0-5% elastane** → Good
- **Partially** made of **one recycled synthetic material** with **0-5% elastane** → Challenging
- **Completely** made of **one recycled synthetic material** with **5-20% elastane** → Challenging
- **No recycled materials** present → Poor
- Blend made of **several synthetic materials** (apart from elastane) → Poor

SOCKS

From which materials is this product made?

- Blend **completely** made of **recycled materials** with **0-5% elastane** → Good
- Blend **partially** made of **recycled materials** with **0-5% elastane** → Challenging
- **No recycled materials** or **5-20% elastane** present → Poor

HATS / BAGS

From which materials is this product made?

- Only made of (a blend of) **recycled or organic materials**: recycled cotton, recycled polyester, recycled nylon or organic cotton → Good
- Made of (a blend of) **recycled/organic materials** combined with **conventional materials** (cotton, polyester or nylon) → Challenging
- Only made of **conventional materials** (cotton, polyester or nylon) → Poor

* For recycled cotton (and wool), fabrics are mechanically torn to produce new fibers, which shortens their fiber length. As a result, they must always be blended with virgin materials to achieve the necessary yarn and fabric quality.
**Unlike cotton or linen, most bamboo fabrics aren't made directly from the plant's fibers. Instead, the plant is processed into a pulp (similar to viscose production), which is then spun into yarn. This process typically requires large amounts of water and chemicals, and wastewater is often not treated properly. Although bamboo itself is a sustainable plant, bamboo fabrics often have a high environmental impact due to this production process. Therefore, when using bamboo, always ask for fact-based information about wastewater treatment and certification.

Merchandise Decision Tree

Circular Festivals

Phase 3: Origin and condition

Is the product manufactured in **Europe or a nearby countries** (such as Turkey or Morocco)?
- No → Challenging
- Yes ↓

Even though it may not be essential for a sustainable product to be produced in the EU, stronger regulations create a higher chance of fair working conditions. Local production also reduces travel impact.

Does this apply to **most of the production steps**? So not just the sewing, but also fabric and yarn production?
- No → Challenging
- Yes ↓

Is the product made under **fair working conditions?**
- No → Poor
- Yes ↓

The fashion industry is known for unfair working conditions. It's important to discuss this topic with your supplier and to ask for verifiable information.

Does your supplier have **verifiable information** or did you consult public resources (Fiar Wear Foundation or Good on You database) to assess the working conditions?
- No → Poor
- Yes ↓

Good!

Your product is made under fair working conditions and/or locally.

Phase 4: Durability

Can your supplier provide (some sort of) **quality tests** to provide evidence on the durability of the product?

→ Pilling Resistance to assess the fabric's durability and appearance.
→ Colour Fastness (Washing + Rubbing) to prevent fading and staining.
→ Tensile/Bursting Strength to measures the fabric strength.
→ Dimensional Stability (Shrinkage) to ensure consistent sizing.
→ Seam Strength/Slippage to evaluate construction durability.

- No → Poor

Extending the lifespan of a product can significantly reduce its impact and prevent people from buying new products. Discuss with your supplier how they're working on creating durable products.

- Yes ↓ Good!

Creating a durable product that lasts over a long time is an essential part of creating sustainable and circular merchandise.

Phase 5: Dyeing

Dyeing is generally one of the most environmentally harmful steps in production. Is the product made of **undyed or light-colored fabrics**?
- No → Challenging

It's a missed chance! Preventing material use is always the most sustainable option.

- Yes ↓

Are the dyes and dyeing processes described as low impact and/or certified (such as GOTS or OEKO-TEX)?
- No → Poor

Next to the raw material, dyeing is the most impactful production step. Try to select a merchandise product that has a sustainable dyeing process.

- Yes ↓

Did you check with your supplier if the dyeing wastewater is properly being disposed of?
- No → Does the dyeing process take place in Europe?
- Yes ↓

Does your supplier have **verifiable information** to back-up these claims?
- No → Does the dyeing process take place in Europe?
- Yes ↓

Good!

Your product uses a sustainable dyeing process, which significantly lowers the overall product's environmental impact.

Does the dyeing process take place in Europe?
- No → Poor
- Yes ↓ Challenging

Stronger regulations in Europe create a higher chance of proper wastewater management. However, it's still best to have verifiable information on the dyeing sustainability.

Phase 6: Graphic Printing

Can you reduce the size of the graphic print on your product or avoid full-coverage prints?
- No → Challenging

It's a missed chance! Preventing material use is always the most sustainable option.

- Yes ↓

Can you use embroidery instead of graphic printing?
- Yes → Good!

Especially for small graphics, embroidery is great as it uses minimal water and no chemical inks.

- No ↓

Are you using DTG (Direct to Garment) printing with water-based inks, water-based screen printing or another low-impact printing technique?
- No → Poor

Printing can use harsh chemicals, create waste and use significant amounts of water. Discuss with your manufacturer how you can reduce the impact of your printing process.

- Yes ↓ Good!

Your product is making use of a sustainable printing technique.

Phase 7: Recyclability

Is your product mono-material? Meaning that it's a 100% made of one type of material
- No → Is the mixing of materials really needed for functionality?
- Yes ↓

This means mono-material, and thus recyclable.

Is the mixing of materials really needed for functionality?
- No → Your product is not recyclable while it could be. Try to purchase a product that is mono-material and thus recyclable.
- Yes → Challenging

Sometimes trade-offs are needed to achieve required performance or durability. But this means that your product is not recyclable.

Does your product contain secondary fabrics such as lining or pockets?
- No → Good!
- Yes ↓

Are these secondary materials made of the same material as the main fabric?
- Yes → Good!
- No ↓

Is it really needed from a functionality perspective that these secondary materials have another composition?
- Yes → Challenging
- No → Poor

Phase 8: Measuring Impact

Can your supplier provide you with an Life Cycle Assessment (LCA) of your product to quantify its environmental impact?
- Yes → Good!

