

Sustainable Production in The Performing Arts.

A report of The Working Group for Sustainable Scenography, a project supported by the Norwegian Arts Council. Written by Silje Sandodden Kise and Hege Pålrsrud.

Note: This report was initially written in Norwegian as an account to the Norwegian Arts Council and was submitted in October 2019. The report was revised with additional information from La Reserve des Arts in January 2020.

The report was translated into English in October 2022 as a part of SHIFTIT, a project by Syv Mil AS.

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Introduction

The Working Group for Sustainable Scenography was established after an introductory seminar at Heddadagene in 2017 and received funding from the Norwegian Arts Council in March 2018. The group has since changed its working title from Recycled Scenography to Sustainable Scenography. Although connected to the Norwegian Association of Performance Designers in Creo (via reports to the board and annual meetings), it has, however, been run by its members as an independent initiative. The group arose due to an apparent lack of concern for prioritising sustainability in the performing arts.

Abstract

The theatre field in Norway has had many good intentions. There are examples of successful initiatives and measures concerning sustainable theatre production – however, these are only to a small extent integrated in formal structures. Examples of sustainable practices can often be attributed to devoted individuals, going above and beyond formally stated work tasks. The main reason why sustainable production is hard to achieve can seemingly be explained by a lack of resources regarding: (a) STORAGE, (b) STAFF, and (c) TIME.

The working group sees great potential in formalising and sharing best practices for the institutional theatres in NTO (Association of Norwegian Theatres and Orchestras). Sustainable practices should be implemented in the theatres' budgets. NTO has started many good efforts to increase sustainability, and the working group will continue its collaboration with NTO.

The socioeconomic costs of not prioritising sustainability should be made clear, and all parties should be held accountable for these costs. A good example can be seen in the construction industry, where it is mandatory to declare waste management as a part of the production costs. Making these costs more visible would lead to both environmental and economic sustainability. It could also enable broader collaboration and sharing of resources between institutional theatres, the independent performance art field, and other sector branches. This may lead to other potential benefits, including: the support of small and competent crafts groups, as well as improving terms of production for the independent performance art field. The working group would ideally suggest establishing recycling centres, inspired by models from other countries which could then be adapted for Norwegian circumstances. Due to the business model and work-specific knowledge required for this venture, it is unlikely that such recycling centres could become an integral part of the theatre's operations. However, the performing arts sector should take joint responsibility in order to establish a circular economy for its field. The establishment of 'Kloden' theatre in Oslo could as an example be a possible starting point for such a venture.

Working group and working style

Achievements to date:

- 3 meetings and 2 Skype meetings were held between June 2018 and 2019, in addition to discussions in a closed Facebook group.
- Survey
- Research on international initiatives and resources on sustainable use of resources
- Heddadagene seminar on the 11.06.2019
- Presentation of the work at 'Grønt Slipp', at Proscen/Bergen Dansesenter 17.09.2019

The Working Group for Sustainable Scenography consisted of: Hege Pålrsrud, Silje S. Kise, Ingvild Holm, Janne Robberstad, and Gjøril Bjercke Sæther. Silje S. Kise and Hege Pålrsrud led the project, and discussions within the group were an essential part of the process. Arne Nøst and Carle Lange were also initially members of the group. However, some replacements of the group's active contributors were made throughout the process. One reason for this could be the fact that most members are active scenographers and costume designers with heavy workloads. When such a work group is established without a clear hierarchical structure, the responsibility lies on its members to prioritise the work. For these reasons, the Working Group concludes that the continuation of the project, and specific initiatives (regarding the establishment of recycling centres), should be administered by a central body - for example, NTO.

The working group has been gathering information on international initiatives and businesses that work with collection, recycling, resale, and re-distribution of materials for arts- and performance productions. Centres of competence for sustainable performing arts, and theatre institutions focusing on sustainability, were also researched. Silje Sandodden Kise primarily undertook this research. In order to continue this research and establish contact with international key persons, this report includes all information gathered through these communications. There were of course limits to how many potential contacts could be reached given the time frames and resources of the project.

A survey was undertaken based on the current conditions and potential for sustainable production in theatres connected to NTO. The choice of focusing this survey on institutional theatres merely, does not imply excluding the independent performing arts field. The institutional theatres have an extensive level of production output, a community via NTO, and a structure to give an overview of this work, which offers the possibility for specific measures and further collaboration. This can result in guidance and exchange within the entire performing arts scene. Hege Pålrsrud primarily undertook this survey-based work. The research and survey results were presented at the Sustainable Scenography seminar in collaboration with NTO and Heddadagene 2019.

Survey on sustainable production in theatres

The survey was undertaken in May and June 2019. Kjetil Falkum, the producer of Heddadagene, distributed the survey to the technical directors of NTO theatres. He also participated in the quality assurance of the survey questions, along with the other members of the working group. The survey tool SurveyMonkey was used, and the survey was distributed via email. It was not possible to answer anonymously, and the answers could be both directly compared, as well as read independently of each other. Connecting this survey to the Heddadagene seminar was a strategy to start a dialogue, based on knowledge of current sustainability work in the theatre field, and aiming for this dialogue to be continued and developed after this project was finalised.

Questions, answers, and analysis:

25 respondents answered parts of the survey, and 13 respondents provided complete information. NTO consists of 39 members: institutions producing performing arts for music and theatre. The data is quantitative and qualitative, representing more theatres than the attendees of the first seminar in 2017, and the 2019 seminar. The participants were asked to base their answers on the productions that were realised in the previous year.

It is assumed that those who provided answers coincidentally had some spare time. It is presumed that staff at the theatre want to use their working hours on what they are best at, creating performing arts. A relatively low response rate (approximately 38%) can indicate that the people who are already concerned about sustainability replied, and that those who are not, did not prioritise using their time to answer this. One positive outcome of the survey was the registration of 25 persons, who are now involved in the topic and can pick up the thread.

Participants that completed the survey (to its full extent) were from the following theatres:

- Akademi for scenekunst
- Teater Ibsen
- Den Nationale Scene
- Rogaland Teater
- Teater Innlandet
- Trøndelag Teater
- Kilden Teater og Konserthus
- Dramatikkens hus
- Årjelhsaemien Teatere
- Den Nationale Scene
- Bergen Nasjonale Opera
- Nationaltheatret
- Teatret Vårt

Is sustainability defined responsibility within the organisation?

