



GALWAD

**SUSTAINABILITY
AND IMPACTS
REPORT**

Simon Michaels
Sustainability and Impacts Manager

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EXECUTIVE SUMMARY

GALWAD set out to be an exemplar of good practice relating to sustainable development in the creative arts. In its making, we espoused the principles outlined in the Wellbeing of Future Generations Act, a world-leading framework by Welsh Government that makes a commitment to safeguard the environment and communities in perpetuity.

So in both production and operationally, we aimed for net zero carbon impact; minimised waste and implemented a circular economy; conserved the environment and biodiversity; provided sustainable catering; and nurtured team wellbeing.

We hope that everyone who has experienced and worked on GALWAD has become more aware of sustainability issues and feels optimistic about the future, and hope to inspire future arts projects with our approach to sustainability.



HEADLINE DATA

Overall carbon emissions amounted to 166 tonnes, with main impacts from travel and accommodation, reflecting the pan-Wales production.

Carbon emissions were directly reduced or offset by 156 tonnes, such as by using HVO (hydrogenated vegetable oil) in place of diesel for the final event and local 'insetting' projects that will save energy locally. Long term projects we have supported in Blaenau Ffestiniog, including energy saving advice and tree planting, will potentially save a further 3,200 tonnes of CO2.

Total waste amounted to just over two tonnes, but 99% of set materials and 83% of live week materials were re-used.



KEY LESSONS LEARNED INCLUDE:

- Broadcast and TV production can consume large amounts of energy and consequently greenhouse gas emissions, particularly when on location using diesel generators. In some cases set-building materials are sourced new and disposed of to landfill later, creating a drain on resources and unnecessary waste streams.
- In order to address this 'business as usual' approach there is a need for careful pre-planning, based on a clear strategy and objectives with regard to careful use of energy, minimisation of emissions, minimisation of waste and enabling reuse of materials and costumes, and in planning sustainable catering and staff well-being.
- Any such strategy is best developed when co-created by the core team members and suppliers, recognising the criticality of buy-in, thus involving everybody in coming up with creative solutions and building capacity and a sense of responsibility in all the production team.
- The strategy objectives and practical solutions and protocols need to be communicated as simply as possible, with briefing sheets for each role.
- Ideally the team will include dedicated staff with a wide range of experience in diverse aspects of sustainable development.
- There is a need for ongoing communication in various formats about the sustainability objectives and solutions, to both team members and other stakeholders, particularly given the recruitment of freelance team members at different stages of the project.
- Whilst there may be, for example, an aim for net zero production, there is likely to be residual carbon impact due to energy needs and travel, so it would be good to be working on minimisation, mitigation and offsetting plans from the outset.
- Mitigation should follow the principle of 'insetting' rather than offsetting, by finding appropriate local mitigation and community initiatives rather than outsourcing the offsetting to some remote agency.
- By adopting circular economy principles there are multiple benefits, not only in saving money and the consumption of new resources, but in potentially supporting local community initiatives involved in reuse and recycling.
- Environmental scoping and biodiversity impact assessments need to be carried out early, so that the production team and creatives can work around any issues or mitigations that need to be implemented.
- In order to implement circular economy and carbon reduction strategies appropriately, dedicated advisors with sustainability expertise may be needed, but it would be ideal if existing production roles were to include a sustainability remit. This would require more resources and training to support those roles, avoiding sustainability becoming one person's problem or singling out an 'ambassador'

- Communication between different organisations across the sector is vital in the sharing of resources necessary to achieve a circular economy.

*GALWAD live finale from Blaenau Ffestiniog.
Set-building materials were secondhand and re-used afterwards*



AIMS AND STRATEGY

THE NEED FOR SUSTAINABILITY IN BROADCAST AND PERFORMING ARTS

We are currently facing a climate and environmental crisis. The United Nations [reported](#) in 2022 that current global climate pledges 'are projected to increase global greenhouse gas emissions by 10.6% by 2030 – far from the 45% decrease needed to limit temperature rise to 1.5 °C. Climate change is causing dangerous disruption in nature and is affecting billions of people, stressing the urgency to act.'

It is incumbent on all sectors within society to identify how we can minimise the impacts of our activity; business as usual is not an option by simply outsourcing and offsetting the problem. The broadcast and performing arts sector has historically been wasteful of both energy and materials, although there is a groundswell of new interest and a sense of responsibility, with initiatives such as 'Albert' promoting sustainable tv production.