Especially if the LCA contains primary data (from the actual manufacturing sites), it provides valuable insights on the impact of your product.

- No ↓

Did you consult (semi-)public LCA databases to measure the impact of your product yourself?
- Yes → Challenging

It provides a good alternative but it doesn't replace the detailed information a complete LCA can provide.

- No ↓ Poor

Without data to back up claims, it's difficult to say for certain how sustainable your product is.

Fantastic! If you only ended up on green boxes in each of the sections, then you have a completely circular product!

Textile Decision Tree

Circular Festivals

Created by Doris Hondtong
Editing by Luise Härtel

This decision tree can be used for a diverse range of onsite textile that are being used at events and on the festival terrain, such as flags, (fence) banners, mesh, stage skirting, curtains, backdrops and more. The decision tree consists of four phases that together determine the circularity of your product. It is fully circular when achieving a green score at the end of *all* three phases, from Pre-purchase to End-of-life. The framework is grounded in the 7R principles: Refuse, Rethink, Reduce, Reuse, Repair, Refurbish and Recycle. The greatest environmental impact can be avoided even before the product design and production begin. Reconsider whether the onsite textile product is truly necessary.

Explore non-textile alternatives that could achieve the same purpose with a lower environmental impact, for example by using willow mats on fences instead of banners. Explore if the product can be made from second-hand materials. Design the product to last across multiple events, for example by omitting dates or event-specific details.

Some tips to get you started

Collaborate with your manufacturer
The decision tree guides you in selecting the most sustainable products based on your needs. Once this context is established, start discussions with your onsite textile supplier early in the design process. They often have valuable expertise an can help refine your choices to ensure the most sustainable outcome.

Design for recyclability
It's important not only to use recycled materials, but to also design for recyclability by considering the following:

- Avoid mixing materials: Design the product from a single material (mono-material), such as 100% cotton or 100% polyester.
- Avoid coatings: Coatings such as PVC, waterproofing or flame retardants can complicate recycling. Only use them if essential for the product's function.
- Discuss refurbishing: Recycling onsite textile is often challenging, so explore options to reuse materials for a different purpose. Ensure that refurbished products do not contain harmful substances like PVC.

Material selection
This table provides a quick overview of the material types you will likely to need based on your product requirements:

	Polyester *and other synthetics*	Plant-based materials *e.g. cotton, jute, linen*	Wool
Option for easy graphic printing	Yes	No	No
Flame resistance without impregnation	Yes	No	Yes
Recycled options available	Yes	Yes	Yes
Microplastics- & fossil-free	No	Yes	Yes

Did you know...?

Printing technique
Printing can be an environmentally impactful production step. To improve its sustainability:

- One of the most common but unsustainable option is solvent printing, which releases toxic Volatile Organic Compounds (VOCs). If solvent printing is necessary, use eco-solvent inks that are REACH compliant (EU-regulation). This is however not considered a truly sustainable alternative.
- More sustainable alternatives include sublimation (only available for polyester), or latex and UV-inkjet printing of other synthetic materials. Also try to use inks with a low environmental impact, such as water based and certified (OEKO-TEX) inks.
- Design graphics with lighter color coverage, fewer saturated areas, and more negative space to reduce the amount of dye or ink needed without compromising visual impact.

Flame resistance
Flame resistance is essential for event safety. There are the following ways to achieve flame resistance:

- Traditional fabric impregnation is semi-permanent and may release chemicals into the air and soil over time. Select certified, biodegradable and water-based options. Avoid impregnation with ammonium phosphates/sulfates or halogenated compounds (bromine, chlorine) as these are toxic to both humans and nature. Impregnation is the only option to achieve flame resistance for plant-based materials.
- Synthetic fibers can achieve permanent resistance during production, which is called inherent flame resistance (IFR).
- Wool is naturally flame resistant and needs no treatment.



Textile Decision Tree

Circular Festivals

Phase 1: Pre-Purchase

Is the onsite textile product **really necessary** for your event?
- No → **Fantastic!** — Preventing material use is always the most sustainable option.
- Yes ↓

Can you **borrow/rent** the product?
- Yes → **Good** — Reducing material use lowers the environmental impact.
- No ↓

Can the product be bought **2nd hand** or made of already existing materials?
- Yes → **Good**
- No ↓

Can the product be designed in such a way that it can **last over several event editions**?
- No → **Challenging** — More resources create a higher environmental impact.
- Yes ↓

Does the graphic design use lighter colors, fewer saturated areas and/or more negative space to **reduce ink** use?
- No → **Challenging**
- Yes ↓

Good! — Extending the lifecycle of a product and reducing its dye/ink usage significantly lower the environmental impact of your product.

Phase 2: Product Selection

Phase 2a: Material

Does the onsite textile product contain **PVC**?
- Yes → **Poor** — PVC is a toxic and unsustainable material with alternatives available. Reconsider your material selection, even if you're re-using, borrowing or renting PVC.
- No ↓

Is the product made from **polyester** or other synthetic material? This is likely for graphic prints.
- Yes → **Good** — Your product has a sustainable material selection, you're on the right track!
- No ↓

Is the product made of **plant-based materials** (such as jute, linen or cotton)?
- Yes → Is the product made of **recycled or organic** materials?
  - Yes → **Good**
  - No → **Challenging** — Catch up! Try to include recycled materials to reduce your product's impact.
- No ↓

Is the product made of **wool**?
- Yes → **Good** — Wool is a regenerative material, and it's and naturally flame resistant, so no impregnation is needed.
- No ↓

Phase 2b: Flame Resistance

Does your product need to be **flame resistant**?
- No → Does the product have a **graphic print**? (see Phase 2c)
- Yes ↓

Synthetic materials can be made **Inherently Flame Resistant** (IFR). Is this the case for your product?
- Yes → **Good** — You're on the right track! IFR is generally more sustainable than impregnation as it's permanent and doesn't use additional chemicals.
- No ↓

Is the product **impregnated** with certified, biodegradable or water-based chemicals?
- Yes → **Challenging** — Watch out! Impregnation is the only way to achieve flame resistance for plant-based materials. Ask your supplier for evidence-based information on the chemicals.
- No ↓

Poor — Your product is not sustainable. Avoid impregnation with ammonium phosphates/sulfates or halogenated compounds (bromine, chlorine) as these are toxic to humans & nature.