12 of 15 participants answered this question with 'no'. Still, other answers from these respondents show that it is still possible to work well with sustainability, even though the responsibility is not clearly defined. This seems to demonstrate how vital individual initiatives are for facilitating change. Can we ensure that things will improve even more if more institutions clearly define this responsibility?

Which materials are used and purchased?

ANSWER CHOICES	AVERAGE NUMBER	TOTAL NUMBER	RESPONSES
Wood (in meters)	2,341	23,411	10
Aluminium (in meters)	1,244	12,439	10
Wooden plates & veneers (in square meters)	850	8,503	10
Textiles for costumes (in meters)	708	5,664	8
Textiles for scenography (in square meters)	567	5,103	9
Plastics/acrylic plates (in square meters)	329	2,959	9
Steel (in meters)	234	2,337	10
Polystyrene (in cubic meters)	35	318	9
Steel (in square meters)	14	95	7
Aluminium (in square meters)	6	35	6
Total Respondents: 10			

10 respondents answered this question. The amount of various materials purchased is presumably a figure which differs from year to year, especially when considering the extensive variety in use of materials in each production. The Working Group assume this would differentiate from similar surveys conducted in i.e the construction industry. For example, based on this survey, Nationaltheatret (The National Theatre) holds the highest number of use of aluminium due to one single production. This variation shows the challenges in reusing materials, as the demand for a certain material is specific for each project and it is difficult to predict when this specific material will be used again. This makes the suggestion of using reusable modules a relevant discussion and possibility, as Fabian den Otter pointed out during the Heddadagene seminar. In the seminar, he mentioned Hordaland Theatre's good experience when using these modules.

What goes in and what goes out?

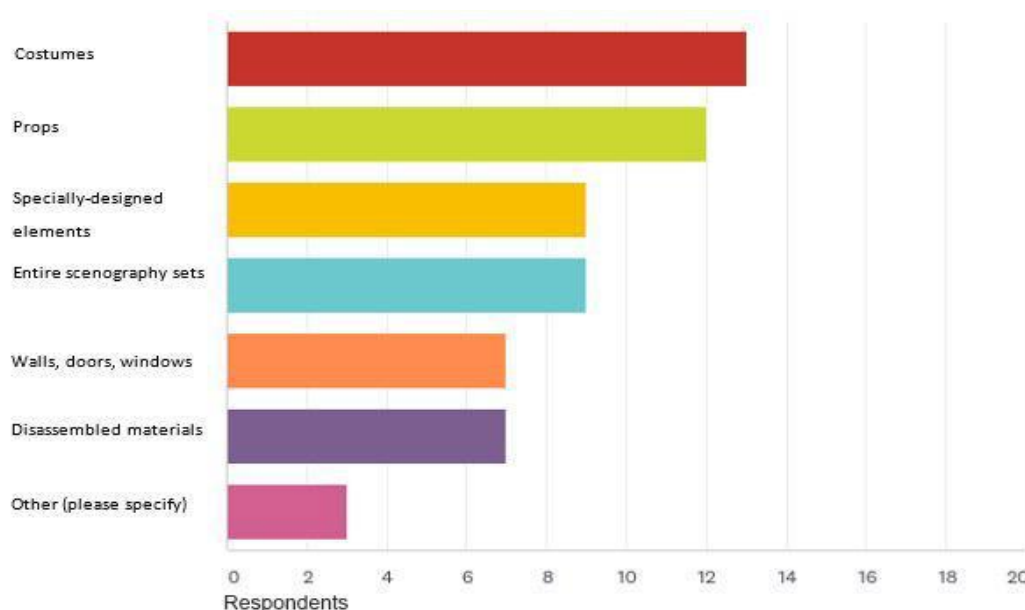
In the survey there were questions about the number of new productions realised in the previous year as well as the number of discarded productions. It was difficult to calculate a concrete figure regarding the amount of discarded materials; however, one could speculate a rough figure given the number of newly produced scenographies in comparison with the number of productions/scenographies discontinued from the repertoire. The 15 respondents of this question had 131 new productions in total, 93 of which were discarded. This is a significant turnover rate.

ANSWER CHOICES	AVERAGE NUMBER	TOTAL NUMBER	RESPONSES
How many new productions did you have in 2018?	9	131	15
How many productions were removed from the repertoire/discarded in 2018?	6	92	15
Total Respondents: 15			

Do you have other comments regarding the theatre's use of materials?

In answer to this survey question, some answered that they use external producers or loan scenography. This leads many respondents to be unaware of the extent to which production and waste management strategies are sustainable. It has also become apparent that there were some types of materials which were not considered in the questions on material use. It was also pointed out that including the mass/weight of materials (alongside the length) would have led to essential information.

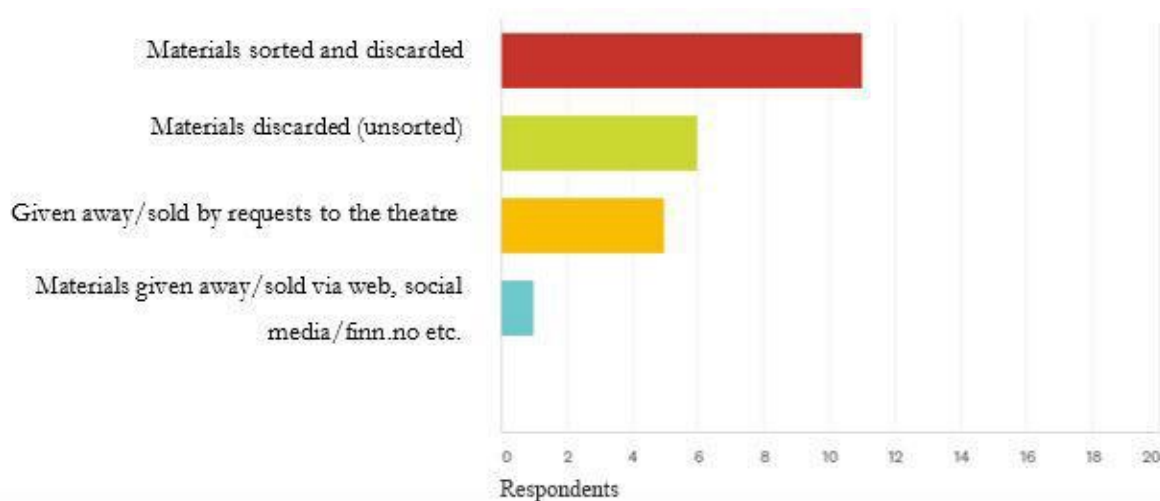
What does the theatre keep in storage?