Part of the problem is that this is a fast paced working environment, which requires a new approach for example in minimising energy use, and following the principles of the circular economy and avoiding waste in set-building and costumes, and taking a fresh look at crew and cast travel and sustainable catering.

Also, taking a wider view of sustainability, we need to be changing hearts and minds so that well-being and a personal sense of agency and optimism are nurtured in all stakeholders.

WHAT WE HOPED TO ACHIEVE

The inspiration for GALWAD was this looming reality of climate change and its impact on future lives. The storyline was the opening of a window of communication between people in 2052 (in which climate change has increased by 1.8°, with significant sea level rise and resulting movement of people across the world) and the present day - whereby the messages sent from 2052 offer us an opportunity to reflect on how we live now and how it will shape the environment and communities in the future.

“In every action we take, in every moment, we are creating the future”



GALWAD set out to be an exemplar of good practice relating to sustainable development in the creative arts. So in its making, we espoused the principles outlined in the [Wellbeing of Future Generations Act](#) (WFG), a world-leading framework by Welsh Government that makes a commitment to safeguard the environment and communities in perpetuity. Inspired by this and the [United Nations sustainable development goals](#), our working practices aimed to safeguard the environment, nurture the economy and local communities, and demonstrate

inclusion and engagement. We were also supported by the national project team for the Unboxed Festival 2022.

We aimed to tread lightly, and with kindness, being thoughtful and caring in how we interacted with each other, with the biosphere, and with the wider community. We hoped to communicate our approach with all team members, contractors and suppliers, and support the team and other workers by nurturing wellbeing.

In practical terms relating to production, we aimed to minimise carbon impact from vehicular, power needs, and other sources of greenhouse gas emissions; we aimed for zero waste, promoting a circular economy by using re-purposed materials and costumes; we were respectful of the environment and biodiversity; and provided sustainable catering.

Mitigation of unavoidable impacts such as energy use was informed by the principle of 'insetting' rather than offsetting, working with the local community to support energy-saving and environmental projects.

The intended outcome was that audiences, local communities and participants felt more empowered to make responsible choices now, creating a positive impact on the future of Wales.

GALWAD world-builders at CAT



OUR STRATEGY - AIMS, OBJECTIVES AND TARGETS

Our approach was inspired by the Well-Being of Future Generations Act (Wales 2015) which established seven well-being goals for Wales. We followed through on these goals in the multiple ways:

WFG ACT GOALS	HOW WE CONTRIBUTED
1 - a prosperous Wales - a vibrant low carbon economy:	<ul style="list-style-type: none"> • short-term boost to the local hospitality sector • skills development and employment opportunities for young people participating in the project • raising the profile of Blaenau Ffestiniog • contributing to renewable energy projects in Blaenau Ffestiniog • raising awareness of sustainability imperatives and practical minimisation solutions for use of energy and materials, with project suppliers and local communities, as well as in the arts sector more widely
2 - a resilient Wales - a healthy natural environment	<ul style="list-style-type: none"> • carrying out environmental and biodiversity assessments on site, with appropriate mitigation and safeguarding of bat and otter habitats • removal of invasive rhododendron species at the event area north of Blaenau Ffestiniog • minimising waste to landfill and following circular economy principles in tv and event production • avoiding pollution or use of toxic chemicals in production • contributing to a young person's nature garden and a market garden projects in Blaenau Ffestiniog
3 - a healthier Wales - mental and physical well-being	<ul style="list-style-type: none"> • ensuring that suppliers paid the Living Wage and upheld staff well-being • implementing a staff well-being approach with the core team including mindfulness training • providing support and encouragement to young people involved in the project • providing healthy, vegan catering options