Phase 2c: Printing Technique

Does the product have a **graphic print**?
- No → Phase 3: End-of-life
- Yes ↓

Are you using **sublimation printing**?
- Yes → **Good** — This is a sustainable printing technique, as no water and minimal chemicals are used.
- No ↓

Are you using **latex or UV-inkjet printing** as an alternative to (eco-)solvent printing?
- Yes → **Challenging** — It's often not needed to use these printing techniques. If you are printing on polyester, these techniques are insufficient. If you are printing on another material, reconsider using polyester with sublimation printing as a more sustainable option.
- No ↓

Poor — Your product is not sustainable. Solvents often contain Volatile Organic Compounds (VOCs), which should be avoided. Make sure the material is REACH compliant.

Phase 3: End-of-life

Can the onsite textile product be **stored for reuse** at future events?
- Yes → **Good** — It's always best to reuse products as many times as possible.
- No → Does the **supplier take back** the used product?
  - Yes → Is the product **reused or recycled** after collection?
    - Yes → **Good!** — Your product has a circular end-of-life.
    - No → **Challenging** — Try to understand why reuse or recycling isn't possible, and what can be improved. It's likely due to inadequate waste management or unrecyclable product design.
  - No → Can you collect the product separately in a **textile bin** at your event?
    - Yes → Is the product **reused or recycled** after collection? (see above)
    - No → **Poor** — Your product will end up as general waste, and won't be reused or recycled.

Phase 4: Measuring Impact

Can your supplier provide you with an Life Cycle Assessment (LCA) of your product to quantify its environmental impact?
- Yes → **Good!** — Even better if the LCA contains primary data from the actual manufacturing sites, which provides valuable insights on the impact of your product.
- No ↓

Did you consult (semi-)public LCA databases to measure the impact of your product?
- Yes → **Challenging** — This provides a good alternative, but it doesn't replace the detailed information a complete LCA can provide.
- No ↓

Poor — Without data to back up claims, it's difficult to say for certain how sustainable your product is.

Fantastic! If you only ended up on green boxes in each of the phase, then you have a completely circular product!

Energy Decision Tree

Circular Festivals

Created by Ridder Haspels
Editing by Luise Härtel

In the past few years, festivals have been testing emerging technologies such as batteries, solar power, and hydrogen, paving the way for hosting festivals at almost any scale that are fully circular from an energy perspective! With this decision tree, we break down the process and provide guidance on the challenges you may encounter on the way.

The main drivers for reducing energy emissions is to reduce your power consumption and creating a smart energy plan. This means measuring your power usage, implementing energy-efficient appliances and creating a time schedule for when appliances need to run. If feasible, connect your festival to the main power grid. Otherwise, work with batteries in combination with on-site renewables, hydrogen generators, or generators running on HVO100. Please note that HVO100 is a temporary solution until sources like hydrogen become more widely available and price-competitive. A smart energy plan is a key element in creating a fully sustainable power grid.

Smart Energy Plan

Finding the right collaborators
Depending on your situation, different professionals can assist with your plan:

- Energy suppliers: usually the first place to start. They can provide necessary materials, equipment or staff to build the power grid.
- Energy or sustainability experts: good to consult those with specific knowledge or previous experience in the events and festival sector.
- Green energy solution providers: some companies offer smart energy plan creation as an additional service.
- Experienced production companies or technical teams: teams familiar with festival infrastructure can also develop smart energy plans, especially when working with energy suppliers and sustainability advisors.

Power Inquiry
Complete data from all power users is essential to create a reliable plan. Stress the importance of accuracy and work closely with suppliers and subcontractors to ensure they provide key information, such as:

- Type of appliance
- Peak power usage
- Type of connector (Schuko, 32A, 63A, etc.)
- Location at the festival
- Start date & time of power usage
- End date & time of power usage
- Night power needed (yes or no)

Collecting this data takes time, and last-minute changes are common. It’s normal that the final 20% of information only becomes clear a few weeks before the festival, and power suppliers usually allow some flexibility. Tip: if food vendors struggle to provide details about appliances and power needs, put extra effort into gathering accurate information. Setups usually stay the same, so it's worth it!

Some extra tips

Designing the Grid
It’s especially important to have a festival map with potential grid locations and information about major power users, like stages. This helps planners design the main grid early on. If you have data from previous years, it’s extremely valuable for forecasting and can help you reuse layouts.

Tools to Use
Gathering all this information can feel overwhelming at first, but there are tools to simplify the process.

- Event management platforms: tools like In2event allow you to send out power inquiries and centralize all event-related requests in one place.
- Custom setups: if you prefer to build your own system, make sure you maintain a single source rather than having multiple documents circulating. Survey tools from Google, Notion, or Tally can be a great starting point.

Quick Wins

- Start data collection early, even if it’s incomplete.
- Keep a central record of all gathered information for future events.
- Prioritize accurate information from large power users and food vendors.
- Focus on power users that have extended usage windows, like the production village or crew catering. Places that have great potential to make big reductions quickly using renewables.
- Combine power zones or bring big energy users closers together.