13 respondents answered this question. The results verify a direct link between storage space and being able to reuse elements of a larger size. Props and costumes are considerably easier to reuse and store. Even if theatres have improved by storing more costumes, a considerable environmental challenge still exists in the textile industry connected to production and choice of materials. The working group agrees upon a significant need for the performing arts field to gather knowledge and take responsibility for the use of textiles in further projects.

What happens to the items which are not stored?

Many respondents answered that they have effective practices concerning waste management, but that webpages and social media are not used to resell elements. Selling items on webpages such as *finn.no* (a Norwegian web-based marketplace) can often be inconvenient, with customer challenges such as: spending time answering questions, failure to show up, needing transportation assistance, etc. Materials often need to be removed within a specific timeframe, and this does not always align with the demand for the specific material. Not to mention that without sufficient storage possibilities, materials inevitably become waste.



Where did the materials end up? Give examples and if possible, state the amount.

In this part of the survey, different strategies for management of materials no longer in use was the main focus. What is being recycled? How? And what happens to the waste afterwards? The answers confirm that recycling materials via social media or *finn.no* can be both advantageous and disadvantageous.

Response options, with all received answers from the respondents:

GIVEN AWAY/SOLD ON SOCIAL MEDIA, FINN.NO ETC

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1. 70 'tables' in aluminium are currently for sale
2. Some furniture was sold
3. Two productions were sold. Two costumes were sold to actors. Some of the stored materials were sold in-house.

WASTE SORTED AND DISCARDED:

1. Wood: painted, primed etc. Aluminium pipes: perforated, welded, painted etc.
2. Wood, steel, aluminium, plastics, copper
3. Scenography
4. Wood and metal
5. Aluminum/steel/wood/specific elements such as a car
6. Wood and aluminium is sorted and discarded

GIVEN AWAY/SOLD VIA REQUEST TO THE THEATRE:

1. materials, wood
2. Selected stage flats
3. Wood
4. Specific elements on request, often from smaller theatres
5. Materials from a Hedda Gabler production were given away

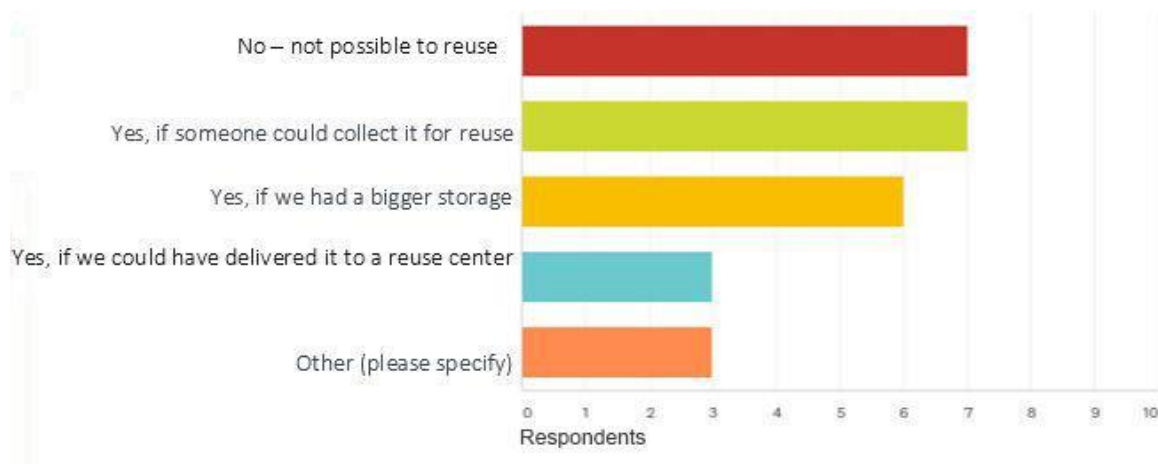
DISCARDED BUT NOT SORTED:

1. Everything
2. Residual waste, plastics, walls made from aluminium/wood/plastics that are glued
3. Parts of sculptures, spare materials, textiles, painted wood, textiles, and foil such as composite
4. Polystyrene and some other materials that cannot be sorted are discarded

Would it be possible to reuse what has otherwise been discarded? If yes, how?

12 respondents answered these questions. Many materials that are discarded are not considered recyclable. However, would other persons see that differently, if given the opportunity? Feedback from the survey shows that finding alternative solutions would require extra capacity in terms of storage and time. In addition, processed materials often cannot be recycled.

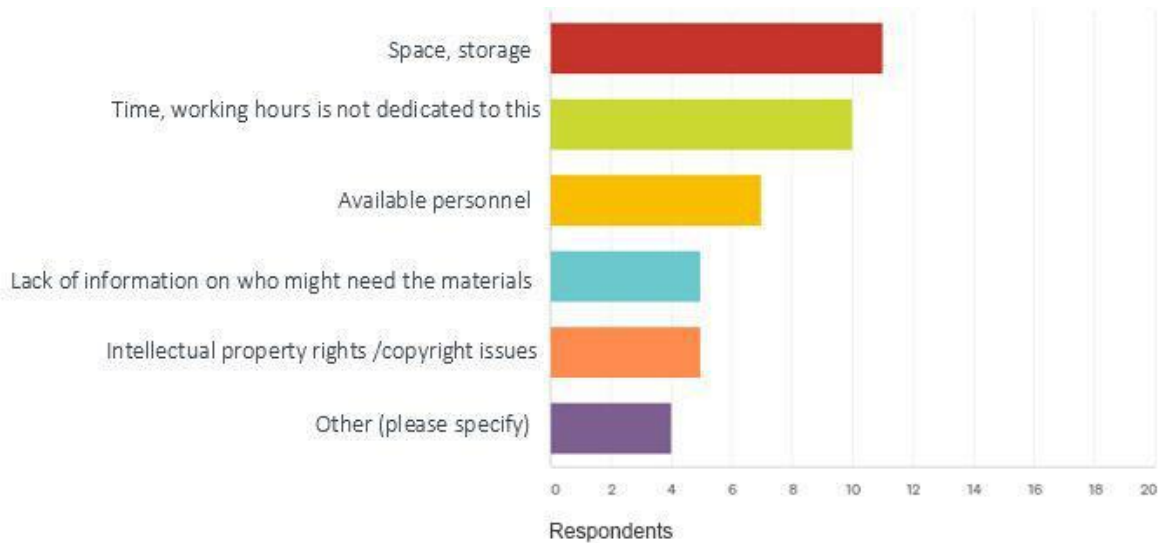
The possibilities for reuse were quantified, as below:



What is the primary obstacle to recycling?