WFG ACT GOALS	HOW WE CONTRIBUTED
4 - a more equal Wales - where all can fulfil their potential	<ul style="list-style-type: none"> ● implementation of a radical inclusion approach to all aspects of the project, with opportunities in the project for people with diverse lived experience ● a dedicated access and inclusion team, ensuring access for all in online and live events ● co-creation of the project storyline and participation as a community cast by young people ● nurturing a sense of agency and optimism for the future, in young people involved in the project
5 - a Wales of cohesive communities - safe and well connected	<ul style="list-style-type: none"> ● integrated programme of engagement with local communities in Swansea, Merthyr Tydfil and Blaenau Ffestiniog ● a week-long programme of educational activities in association with 173 schools, using issues raised in the production as a learning medium ● involving disabled-led organisations and people with lived experience of ableism in project development
6 - a vibrant culture and Welsh language - promoting culture, arts and sports	<ul style="list-style-type: none"> ● making all communications and project outputs bilingual, and accessible for deaf and partially sighted participants using BSL and audio description ● nurturing new talent and suppliers for TV and arts production in Wales ● leaving legacy documentation and case studies to support future sustainable arts projects
7 - a globally responsible Wales - making a positive contribution globally	<ul style="list-style-type: none"> ● showcasing by example sustainable approaches to arts production ● illustrating how the innovative WFG Act can be implemented in practical terms in the arts sector ● developing transatlantic partnerships for storyline visioning and in operational methodologies

In parallel the United Nations in 2015 developed 17 sustainable development goals for 2030, which also informed our ambitions. The future visioning programme by the World Builders (a group of 120 young people selected for their diversity of lived experience) also informed our approach. It was facilitated by Experimental Design Studio at the [World Building Media Lab](#), led by Professor Alex McDowell.



Our resulting strategy is summarised and encapsulated in a poster we shared on social media, in the shop at Blaenau Ffestiniog, and on the GALWAD website:

Sustainability



OUR VISION

GALWAD will be an exemplar of sustainability in planning, managing, and delivering creative projects.



OUR MISSION

We hope to inspire everyone who experiences GALWAD to become more aware of sustainability issues and to feel empowered and optimistic about the future.



OUR VALUES

We will be: radically inclusive, innovative, transparent, and embody co-creation through meaningful engagement.



WHAT WE'LL DO...

We will apply our principles throughout the project, during...

- planning and co-creation
- production, filming and the live event
- legacy and learning



INFLUENCES

The Wellbeing of Future Generations Act (Wales)

United Nations' Sustainable Development Goals

World Building and co-creation with young people and diverse communities in Wales

Albert (sustainable film production), the Theatre Green Book, ISO 20121, and Zero Carbon Britain (CAT)



Planet and climate change



- Using less damaging fuels & power sources
- Minimising transport impacts
- Tracking carbon emissions, waste & materials
- 'Insetting' and local mitigation of impacts
- Low impact catering & drinks
- Digital, remote working

People and community



- Supporting staff and cast well-being & fair employment
- Co-creation with young people and diverse communities
- Envisioning the future through the World Building process
- Active participation and co-creation with local communities
- Radical inclusion and access provision
- Working with partners representing diverse interests
- Skills development for the team and Young Company



Place and environment



- Engagement with local communities and young people
- Environmental impact scoping and mitigation at event site
- Celebrating and working with the spirit of the place
- Mitigation projects supporting local environmental initiatives
- Supporting the local economy and local procurement
- Avoiding pollution and use of toxic materials

Products & the circular economy

- Zero waste to landfill
- Enabling the 7 R's - in particular re-purposing and re-use
- Hiring and using second-hand equipment
- Sharing the learning legacy and enabling sustainable arts in Wales
- Redistributing surplus materials and food to local communities



ACTIVITIES, OUTCOMES AND MITIGATION

A quick summary of what we achieved is as follows:

STRATEGY AND COMMUNICATION

- We presented our sustainability strategy to all team members at an awayday event, gathering feedback and additional ideas for practical implementation.
- We inducted all suppliers with an outline of our strategy, and asked suppliers to complete a sustainability questionnaire at the outset (although had few responses) and also asked them to complete a survey post-event (with 16 responses).
- We held daily meetings with the core team, and weekly meetings with the production team to consider solutions to issues that arose, and worked closely with the production managers and key contractors, who were very open and responsive to finding solutions where possible to meet our objectives (although in some cases due to the fast-paced nature of TV production in particular, there was arguably not enough pre-planning built into their contracts, so that for most filming locations standard solutions were adopted, such as using diesel generators and typical location catering).
- We held regular meetings with the Head of Production to check in on issues as they arose.
- The sustainability team visited the site during production to help production assistants with sustainable sourcing.
- The sustainability managers were on location for the final event, for example helping with waste management (which also required some last-minute fixes).
- We identified local mitigation opportunities, working with local social enterprises as noted below.