Energy Decision Tree

Circular Festivals

Phase 1: Power Source

Is your event in a venue or outdoor?

- Venue
  - A venue already has a grid connection power supply in place. Check with venue owner if they use renewable grid source and go to fase 2
- Outdoor
  - Grid connection available near main loads (>= 63A)?
    - Yes
      - What size is your event?
        - <2k visitors → 63A + battery often sufficient
        - 2 - 5k visitors → >=63A + battery could be sufficient
        - 5-15k visitors → >=125A or multiple feeds (create smaller grids) in combination with battery
        - >15k visitors → multiple high capacity feeds needed in combination with batteries
      - Does your available connection match your festival size?
        - Yes
          - Grid connection running on renewables?
            - Yes → Fantastic! You have the potential to fully run your festival grid in a circular way.
            - No → Good. See if you can get the owner of the grid connection to switch to renewable sources to become full circular.
        - No
          - Make a combination of grid and other sources → Fantastic! You have the potential to fully run your festival grid in a circular way, if you also manage the other sources properly
    - No
      - Hybrid gen + Battery feasible?
        - Yes → Good. This can already reduce emission significantly, since battery covers average load / peak saving and the generator recharges the battery in optimum load. Look into on-site solar or wind. In certain instances, this can be helpful and cost efficient, e.g. for events with long build ups or very small remote energy users.
        - No
          - Using HVO100 or Hydrogen as fuel for generators?
            - Yes → Nice! Which one are you using?
              - Hydrogen from renewable energy? Fantastic! Then you're on track to making your festival grid full circular
              - HVO? Good! This reduces emissions even further. Make sure that the HVO100 is sourced properly.
              - Hydrogen from fossil fuel energy? Challenging. Try switching to green hydrogen. The process of making hydrogen is very energy intensive and, if using fossil fuels, not sustainable.
            - No → Poor. This is not compatible with circular standards! Switch to certified renewable fuel or redesign to grid/battery/renewables.

Phase 2: Reduce Energy Usage

Are you implementing ways to reduce your energy usage?

- No → Poor. Look at the suggestions on ways to reduce your energy usage
- Yes → Nice, off to a good start! See if you're implementing all options to reduce energy.

To properly implement energy reduction methods, creating a smart energy plan is vital! Read more about a smart energy plan in the introduction.

Ways to reduce energy usage

- Use energy efficient appliances: For example; LED, efficient Reefers, → Good, this is already a nice start.
- Implement appliance night off policy → Good. You're on the right track, look at the other ways to reduce energy demand
- Create a switch off list. Some appliances don't need to run outside show hours → Fantastic! You're doing great.
- Set kW budgets for stage/light designers → Fantastic! You're on the path to a fully circular energy grid!

The next fase is about measuring, optimizing and creating a feedback loop for your festivals using data gathered from the previous years. This way you can gain deeper insights in your power usage throughout the festival production.

Energy Decision Tree

Circular Festivals

Phase 3: Analyses and Measurement

Are you using the information on power usage data from generators, batteries or grid connections?

- No → Do you know how to get the information?
  - Yes → Do you know how to make use of the data?
    - No → Ask your power supplier or your powerplanner to take you trough the data
    - Yes → Why are you not using it already?
  - No → Suppliers can give you data depending on Generators (run hours), Batteries (detailed graphs on input and output power over time), or Grid connections (total kwh used, or output over time if the connection has a smart meter).
- Yes → Are you using it to optimize next years festival?
  - No → Poor
    - Analyzing the data can give you valuable insights, such as: Placed capacity of power supply: is the max. power draw is as you expected? Set-up use during buildup, show, and breakdown: what is the power use during these days? How much energy is used at night, especially before and after show? Are suppliers and crew members turning off appliances if not needed?
  - Yes → This is already a good start!
    - Are you measuring smaller sections of the festival grid?
      - No → Measuring smaller sections makes the data clearer and more useful for next year's improvements.
      - Yes → Are you measuring on a per-power-usage basis?
        - Yes → Fantastic, keep it up!
        - No → Good
          - By measuring power use per user or appliance, you gain the most detailed insights to optimise the festival grid.

On to next year's edition! Go back to the beginning and see whether your new insights create opportunities to improve earlier phases.

Travel & Transport Decision Tree

Circular Festivals

Created by Tijl Couzij
Editing by Luise Härtel

When organizing an event, there are many transport movements of people and goods. Due to the large numbers involved, these movements can account for a significant, if not the largest, share of the event's total environmental impact. To address this, the decision tree is divided into two tracks.

The first focuses on all travel of attendees, crew, artists, and suppliers to and from the event, while the second, the Transport Decision Tree, covers the transport of goods, the use of building equipment, and internal logistics on site. The basic principle for this decision tree is to focus on avoiding, reducing, and transforming (switching to low carbon options) travel and transport wherever possible. Applying this framework and following the decision tree helps ensure that both attendee travel and goods transport contribute as little as possible to the overall environmental footprint of your festival.

Tips for reducing travel and transport emissions

Smart Travel: Visitors
- Planned bicycle routes
- Financial incentives
- Fast-lane access
- Travel campaign
- Festival busses/shuttles
- Smart travel apps
- Partnerships public transport
- Partnerships shared transport
- Long distance train offers
- Green travel benefits

Smart Travel: Artists
- Green contracts
- Green riders
- Financial incentives
- Benefits for green travel
- Long distance train offers

Smart Travel: Crew
- Green contracts
- Crew shuttles
- Financial incentives
- Benefits for green travel

Car and Bus Travel
- Electric cars other vehicles
- Hydrogen cars other vehicles
- Electric busses
- Use good biofuels; HVO-UCO
- Green incentives
- Green contracting

Air Travel
- Sustainable Aviation Fuel (SAF) through own carrier or Climategig.com

Transportation & building equipment
- Green contracting
- Long-term deals
- Specialised logistics
- Electric or hydrogen vehicles
- Source in other sectors
- Use transport hubs
- Combine freight trips
- Foldable products
- Efficient engines

Measuring Footprint
Step 1: Gather data through ticket sales, audience surveys, event registration software.
Step 2: Measure the travel & transport GHG footprint with a calculation tool like; Julie's Bicycle Creative Climate Tools, Onboard:Earth Travel Calculator, GDCF Monitoring Excel Tool.