13 informants answered this question. The main obstacles mentioned were: **SPACE, STORAGE, TIME, STAFF**. These are all resources that are not sufficiently implemented in the theatre productions at this point. This topic was also discussed at the Heddadagene seminar and is considered a significant finding for further work. All are aware that this is true, but few have the possibility to target these issues within the scope of their work. The empowering combination of this new data, along with the discussions held at the seminar, will hopefully incite change. The working group is questioning whether the recycling of materials should be outsourced, or become a part of each theatre's in-house operations and responsibilities. Theatre staff are experts in the field of producing performing arts, with valuable experience to draw on. But maybe the experts on logistics-, storage management-, marketing-, and sales are to be found elsewhere as well?

What is the biggest obstacle to recycling?



The 'Other' section received feedback on specific problems when handling processed materials. It also gathered information on standard practices which encourages designers to release parts of their work for reuse (outside its original context).

What are your worst practices?

The majority of respondents drew from their personal experience, often mentioning that: (a) too much was being discarded, (b) waste was not sorted properly, and (c) alternative materials were difficult to source. Similarly, many added understaffing, and the production of elements that are

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difficult to reuse, as vital issues. This conforms to the main issues seen earlier: **SPACE, STORAGE, TIME, STAFF**. Travels were also a large environmental concern which was raised.

Which measures have been undertaken?

- Introduction of module systems such as Hoac/Nivec
- Staff training
- Transitioning to LED-lights
- Call for tenders specify that decorations should be easy to recycle
- Increased awareness on choice of materials
- Regulations regarding reuse stated in scenographer's contracts

Although some suitable measures have been undertaken, identical practices have not been adopted by all the institutions. Many of these appear simple enough to formalise and could be applicable to all theatres. Scenographers have discussed the introduction of reuse agreements. It is essential to acknowledge copyright and intellectual property. One way of acknowledging the material and artistic history of scenography materials could be to keep the credits of the previous scenographer. (Remark for the translated version: Fair compensation should also be provided when making use of intellectual property.)

Heddadagene seminar 2019

The seminar on Sustainable Scenography was arranged by Kjetil Falkum, producer of Heddadagene, in close collaboration with Hege Pålstrud and Silje Sandodden Kise. The seminar was held at Bikuben at Det Norske Teatret (The Norwegian Theatre). The meeting was live streamed, with pre-subscribed interest from theatres in Kristiansand and Tromsø. The recording can be viewed here: <https://vimeo.com/341510810>. Up until September 2019, the seminar has been viewed 106 times. There were 50 participants, consisting of: technical departments and management from institutional theatres, and scenographers (approximately 60/40). The program included presentations from invited participants, with a roundtable conversation. The invited participants were as follows:

- Hege Pålstrud, scenographer: "Sustainable scenography – a survey on the current situation and potential for sustainable production"
- Silje S. Kise, scenographer: "On international initiatives on reuse in the arts field"
- Fabian den Otter, technical manager at Hordaland Teater (Theatre of Hordaland): - "On the use of modular aluminium structures to reduce material waste. Presentation of the system Item 24 / Aluflex."
- Karl Hanseth, technical director at The Norwegian Opera and Ballet. "On the Opera's project 'Green opera'."
- Eirik Willyson, producer Kloden Theatre: "On Kloden's work to establish a new venue with mainly recycled materials and the potential to establish a storage space for reuse."

Roundtable discussion:

The central topics of the panel were:

- Online distribution of materials
- Strategies for reuse and distribution
- Experience and potential for increased sustainability through shared workshops
- Knowledge (and lack of knowledge) of sustainable materials

The previous seminar on recycling in the performing arts (Heddadagene 2017) focused on the possibilities of distributing materials and reusing by establishing a webpage. At this time, Ingvild Holm presented a dummy webpage. During the project period, the working group discussed various possibilities of online distribution and gained an overview of already existing channels. These were discussed in the seminar, and new forums were added. Examples of online initiatives include the Facebook groups ‘Art Department’, which also involves film and event business, and ‘Markedsplass for scenografi/Marketplace for scenography’, an initiative by Kjetil Falkum. Representatives of NTO also mentioned that they have an internal network for distribution. Possibilities were discussed regarding the collection and sharing of information within these various networks.

The experience from the Facebook groups show that people are willing to give away things, but there are few examples of used elements being sold. Feedback from the theatres (collected at the seminars and in the survey) points out that it is unrealistic to solve challenges by solely using online solutions. Due to lack of time and storage space, elements need to be collected within a quick turnaround, and theatres do not have the resources to deliver elements to the buyers. A web-based solution requires that the seller stores elements until a potential buyer emerges – and this, based on experience, can take some time. Indeed, some elements are so specific that one does not know when one might find the “right match”.

The working group referenced research from other fields, such as the construction industry. One example was the company Resirquel, which also collects and stores materials in addition to providing a webpage. Silje shared her research on international reuse centres for art materials. Her research shows that collaboration across the culture sector could increase efficiency. In addition to this, other collaborations, such as with moving services could offer solutions to the problems concerning storage.

Scenographer Marianne Stranger mentioned the issue of reuse leading to extra workloads. Reusing the theatre’s own materials tends to generate extra work for both scenographers and theatres, since there are no existing structures for this. She suggested that theatres consider

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scheduling 3-5 additional working days, for example in the scenographer's contract, to finance the extra work. This extra work could include researching more environmentally friendly materials, looking for reuse, and more; work the theatres don't have the capacity to do themselves. As it stands, this will be additional unpaid work for many scenographers.

Representatives from Riksteateret (The Norwegian Touring Theatre) and Nationaltheateret (The National Theatre), discussed the positive impact on reuse by sharing a workshop. This was due to increased familiarity of each other's production processes. Fabian den Otter from Hordaland Teater (Theatre of Hordaland) mentioned that theatre workshops should be open to more external productions, this way creating synergy effects that could result in more sustainable production. Karl Hanseth from the National Opera argued that institutions should try to improve on sharing resources. This also addresses taking care of minor occupational groups and artisans. When it is cheaper to discard than to store, recycling must be actively prioritised at theatres.