ENERGY

- We researched the different mobile fuel options available for the live event - although most are difficult to source within Wales, we helped inform the production department of the advantages of switching from diesel to sustainable HVO for our generators by calculating the tonnes of carbon that this would save.
- We used HVO for the final event and rehearsals, saving 71T of carbon emissions.
- We encouraged suppliers to minimise energy use by for example implementing a switch-off policy, and to use renewable energy source providers for mains.
- We enabled mostly home-based working and cloud storage.
- Crew catering and rec room at Antur Stiniog was run off our HVO generators.
- We funded 10 core team members to complete Carbon Literacy training.
- We funded a community building in BF (CellB) to install solar pv, and supported a community electric bike project, saving approximately 43T carbon.
- We supported other community initiatives (Y Dref Werdd) including energy saving advice and tree planting that will potentially save a further 3,200 tonnes of CO2.



TRAVEL AND TRANSPORT

- We encouraged car sharing and train travel amongst the team wherever possible. This included minibuses during rehearsal and livestreaming periods, where we needed to transport core cast and crew across Wales regularly.
- We rented electric minibuses available to shuttle cast and crew around on site in Blaenau Ffestiniog, and to use as our access vehicles during the live event.
- OXyFire, the company we worked with to deliver the 2022 live streamed content, worked out of their base in Sheffield to reduce journeys being taken to Blaenau Ffestiniog.
- Mad As Birds, who produced the 2052 TV content, prioritised train travel to transport their actors to and across Wales.



RESOURCES, MATERIALS & WASTE

- We implemented a circular economy model with all production materials used on the live event and 2052 TV content, helping the design team to source items second hand and locally wherever possible, and establishing a plan for where materials would go afterwards to avoid them ending up in landfill.
- We sent queries about set materials to the sustainability team to help find the most environmentally friendly option e.g. finding alternatives to toxic or harmful materials such as paints, or non-recyclable PVC.
- We researched the appropriate disposal of compostable foodware and found a waste management company who would process this for us correctly.
- 90% of set-building materials were second hand, and 99% was re-purposed or recycled or sent for re-use locally at the end of the project (eg wood and boards were sent to a community woodstore).
- We provided members of the core team with reusable cups for hot drinks.



FOOD AND DRINK

- The catering for team and participants' meetings and workshops was vegan, and where possible we used washable crockery or compostable/recyclable plates and cutlery, and keep-cups (no plastic).
- We prioritised vegan and accessible caterers at meetings and events.
- Mad as Birds caterers introduced 'Plant Wednesdays' where a full vegetarian/vegan menu was available on location.
- 20% of surplus food from catering was sent to a local food bank.



NATURE AND ENVIRONMENT

- We organised an environmental scoping for the final event site, employed ecological consultants, and agreed a site management plan to safeguard bats and otters (both found on site), established bio-security protocols, and asked the production team to remove invasive rhododendron species from the viewing area.
- We researched alternatives to potentially toxic materials and plastics for the design department to use.
- We avoided any toxic run-off or pollution.



PEOPLE AND COMMUNITY

- Engagement with young people and those with lived experience of ableism was central to the project, in its devising, production and delivery. 27% of the workforce were deaf and/or disabled or have a long term medical condition. 173 schools were involved in a week-long project inspired by GALWAD.
- Recruitment for all roles was prioritised around local, Wales-based professionals.
- We ensured that suppliers paid the Living Wage.
- We took action to ensure team wellbeing, eg with regular mindfulness sessions.
- We helped the Young Company members to develop future employment skills.
- We worked with our local partners to implement a circular economy model - this included donating surplus crew catering to Y Dref Werdd, and rehoming production materials locally to CellB and Antur Stiniog.



Our film team, Mad as Birds, signed up to [Albert Sustainable Production](#) for film and TV. We also referred to [The Theatre Green Book](#), a guide to sustainable theatre and events (which we followed as far as possible, see appendices).

In terms of management processes, we worked to the [ISO 20121](#) standards for sustainable events.

MEASURING OUR IMPACTS

In order to measure the success of our approach, we signed up to TRACE, an events impacts calculator provided by Isla. TRACE is a real-time carbon impact reporting tool designed to give insight into the environmental impact of events. It captures emission and waste data from live, hybrid and digital events and generates impact reports in real time.