Background information and explanations

Emission free – Every T&T movement that is done without producing *greenhouse gas* or *local emissions* during use. Everything on green electricity and green hydrogen

Fossil free – Every T&T movement that is done without the use of coal, oil, or natural gas as an energy source. Everything on green electricity, green hydrogen and sustainable biofuels.

Transport goods and materials – The movement of materials, equipment, or supplies to and from the event location.

Building equipment – Machinery and tools used for constructing or setting up event infrastructure. Mostly; Forklifts, Cranes, Cherry pickers, Golfcarts, etc.

Internal transport – Movement of goods, equipment, or people within the event site or venue. Mostly; (mini)vans, busses, boxtrucks, golfcarts, bicycles, etc.

Travel including Audience, Crew, Artists, and Suppliers – Journeys made by all event stakeholders to reach or leave the event location. Mostly; walking, bicyles, cars, shared/public transport, busses, ferries, etc.

Carbon removal – The process of capturing carbon dioxide from the atmosphere and storing it long term. Work with trustworthy platforms that offer long term, stable, transparent carbon removal with co-benefits. Organisations like: Scature, Aeco, Festivals Forest, or Justdiggit.

Travel Decision Tree

Circular Festivals

Phase 1: Prevent audience, crew, artist or supplier travel

First, think about what is essential to your organisation concerning travel. What is actually needed? If possible, start gathering data for calculating the travel footprint.

Is it possible to do (part of) the event online?

- Yes → Fantastic!
  - A digital event typically saves about 80-99% on all travel and transport CO_2e emissions, compared to an event that relies on fossiel fuels for travel and transport.
- No → Are you able to choose your event location?
  - Yes → Can you choose a location that is close to the people traveling to the event (audience most impactful) or good access to public transport?
    - Yes → Fantastic!
      - Audience travel can be one of the biggest emitters of GHG. This is largely related to travel distance.
    - No → Is the festival location within walking, cycling, public transport distance from where most of your audience travels from?
      - Yes → Fantastic!
      - No → Is it possible to use your marketing and programing to target an (part of) audience, crew and artists close(er) to your event location?
        - Yes → Fantastic!
        - No → Challenging!
          - Longer audience travel distances, without good acces to public transport often result in much higher travel emissions (mostly due to car use and flying).
  - No → Is the festival location within walking, cycling, public transport distance from where most of your audience travels from?
    - Yes → Fantastic!
    - No → Is it possible to use your marketing and programing to target an (part of) audience, crew and artists close(er) to your event location?
      - Yes → Fantastic!
      - No → Challenging!
        - Longer audience travel distances, without good acces to public transport often result in much higher travel emissions (mostly due to car use and flying).

Phase 2: Reduce audience, crew, artist or supplier travel

Second, think about how the things that are essential can be done smarter and more efficiently.

Is walking or bicycling to the event an option?

- Yes → Fantastic!
  - This is the lowest carbon intensive form of traveling. Strongly promote this in your communication.
- No → Can people travel by public, shared, or organised mobility? E.g. train, tram, subway, event busses, shuttles, ferries, (locally) shared cars, scooters, etc.
  - Yes → Good
    - This greatly reduces travel movements due to its higher efficiency. Strongly promote this in your communication.
  - No → Are people travelling by plane or car to the event?
    - Yes → Challenging!
      - When visitors, crew and artists travel by airplane or car this quickly becomes the biggest GHG emitter of the entire event.
      - Can flying be discouraged?
        - Tips: make flying least attractive option, start travel campaign, offer green travel bonus, offer other and better alternatives.
        - No → Challenging!
        - Yes → Good!
          - No or less fossil-fuels being burnt saves an enormous amount of GHG emissions.
      - Can car use be discouraged?
        - Tips: higher parking fees, limited parking, make car least attractive option, start a travel campaign, promote car sharing, offer better alternatives.
        - Yes → Good!
          - No or less fossil-fuels being burnt saves an enormous amount of GHG emissions.
        - No → Can traveling together be encouraged?
          - No → Challenging!
          - Yes → Good!
            - Less fossil-fuels being burnt saves a large amount of GHG emissions.
      - Can all fossil-fuel based means of travel be discouraged?
        - Yes → Good!
          - Less fossil-fuels being burnt saves a large amount of GHG emissions.
        - No → Can traveling together be encouraged?
          - No → Challenging!
          - Yes → Good!
            - Less fossil-fuels being burnt saves a large amount of GHG emissions.
    - No → Fantastic!
      - No or little flying or driving vistors, crew and artists saves a lot of GHG emissions. Have a look at the 'Transport' decision tree for goods and materials.

Phase 3: Transform audience, crew, artist or supplier travel

Last, transform unavoidable travel by using lower-impact travel options and fuels.

Can flights be done on Sustainable Aviation Fuel?

- Yes → Good
  - When flights cannot be avoided, flying on SAF is the only currently available way to avoid fossil fuels.
- No → Can you compensate flight GHG emissions?
  - Yes → Good
    - When flights and car use cannot be avoided and sustainable energy carriers are no option, carbon removal with co-benefits at a trustworthy platform is the next best thing.
  - No → Poor
    - Bummer! Even if travel to your event is already minimal and efficient, it still isn't fully emission-free, fossil-free, or climate neutral. To improve, go back a few steps or consult the introduction.