The different practices in the theatres show that it is random to which degree recycling is undertaken. A representative from The National Theatre mentioned that recycling (whenever possible) feels like doing "guerilla work." What if one could be awarded the Heddapris (the Norwegian national theatre prize) for the most sustainable production/process? What about a prize for the most improved sustainability measure?

A main concern is that nobody knows what the different theatres or artists need, and what they soon shall discard. There are so many producers with limited time and resources, so it is often cheaper to buy and discard, as no one has the overview. A specific suggestion was that all theatres could finance one employee collectively, a person with an overview of what is produced, all the things that are supposed to be discarded, and so on.

Kilden Teater (Kilden Performing Arts Centre) appears in the survey to be proactive concerning environmentally friendly production and routines. Both Kilden and The Opera are certified as 'Miljøfyrtårn' (Eco-Lighthouse certified). They have established environmental groups. However, some feedback received was that there was not enough knowledge surrounding materials' ecological footprints. It would be exciting to collaborate on research regarding this. Silje Kise noted that international resources and checklists could be used. A search for international encyclopaedias or databases for materials and their environmental footprints should be conducted. If all materials being used are marked with different labels – for example, The Nordic Swan Ecolabel – then the waste from these would also be already classified. A representative of

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Kilden discussed energy use as the most significant environmental problem of theatre production. The theatre now uses district heating and plans to install solar panels on the roof.

Silje suggested focusing on reducing use of environmentally harmful substances such as fire retardants, and that more institutions should put higher pressure on leading producers of materials, paint and chemicals, such as Rosco.

Sigrun Daireaux from Dramatikkens Hus (The Norwegian Centre for New Playwriting - NCNP) stated that the continuation of this venture should be an initiative of NTO. Daireaux is the coordinator of a working group at NTO, working with sustainability goals for all the norwegian cultural institutions.

Eirik Willyson (from Kloden) wanted to be part of the continued work, searching for possibilities in cooperation with Kloden, which is in the primary project-planning phase. Moreover, it was suggested to consider collaborating with Fretex, an actor with experience in environmental work, recycling and labour market measures.

International examples of recycling in performing arts

There are many international examples of organisations working with redistribution and resale of materials from the performing arts and other art fields. For this report, the following three examples were chosen due to their high relevance. These three organisations work on different scales and with different models of financing.

In addition, information on a well-functioning digital solution in the UK was included. But given the result of the roundtable discussion, it appears that online resources alone would not be the most suitable solution for ensuing sustainability in Norwegian theatres.

Note: All data in the following section was collected in 2019 via video-based interviews, email and the institutions' web pages.

Materials for the Arts (MFTA), New York, USA.

Established: 1978

Webpage: www.materialsforthearts.org

Premises: 325 m² indoor storage and warehouse

Staff: 18 employees + 9 artists/teachers for workshops and courses. Over 700 volunteers, both individuals and business groups, participated in voluntary community service this year (2019).

Approximately 7,700 volunteer hours were registered this year, which equals two full-time working positions.



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Financing: Publicly and privately funded. MFTA is run by the New York City Department of Cultural Affairs, with financial support from the City's Departments of Sanitation and Education. The City of New York finances the business expenses, rent and salary.

Budget: Approximately 2 million dollars per year. Through private donations, the nonprofit organisation Friends of Materials of the Arts finances the educational part of MFTA. Once a year, they organise a big charity event, which receives approximately 600,000 dollars per year from private donors.

(All pictures: retrieved from Google Picture Search using the keywords 'Materials of The Arts')



Tax deduction as an economic incentive:

In previous years, a tax deduction was received when donating materials to MFTA. This was an incentive to increase the amount of materials donated and reused. The CEO of MFTA mentioned in June 2019 that this measure would soon be stopped and that the current US administration cut such federal initiatives. If MFTA were to be established in the current political climate, it would most probably not survive, she said. However, given that the organisation is now well-established and well-respected (especially in the educational and cultural sectors), it runs less risk of being terminated.

Collection and marketing:

MFTA receives materials from organisations and businesses, which it donates to non-profit art organisations, public offices, and public schools. The recipients must be registered and approved.

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Types of materials:

Textiles, paint, art materials, paper, cardboard, smaller pieces of wood without nails, various objects, props, and much more. MFTA does not take in more extensive scenography elements, theatre flats, materials of a large size, furniture and more oversized household items, such as printers etc. These items



can be marketed via an online catalogue where MFTA manages contact between donors and recipients. The recipient must schedule the pick up with the donor. MFTA sends emails to potential recipients in case particular objects are announced in the online catalogue. Most people collecting materials at MFTA use public transport or small cars, and few are looking for larger objects. The main theatres don't shop at MFTA but are happy to donate. MFTA has requirements regarding materials that can be donated. Materials must be approved before delivery and can be rejected in case of poor conditions. Pieces made of wood must be disassembled and not contain dangerous elements such as nails etc.

Workshops and courses

MFTA arranges courses and workshops for adults and children. These take place in schools, along with guided tours at the warehouse, with waste reduction- and material science lessons. The centre has a gallery which hosts many art projects and two artists in residency per year.

Material Mafia, Berlin



Established: 2012

Webpage: <http://www.material-mafia.net>

Premises: 160 m² indoor + outdoor premises. Per June 2019: Searching for larger premises, approximately 500 m². (Started with an area of 8 m².)

Staff: 2 employees. The organisation started as an initiative by like-minded enthusiasts.

Financing: Self-financed by selling materials and other activities.



Materials and marketing strategy:

Material Mafia sells all kinds of materials but seldomly sells entire scenography elements. They receive all materials for free from stores, theatres, films and many more, often collecting the donations. Larger theatres and film productions sporadically deliver the materials themselves. The webpage contains a basic online catalogue, and is divided into material categories: Wood, glass, synthetic fibre, textiles, paint, paper, cardboard, and various other materials. Main theatres are not customers of Material Mafia, as their range of products is limited. This is due to the size of the premises and the fact that the business itself is small.

Material Mafia is part of the research project CURE, in collaboration with Technische Universität Berlin, Chalmers University of Technology and the municipality of Gothenburg (Göteborg Kommune, Kretslopp och Vatten). The CURE project aims to be initiators of an international network of reuse centres worldwide.



Remanufacture Days, Material Mafia.

(All pictures: retrieved from Google Picture Search using the keywords 'Material Mafia').

La Reserve des Arts, Paris.

Established: 2010

Webpage: www.lareservedesarts.org

Premises:

- Boutique La Reserve Arts: 130 m², Southern Paris
- L'Entrepôt: 3000 m² warehouse in Patin, suburban city of Paris.