The main areas we assemble data on and recorded into TRACE included:

- Energy use on site
- Sourcing and disposal of production materials
- Catering and accommodation
- Transport & travel

The reason we selected these areas is that we feel some considerations of carbon impact were already embedded within the GALWAD team and the production industry - such as hiring equipment, and car sharing/ travelling by train where possible.

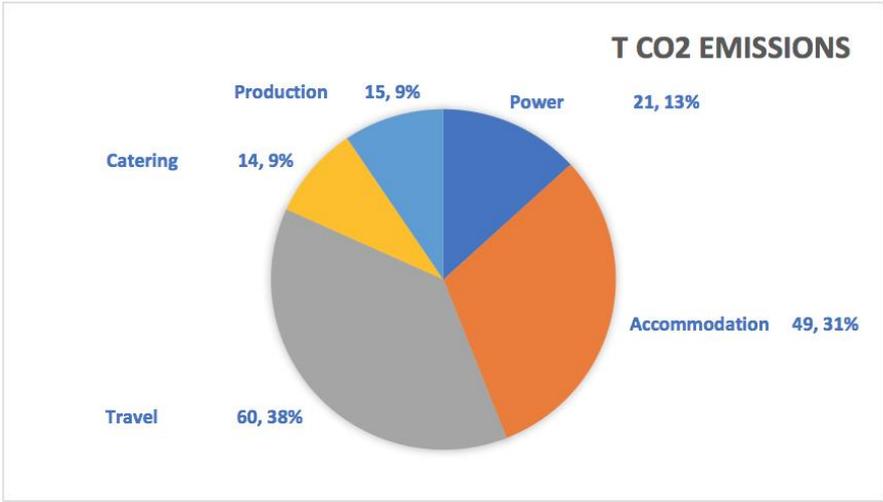
Alongside capturing data from the project as best we could, we also modelled a 'business as usual' scenario for some of the key areas of impact, so that we were able to compare some aspects of our production with a less considered approach

We also carried out post-event surveys of suppliers and team members. In-depth evaluations were carried out by independent quantitative and qualitative consultants contracted directly by Unboxed, but unfortunately this reporting will not be available to us in time to abstract information relevant to this report.

The **outcomes from TRACE** show the following headline impacts:

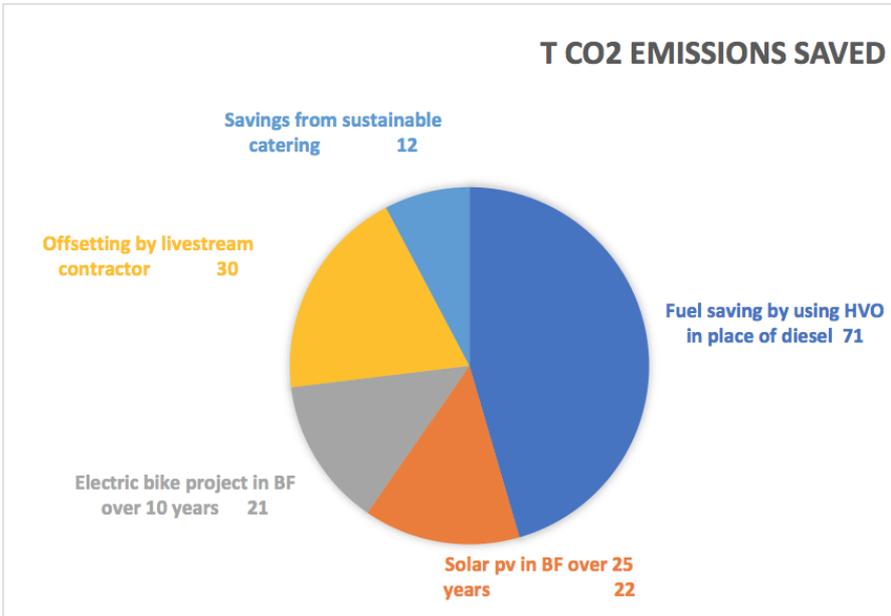
Overall **carbon emissions** amounted to 166 tonnes, with main impacts as follows

Power	21t	For production, broadcast & operations eg. IT
Accommodation	49t	Standard hotel & venue usage per m2
Travel	60t	Mostly from crew and production car travel
Catering	14t	Much reduced by vegan options and min. waste
Production	15t	Fabric, metal and wood. largely re-used or recycled



Carbon emissions were directly **reduced** or **offset** by 156 tonnes in several ways:

- Fuel saving by using HVO in place of diesel 71t
- Solar pv in BF over 25 years 22t
- Electric bike project in BF over 10 years 21t
- Offsetting by livestream contractor 30t
- Savings from sustainable catering 12t



Long term projects we have supported in BF including energy saving advice and tree planting will potentially save a further 3,200 tonnes of CO2.