Can cars drive electric or on hydrogen?

- Yes → Fantastic!
  - This is an emission-free option. When transport runs on electricity or green hydrogen, tailpipe emissions drop to zero, which can reduce total event GHG emissions by up to 75%.
- No → Can cars drive on sustainable biofuel?
  - No → Can residual car GHG emissions be compensated?
    - No → Poor
      - Bummer! Even if travel to your event is already minimal and efficient, it still isn't fully emission-free, fossil-free, or climate neutral. To improve, go back a few steps or consult the introduction.
    - Yes → Fantastic!
      - This is a fossil-free option. When transport runs on sustainable biofuels or other low-carbon fuels, total event GHG emissions may be reduced by up to 60%. These options still produce some emissions, but significantly less than conventional fossil fuels.
  - Yes → Fantastic!
    - This is a fossil-free option. When transport runs on sustainable biofuels or other low-carbon fuels, total event GHG emissions may be reduced by up to 60%. These options still produce some emissions, but significantly less than conventional fossil fuels.

Transport Decision Tree

Circular Festivals

Phase 1: Prevent transport of goods, building equipment, and internal transport

First think about which materials and structures are essential for your event. Everything that can be avoided, means less transport and building equipment, resulting in less emissions. If possible, start gathering data for calculating the transport footprint.

Is it possible to do (part of) the event online?

- Yes → Fantastic!
  A digital event typically saves about 80-99% on all travel and transport CO_2e emissions, compared to an event that relies on fossiel fuels for travel and transport.
- No → Are you able to choose your event location?

Are you able to choose your event location?

- Yes → Can you choose a location that is closest to where most of the largest suppliers come from?
- No → Is the event location close (within ≈50-100km) to where most of the suppliers come from?

Can you choose a location that is closest to where most of the largest suppliers come from?

- Yes → Fantastic!
- No → Is the event location close (within ≈50-100km) to where most of the suppliers come from?

Is the event location close (within ≈50-100km) to where most of the suppliers come from?

- Yes → Fantastic!
- No → Is it feasible to involve more local or regional suppliers that are closer to your event location?

Is it feasible to involve more local or regional suppliers that are closer to your event location?

- Yes → Fantastic!
- No → Challenging!
  Longer transport distances result in higher transport emissions. Air freight being the heaviest emitter. Follow the diagram, to reduce your transport footprint.

Fantastic!
Supplier transport of materials and goods to the event can be a big emitter of GHG. This is largely related to transport distance.

Phase 2: Reduce transport of goods, building equipment, and internal transport

Second, think about how the things that are essential can be transported and done smarter and more efficiently.

Is it feasible to transport more efficiently by using less suppliers and building equipment?

- Yes → Good
- No → Is it feasible to transport more efficiently by combining loads and using transport hubs?

Is it feasible to transport more efficiently by combining loads and using transport hubs?

- Yes → Good
- No → Here, freight from multiple suppliers can be bulked up in more efficient combined transport.

By working with fewer suppliers, combining freight becomes easier and transport becomes more efficient.

By using transport hubs, freight can more easily be combined which makes more efficient transport easier to realise.

Can transport be optimised with more efficient vehicles? Often, modern truck and trailer engines make this possible.

- Yes → Good
- No → Challenging!
  If multiple suppliers use half-empty, inefficient fossil-fuel trucks and trailers, this can easily triple your transport emissions.

By using more modern/efficient trucks and trailers GHG emissions per ton km can drop significantly.

Good

Can build-up and internal transport be optimized with fewer or more specialized pieces of equipment?

- Yes → Good
- No → Can build-up and internal transport be optimized with more efficient equipment or modern engine types?

Great! By using less (fossil) building equipment emission will go down considerably.

Good

Can build-up and internal transport be optimized with more efficient equipment or modern engine types?

- Yes → Good
- No → Challenging!
  This means 2-3x internal transport emissions.

This means that emissions drop significantly.

Good

Equipment is often oversized for the tasks it actually performs.

Phase 3: Transform transport of goods, building equipment, and internal transport

Last, transform unavoidable transport and use of building equipment by using lower-impact technologies.

Can transport and building equipment be done electric or on Hydrogen?

- Yes → Fantastic!
  This is the emission-free option. When transportation can be done on emission free options this can save large amounts of GHG emissions.
- No → Can transportation and building equipment be done on sustainable biofuel?

Can transportation and building equipment be done on sustainable biofuel?

- Yes → Fantastic!
  This is the fossil-free option. When transportation can be done on fossil free options this can save large amounts of GHG emissions.
- No → Can residual GHG emissions from transportation and building equipment be compensated?

Can residual GHG emissions from transportation and building equipment be compensated?

- Yes → Good
  When transport and building equipment use cannot be avoided and sustainable energy options aren't feasible, offsetting carbon through a reputable platform that also delivers co-benefits is the best next thing; Net-zero
- No → Poor
  Bummer! Your event may already be optimally designed and efficient in transport and equipment use, but it's still not fully emission-free, fossil-free, or climate neutral. To improve, go back a few steps and review the tips and introduction.

Food & Drinks Decision Tree

Circular Festivals

Created by Lyke Poortvliet
Editing by Luise Härtel

The impact of food and drinks at festivals ranks in the top three environmental drivers, alongside mobility and energy. However, taking bold decisions, new collaborations and leadership can lower the impact of this theme significantly. This decision tree is designed as a practical tool to help festival organisers understand how to move towards a circular food and drinks offer and meaningfully lower climate impact. In this context, “product” can refer to a drink, such as a beer, a more complex item like a candy bar with multiple ingredients, or even a single ingredient used in a dish or drink, for example milk. The most significant impact reduction comes from shifting from animal-based to plant-based ingredients and reducing food waste. From there, important principles include choosing locally produced and seasonal ingredients, and sourcing from organic, biodynamic, or regenerative systems. Finally, impacts on animal welfare, biodiversity, and social conditions are essential considerations.