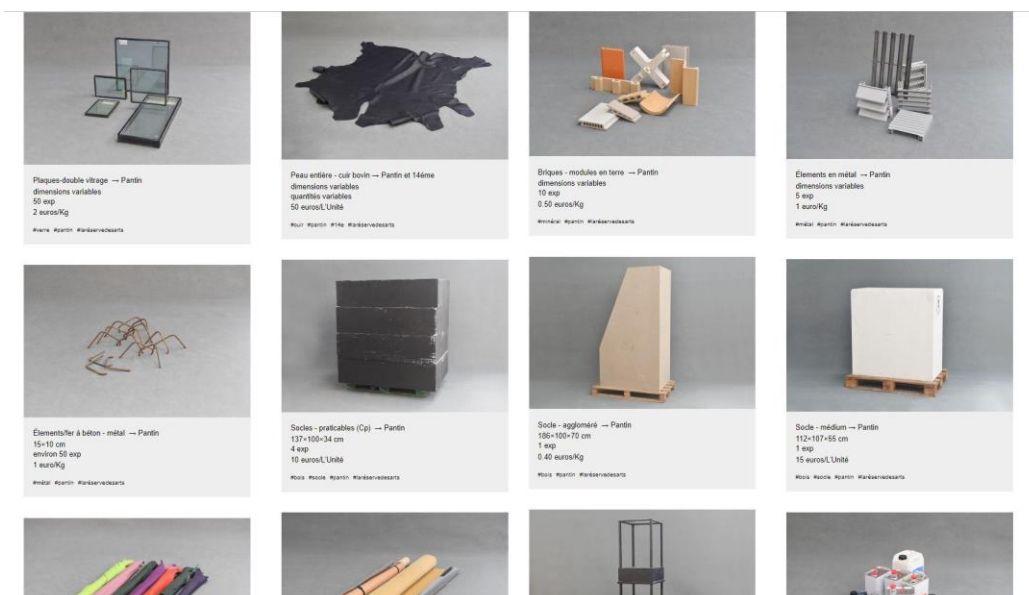
Staff: 16 employees (Approx. 13 full working positions) + about 30-50 volunteers (about 1-2 full working positions). CEO has a 50% part time position but in reality works a full time position.

Financing: Self-financed. No governmental support. According to their statements, their economy is tight, and they cannot pay their staff sufficiently.

- Approximately 6,500 members with admission to use the workshops and machines on payment. Members of 60 different fields: museum, film, theatre, handicrafts, visual arts, luxury designers, etc.
- No collaboration with the construction industry due to regulations: their used materials are not approved for use in construction.
- Logistics: Some members deliver used materials themselves. La Reserve also makes agreements on collecting and sorting waste for companies; in that case, the company pays for it.
- Courses and workshops, education for companies on sustainability
- Arranges contact between artists and companies for art projects customised for the individual company, focusing on sustainability and their use of resources.

Categories of materials:

- Smaller store (Boutique): textiles, leather, hardware, smaller materials, and 'weird' objects.
- Large warehouse (L'Entrepôt): textiles, wood, leather, metal, plastics, glass, painting, paper/cardboard, joint/mixed materials, and electrical items.
- Online catalogue with optional categories. Only a few selected objects are announced online, as they do not have the capacity to make the entire storage available for online search.



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Challenges: French law prevents institutions that receive government funding (theatres, museums, etc.) from donating materials for free. This prevents the more significant institutions from contributing to La Reserve des Arts. Many projects in France focus on the circular economy now, and they hope for a change in these law regulations.

www.set-exchange.com

Established: 2011

Premises: Webpage only.

Contact: admin@Set-Exchange.co.uk

Staff: Led on a voluntary basis by enthusiasts in the theatre field.

Business model:

Free webpage for scenography donations. There is no fee for using the webpage. Expenses bound to the webpage are financed via sponsoring and advertisement. The members list elements they want to donate and interested recipients contact the seller. Moreover, it is possible to publish posts to request elements. The webpage is programmed to run on a self-operating basis. The webpage sends an email every evening listing the previous day's activity on the page. There are 2,500 subscribers to this mailing list.

Registered activity on the webpage:

- 6,000 members
- 2,500 members subscribed to daily updates
- Approximately 3-10 new posts per day

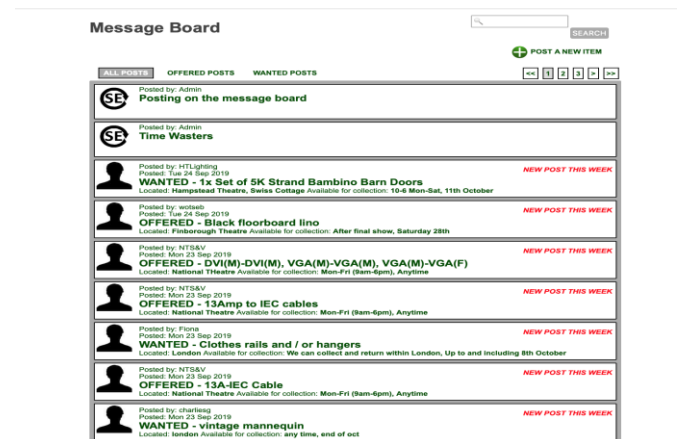
Overview of data after eight years of operation*:

- 2,619 'requested element' posts
- 2,607 'donate'- posts
- 2,252 elements that have been registered and given away

*The webpage depends on users' independent registration of elements given away, therefore the figures may vary.

Who is using the page?

Many theatres (both large and small) use the page, as well as theatre ensembles/companies. The majority of those receiving the elements are smaller theatres and companies with low or zero budgets. The main public theatres are often willing to donate, but the administrators state that this depends on the personal investment of employees at the theatres. Staff changes can greatly impact the number of postings. The administrators commented that there is no notable activity of larger commercial theatres and West End, which is a pity. He concluded that the webpage generates lots of engagement but has not become a "mainstream company policy" even after eight years.



Circular economy and the performing arts

The EU and the Norwegian government claim that a circular economy must be prioritised.

‘**The circular economy** involves extensive reflection on the definition of resources and how they can be used to best possible effect. In a world with increasing pressure on natural resources, it is vital that we use and reuse resources efficiently, both for the sake of the environment and climate. **Efficient use of resources** is economically wise. Active politics for a circular economy will be able to strengthen the **economy’s green competitiveness**. (...) The European Commission presented the political strategy for the circular economy in December 2015. (...).

The EU hopes to witness extensive, positive effects of the measures including: financial growth, increased employment, competitive ability, climate, and protection of the environment.’ (Retrieved from the Governmental Publication nr. 45, 21. 06. 2017: «Waste as a resource – waste management and circular economy». Emphasised by the author of this report and translated for this report.)

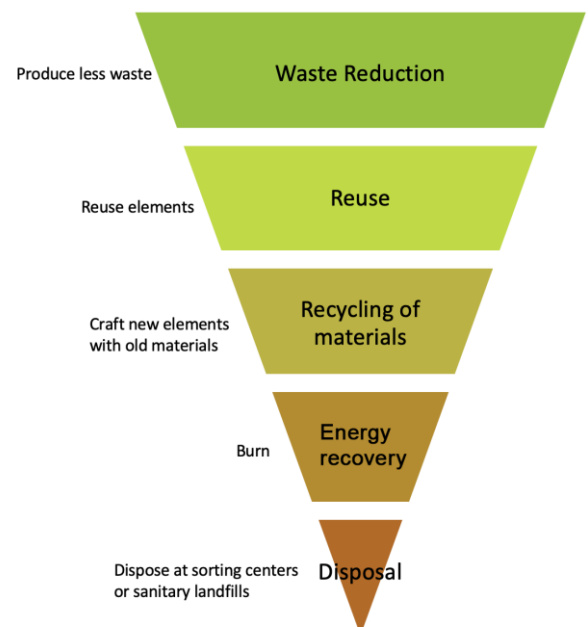
The construction industry has structurally implemented a regulation requiring producers to document and calculate expenses for materials, production and waste management. This is to ensure, before its launch, that a project will adhere to the necessary environmental requirements. Similar measures should be formalised in the field of performing arts.

Hierarchy of waste

It could be useful to examine the definition of waste. By categorising waste, we can address different options for sustainable initiatives of material use and recycling in performing arts. The waste pyramid illustrates the priorities in Norwegian waste politics and the EU’s waste framework . Read from top (green) to bottom (red); the goal is that waste is treated as close to the top of the figure as possible.

Waste reduction

The utmost goal in waste politics is to ultimately reduce the amount of waste created. It is similarly important to ensure that an increase in the quantity of waste created remains lower than the economic growth.



Reuse

The second goal of waste politics is to reuse things rather than discard them. For the typical customer, reuse, eco-labelling, and repair are relevant keywords. Reuse preserves more energy than is used to produce the product initially - and is preferred to recycling.

Recycling of materials

Recycling materials means to recycle waste so that the various materials can be used as raw materials to produce new products. Examples of recycling could be a cardboard box that is recycled into a new cardboard box, or a yoghurt cup which is recycled into a coat hanger. Raw materials created from waste use less energy than developing new raw materials.

Energy recovery

Waste is burnt, and the energy is used to create heat and electricity. Generating energy from residual waste substitutes the use of generating electricity or using oil and gas for heating. It is also possible to remove toxic elements from the cycle. Disposal is always a less environmentally-friendly action, since it leads to an increase in greenhouse gases.

Generating energy from waste is a much greener solution. (Source: Store norske leksikon.<https://snl.no/avfallshierarki>)

Political goals and strategies:

Norway is obliged to follow the current EU regulations on environmental matters, as part of the EEA Agreement. In Spring 2018, the EU waste framework directive was revised. Europe's waste and recycling management branch has now been updated with the essential framework for the transition to a circular economy (Source: avfallnorge.no).

The Working Group for Sustainable Scenography states that the EU waste framework directive should be used as a tool and incentive to initiate structural changes in the field of performing arts. This could generate new industries influencing even more extensive parts of society than just the Arts field.

Changes in the framework directive will contribute to improved product design, reduced waste, reduced littering, increased levels of reuse and material recycling, enhanced producer liability and reduced disposal. The new framework directive contains ambitious goals of raising the degree of reuse, and reducing waste that cannot be reused. This is to be achieved through specific and goal-

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oriented measures. Member countries are obliged to use economic means to strengthen the use of the waste hierarchy model.

Member countries will introduce numerous measures and minimum requirements for preventing waste, by: promoting design, production and the use of products made in resource-efficient ways which are suitable for repair and reuse. These measures will focus on the entire life cycle of the materials. A key point from this report is that one of the suggested measures to raise the level of reuse is establishing accredited reuse and repair centres and networks.

On its webpage, The Norwegian Government states that the framework directive is perceived as “extremely extensive and ambitious and that it will be difficult to reach the goals.”

Simultaneously, the Government's focus is on the potential positive effects and possibilities for new businesses that this change might cause. “Norwegian businesses, municipalities and organisations have been predominantly positive in the consultative rounds”. (Retrieved from www.regjeringen.no, a note from April 2019; EU- parliaments and councils’ framework (EU) 2018/851 on the change of the framework 2008/98/EF on waste).

Designing Away Waste:

A Comparative Analysis of Urban Reuse and Remanufacture Initiatives:

A research report on Centers for Urban Remanufacture (CURE) from Isabel Ordonez, Oskar Rexfelt, Shea Hagy and Luisa Unkrig.

The report summarises the work of the research project CURE Pathfinder, financed by the European climate think tank EIT Climate-KIC. For more information on EIT, please read: <https://www.climate-kic.org/who-we-are/what-is-climate-kic/>. This project aimed to make a framework or guide for establishing new CUREs. The researchers interviewed representatives from 15 already existing initiatives in Berlin, Copenhagen, and Gothenburg, on the topics of:

- Organisation models
- Financial models
- Estimated level of material reuse
- Identification of common topics for further research

The research report was published in the peer-reviewed, open-access journal Recycling.

Link to the report: <https://www.mdpi.com/2313-4321/4/2/15>

Link to the journal: <https://www.mdpi.com/journal/recycling>

What is a CURE?

The authors of the report conclusion show a list of criteria a CURE must fulfil:

- A physical reuse centre. This should be part of a network of actors that explore and contribute to the reuse and remanufacturing of used materials.