Validating a dish with multiple ingredients

Some dishes contain several ingredients, each contributing differently to their overall impact. To ensure accurate assessment, it’s important to identify which ingredients to focus on when going through the decision tree.

Easy: Follow the flowchart using only the main protein source(s), as this ingredient usually has the greatest impact on circularity and climate neutrality. For example, in a cappuccino with cow’s milk, a pizza with cheese and ham, or a hamburger with beef, you would validate the milk, cheese, ham, or beef, and can disregard the other ingredients.

Extensive: Follow the flowchart with all the ingredients in the dish. Keep in mind that the heaviest component does not always have the greatest environmental impact. For example, in a pizza the dough may weigh the most, but the ham and cheese usually account for the largest impact.

Festival food impact labels



*200 grams is based on an average festival snack or meal and is significantly smaller compared to an average dinner meal.

A few questions and answers

Does this model provide a percentage score for circularity or climate neutrality?
No, this is not a calculation or certification tool. It provides only an initial directional assessment. Calculating an exact score would require detailed data on all food and beverages, e.g. ingredient quantities, country of origin, and more.

Why are certifications not mentioned in this chart?
Since certification criteria and labels may vary significantly between countries, they are not shown in this Europe-wide chart. It’s recommended to refer to nationally recognized certifications for animal welfare, sustainable fishery, organic farming, local produce, deforestation-free sourcing, and fair trade.

What does organic produce have to do with circularity?
Organic farming helps prevent pollution and ensures that natural resources and ecosystems remain safe and reusable within the cycle. A circular food system minimizes waste and harmful outputs, maintaining clean water, soil, and air remain for healthy food production, biodiversity, and climate resilience.

What is regenerative produce?
Regenerative farming is a holistic approach to agriculture that goes beyond sustainability to actively improve the health of ecosystems. It focuses on restoring and enhancing soil health, biodiversity, water cycles, and overall farm resilience. There is currently no certification or international set criteria for this method.

What is a short supply chain?
A supply chain involving a limited number of economic operators, committed to cooperation, local economic development, and close geographical and social relationships between producers, processors, and consumers.

Food & Drinks Decision Tree

Circular Festivals

Phase 1: Plan and source, before the event

Is the food or drink product sourced locally within 200km?

- Yes → Does the product contain animal ingredients?
  - No → Is it organically certified or grown using regenerative methods?
    - Yes → Are unavoidable CO_2e emissions compensated by the producer?
      - Yes → **Fantastic!**
      - No → **Challenging**: Not too bad, but not circular due to the high risk of water and soil pollution and negative impacts on biodiversity.
    - No → Does the product contain beef, lamb sheep or farmed shrimp?
      - Yes → **Poor**: Avoid this product due to high CO_2e emissions, land & water use.
  - Yes → Is it sourced through a short supply chain and moved by train, road, or ship?
    - No → **Poor**: This product is not circular due to higher CO_2e emissions in its supply chain transport.
- No → Will you compensate the unavoidable CO2e emissions made by the producer?
  - Yes → **Good**
  - No → **Challenging**: Not too bad, but unavoidable emissions mean it's not climate-neutral.

Do you use other food or drink products for crew, artists, or audience?

- No → Repeat this process
- Yes → Repeat this process

Phase 2: Engage and serve, during the event

Are sold out items allowed in the catering contracts?

- No → **Challenging**: Not too bad, but chance of food waste is more likely to occur.
- Yes → Are caterers informed about actual expected visitors &
  - No → **Challenging**: Not too bad, but chance of food waste is more likely to occur.
  - Yes → Are caterers committed to promote low impact drinks & dishes?
    - No → **Challenging**: Not too bad, but there is a chance on higher average food & drinks impact
    - Yes → Are caterers asked to distribute left over food & drinks for human consumption?
      - No → **Challenging**: Not too bad, but chance on food-waste is is more likely to occur
      - Yes → Are caterers required to separate inedible organic materials for proper recovery?
        - No → **Poor**: This product is not circular due to a missing nutrient loop.
        - Yes → **Fantastic!**: These materials should be returned to nutrient cycles in the highest-value way, such as animal feed, industrial uses, or composting.

Phase 3: Monitor and calculate, after the event

FOOD → What is the average CO_2e impact of the food consumed at your festival (per 200 g portion)?

- < 0.35 CO2e
- < 1.4 CO2e: Not too bad, but moderate CO_2e emissions mean your food isn't fully circular.
- > 1.5 CO2e: Your food is not circular due to high CO_2e emissions.

DRINKS → What is the average CO2e impact of the drinks consumed at your festival (per liter)?

- < 0.25 CO2e: Fantastic! Your drinks are circular within the limits of the Earth
- < 0.5 CO2e: Not too bad, but moderate CO_2e emissions mean your drinks aren't fully circular.
- > 0.6 CO2e: Your food is not circular due to high CO_2e emissions.

What percentage of food is wasted on the festival site?

- < 3%: Fantastic! Your food is circular within the limits of the Earth
- > 3%: Not too bad, but this amount of waste prevents your food from being fully circular.
- > 6%: Your food is not yet circular due to this amount of foodwaste.

Both yes?

Fantastic! All your consumed food & drinks are circular and climate-neutral within the limits of the Earth.