The physical centre should include the following:

- Warehouse for used materials
- Open or partially open workshop for experimenting or prototyping
- Host capacity-building courses/workshops for the general public and professionals
- Support local, sustainable entrepreneurs

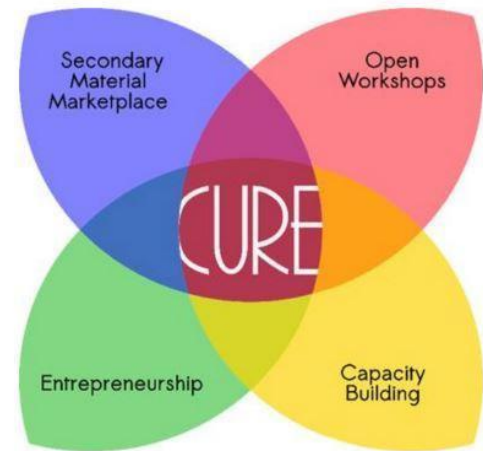


Figure 1. Underlying aspects that should guide future CUREs.

Financing:

A CURE is expected to finance the business through its own activities, such as sales of products/used materials, courses, hiring out the workshop, consulting etc. The 15 initiatives researched in the report *Designing Away Waste*, fulfilled these criteria to various extents. It is not relevant for this report to go into detail about the individual initiatives, as most did not focus on materials for the performing arts. Several of the businesses concentrate on repair workshops and ‘Maker’s Spaces’. These are the most interesting and transferable businesses that were researched:

- Guldminen, Copenhagen
- Återbruk, Gothenburg
- Genbyg, Copenhagen
- Material Mafia, Berlin

Important challenges:

The report states that the most extensive and urgent challenge is:

- To standardise storage management systems of stored materials.
- To establish systems that comply with the international criteria for reporting waste and reuse statistics.

The above CUREs with a storage management system use their own categories and definitions, making it difficult to report waste statistics and calculate environmental benefits. A standardised system should also consider the weight of reused materials. A standardised system should be developed to compare initiatives and report to official statistics. This is essential for initiatives such as CUREs to become serious actors in the new circular economy.

Conclusion of the Working Group for Sustainable Scenography:

European and Norwegian policies are heading towards a circular economy, and the work group recommends establishing Reuse Centres for materials in performance art and other adjacent industries. It seems to be challenging to make this an integrated part of the performance production regarding the organisational and professional knowledge needed. Such a distribution link should include more industries that produce, buy, and sell design elements. These centres should have an economically sustainable business model but re-distribute resources to enable less resourceful professional environments (within academia and the arts) to access used materials for a lower price. The performing arts field should be the driving force and contribute to finding entrepreneurs that can be interested in this, in addition to presenting the research of existing centres in other countries. Moreover, there is a need for a thorough market analysis to pinpoint the needs and demands in Norway. It has also been argued that such centres could provide socioeconomic and environmental profits.

The work group suggests using the findings in this report in addition to the CURE-report, to suggest how these centres could lead to social commitment through user participation and raising awareness of resources, reuse, and repair. Makers' spaces, grass roots organisations and repair workshops demonstrate the already existing commitment to green practices that will be necessary to fulfil the Green Change.

Considering the success of the Heddadagene seminar, the working group is confident that NTO will continue this line of work. Sigrun Daireaux, the coordinator of the NTO committee for sustainability in Norwegian theatre, has been in further contact with the working group, intending to continue the process. Carte Blanche's representative in the NTO committee, Tora de Zwart Rørholt, showed great interest in the work in a further debate at 'Grønt Slipp' in Bergen. NTO is also involved in a recently founded working group with Norske Kulturhus (Norwegian Cultural Centres) and Virke, working to eco-label all Norwegian Cultural Centres, amongst other initiatives*. This work is likely to influence all aspects of running and administrating Norwegian Cultural Centres. What's more, this work could inspire key administrative players to engage and invest in environmental solutions, and to anchor this work at a higher level of the organisations.

The working group considers it important to coordinate all individual initiatives (as well as those in different cultural sectors). By coordinating and exchanging information and resources, structural changes can be facilitated quicker and on a higher level. In this way, the responsibility

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shifts from the individual (employees within the performing arts sector) to the entire community, thus facilitating the Green Transition.

Moreover, a further step for more sustainable performing arts production is a thorough mapping of the environmental footprint of the most frequently used materials and chemicals. Easy to use guidelines on how to calculate a production's footprints should be provided, to help make the most environmentally- and climate-friendly choices in planning and pre-production.

The Working group for Sustainable Scenography wishes to take part in further discussion forums and processes, ensuring that the findings of this project are shared and developed.

*: NTO, Virke, Norske Kulturhus and Norske Konsertarrangører (Norwegian Live) launched Grønt Veikart for kulturlivet (Green Guide for the Cultural sector) in 2021.

<https://grøntveikart.no>

A selection of available resources and initiatives

(Note: List revised in 2022. The list is not exhaustive.)

Companies/organisations within redistribution/resale of used materials for arts:

- Material Mafia, Berlin
- Materials for the Arts, New York
- La Reserve des Arts, Paris
- www.set-exchange.com, Webpage for buying/selling/donating, UK.

Centres of Competence/Networks for sustainable initiatives in performing arts:

- Broadway Green Alliance, USA. <https://www.broadwaygreen.com>
- Julie's Bicycle, UK. <https://www.juliesbicycle.com>
Julie's Bicycle provides a calculator for the carbon footprint of creative businesses:
 - <https://ig-tools.com/signup>
 - Eco Sceno, Montreal
 - Inspirador – Goethe Institute Guide for Sustainability.
<https://www.goethe.de/ins/br/en/kul/sup/nsp.html>
 - Centre for Sustainability in the Arts, Toronto / Los Angeles.
<http://www.sustainablepractice.org>
 - CURE, research project on establishment of Centres for Urban Remanufacture:
<http://www.cure.tu-berlin.de>
 - The Theatre Green Book, UK. <https://theatregreenbook.com>
 - Rethink Scenekunst (*Rethink Performing Arts*), Denmark.
<https://rethinkscenekunst.nu/da>
 - Book: «Eco Scenography. An Introduction to Ecological Design for Performance», by Tanja Beer. Palgrave Macmillan 2021: <https://link.springer.com/book/10.1007/978-981-16-7178-4>
 - Tanja Beer is also responsible for the Facebook Group Ecoscenography:
<https://www.facebook.com/groups/ecoscenography/>
- Grønt veikart for kultursektoren (Green Guide for the Cultural Sector):
<https://nto.no/nettverk-og-kompetanse/gront-kulturliv/gront-veikart-for-kunst-og-kultursektoren>

Other initiatives:

- Facebook group: Markeds plass for scenografi
- Facebook group: Eco Scenography
- Facebook group: Art Department