Water & Sanitation Decision Tree

Circular Festivals

Created by Laura van de Voort
Editing by Luise Härtel

Water is under pressure worldwide: the quality of our surface water is declining, water shortages are increasing, and extreme weather events are causing flooding more frequently. festivals also play a role in this, as large amounts of water are often brought in, used, and discharged. This decision tree supports you in making circular choices for water use at your festival. The focus is on the direct water flows on site: supply, use, and discharge. Indirect effects – such as the water required for the production of food, drinks, and materials – are outside the scope. The decision tree is structured around the circular principles: Rethink, Reduce, Reuse, Recycle. Step by step, you are guided through possibilities to use water more efficiently, prevent waste, and, where possible, reuse or treat water flows.

This tool helps you make both practical and future-proof choices, reducing water consumption and minimizing the impact of your festival on the environment.

Water Management 101

Water Quality
Events can affect water quality by discharging contaminated wastewater or causing peak loads at wastewater treatment plants (WWTPs), with potential impacts on nature and public health.

Water Availability
In dry periods, drinking water and freshwater can be scarce. Events must then use available sources sparingly. A key consideration is to use drinking water only where necessary!

Water Overload
Heavy rainfall can cause flooding, so careful management of rainwater, soil, and buffering is essential. Using less water, reusing it where possible, and retaining it so it can return to the soil or water system all help create a more water-smart, climate-resilient event layout.

General Water-Saving Measures
The largest water consumers at events are pipe flushing for hygiene, toilets and showers—these offer the greatest potential savings. Create an efficient water plan: save drinking water with smart design by placing toilet clusters close to the main valve. Route pipes for average consumption and absorb peak consumption with strategically placed buffer tanks, saving piping and (flush) water. Prevent waste through active leak detection and rapid repair by a dedicated team, as well as avoiding leftover water in storage tanks. Install water-efficient technology, such as:

- Low-flow taps and showerheads
- Limited shower opening hours
- Waterless urinals
- Low-flush toilets

Infrastructure Considerations

The decision tree emphasises water saving. Local or national conditions, however, may limit certain choices. Below is an overview of toilet types and key considerations.

- Vacuum toilets: up to 90% less flush water
- Flush toilets: use only with water-saving flush systems, flushing water is not necessarily of drinking water quality
- Compost toilets: no water use; contents can be processed off-site to avoid peak loads. Check if composting/biogas processing is available. (In the Netherlands, this route is currently not established.)
- Chemical toilets: water-efficient; contents can also be processed off-site. Ask suppliers about sustainable processing options (e.g., biogas).
- Waterless urinals: suitable for separate urine collection, enabling nutrient recovery and removal of pharmaceutical residues

If connected to sewer system, opt for Flush toilets or vacuum toilets (most efficient when there are no water- or treatment-capacity issues).
If no sewer connection or water scarcity, opt for compost toilets, chemical toilets, waterless urinals, or vacuum toilets.

Glossary

Tap water: Water supplied through the mains system. In this decision tree, we assume it is suitable for drinking water. However, in some countries this is not the case.

Water balance: An overview of the incoming and outgoing water flows within a system (such as a festival). It shows how water is supplied, used, reused, and discharged. This can be represented schematically, for example in a Sankey diagram.

Water & Sanitation Decision Tree

Circular Festivals

Phase 1: Water Source & Supply

Can you prevent using water in the first place? → Fantastic

Can you make concrete agreements with suppliers to prevent pollution and reduce water use? → Fantastic

Can you store and use rainwater as an alternative water source?

Can you use surfacewater as an alternative water source? → Good

Can you use groundwater as an alternative water source? → Good

Phase 2: Water Infrastructure & Use

Where can you **reduce water** use?

OVERALL

Temperature-regulating piping, while ensuring water safety, accounts for 20-40% of total water consumption!

Can you limit and collect flushing water for reuse? → Fantastic

Can you limit misting and other dust prevention measures? → Fantastic

TOILETS

Can you save water by using compost toilets and waterless urinals? → Fantastic

Can you save water by using chemical toilets (with non-toxic sanitary liquid)? → Good

Can you save water by using vacuum toilets? → Good

Can you save water by using toilets with a water-saving flush button? → Challenging

HOSPITALITY

Can you offer (free) tap water? → Fantastic

Can you use water-efficient washing appliances? → Fantastic

SHOWERS

Can you use water-saving taps, with maximum amounts per use?

Can you engage crew & visitors to save water via a communication campaign? → Good

TAPS

Can you prevent pollution by asking visitors to use non-toxic personal care products or cleaning agents and providing these for your crew? → Good

Phase 3: Water Discharge

Is there a connection to the sewer?

- Yes → Does your event cause a peak load at the Wastewater Treatment Plant?
  - Yes → Can you store wastewater on-site for staggered discharge at the treatment plant?
    - Yes → Good: Organize a staggered discharge to the treatment plant.
    - No → Challenging: Remove excess of wastewater by tanker truck.
  - No → Good: Discharge the wastewater to the wastewater treatment plant.
- No → Can you treat wastewater for reuse locally? Watch out for fats, sunscreen, food residues.
  - No → Can you store wastewater on-site for staggered discharge at the treatment plant?
    - Yes → Good: Organize a staggered discharge to the treatment plant.
    - No → Challenging: Remove excess of wastewater by tanker truck.
  - Yes → Are you allowed to discharge the locally treated water into surface water?
    - No → Can you store wastewater on-site for staggered discharge at the treatment plant?
      - Yes → Good: Organize a staggered discharge to the treatment plant.
      - No → Challenging: Remove excess of wastewater by tanker truck.
    - Yes → Fantastic: You contribute to preventing drought in the area!

Phase 4: Discharge Processing

How can you treat the discharge in a circular way?

URINE

Can you seperate urine through the use of waterless urinals, compost or chemical toilets?

Can you work with a processor who can recover nutrients from urine? → Fantastic

RESIDUES

Can you remove unwanted substances such as pharmaceutical residues? → Fantastic

MONITOR

Can you monitor water consumption accurately by creating a water balance? → Fantastic