Total **waste** amounted to just over two tonnes, which breaks down as follows:

Re-used locally	1.19	54%
Re-cycled locally	0.43	19%
Composted locally	0.04	2%
Waste removed	0.53	24%

Production set materials were 99% re-used, and 83% of live week materials we re-used. Waste removed: the biggest weight was some sofas already destined for landfill, plus two wheelie bins of unsorted waste (mostly non-recyclable catering waste or food waste).

LIMITATIONS

There were some aspects of the project that we could not measure through TRACE. This included:

- Costume materials (garments and clothes are not measured)
- Water use
- Certain set materials (TRACE has a limited dropdown menu of materials you can enter e.g. plywood, MDF, acrylic - more bespoke items such as silicone could not be entered).
- Energy consumption in rehearsal and meeting spaces

In comparison with a 'business as usual' approach, we made the following savings:

- *using HVO creates about one-ninth of the impact of diesel, saving us 71t CO2 emissions*
- *offering vegan catering saves over half of embedded carbon emissions saving us 12t CO2*
- *car sharing a travel by train saved about 10% of carbon impact saving us around 6t CO2*
- *re-using and recycling production materials made a significant contribution to minimising energy impacts and material sourcing (it is too complex to calculate this)*

IN-HOUSE EVALUATIONS - HOW THE TEAM AND SUPPLIERS RESPONDED

The key findings from the **supplier survey**, sent after the final event, were as follows:

- our contractors largely worked with local suppliers and employed local people
- some worked with diverse or social enterprises
- all suppliers paid at least the Living Wage, and most of them actively pursued staff well-being initiatives and protocols
- almost all suppliers were actively minimising waste through reducing, reusing and recycling, and by using recyclable or compostable cups, plates and cutlery for catering purposes
- some used rechargeable or hired equipment by preference
- many made use of lift-sharing or sourcing locally for goods and services to reduce transport needs
- about half of those responding used renewable power sources on site, and about half the respondents source mains supply from renewable sources
- most provided vegan catering options, and several prioritised for fair trade, organic or free range produce

Some reflections by the team about their understanding of sustainability issues, from the **team survey**, sent after the final event, were as follows:

- ‘One key takeaway was thinking about the lifespan of materials and making sure sustainability is embedded within decision-making from the beginning. So – for example, before rushing to buy an object, thinking first about not only where it's come from (second-hand or sustainable materials?) but what life it can have once the project is done (NTW archives or props for future shows?)’
- ‘The carbon literacy training course was very interesting and compounded my feelings of what a dire situation we are in! I think knowledge is power so having this foundation will mean that I can bring an informed and necessary voice to future conversations around sustainability at work.’
- ‘I will try to carry forward our learnings and principles from Galwad into future work.’
- ‘Mindful of the alternative options for project planning.’
- ‘Better understanding of how sustainable development relates to the arts and broadcast sector.’
- ‘I think I have understood the scale of sustainability more and how it extends into all aspects of a project, not just the obvious areas like re-usable cups and carpooling but to suppliers, environmental surveys and carbon offsetting. I think the project has also shown how necessary it is for all staff and participants involved in a project to really buy into sustainable practices as inconsistencies across a project of such scale are hard to avoid and yet they can undermine great work that is happening elsewhere.’

All team respondents felt that their understanding of Sustainable Development issues had improved moderately or well.

KEY SUCCESSES AND CHALLENGES

Our key successes included the following:

- We saved up to 71T of carbon at the final event by using HVO (recycled vegetable oil) in place of diesel for power on-site, which has 90% less greenhouse gas emissions.
- Compared to a 'business as usual' approach, we saved well over 100t CO2.
- The approach to sustainability was adopted as part of the design team's aesthetic, in embracing sustainability as part of the design process (rather than being preconceived and pre-planned) - prioritising pre-used items and a DIY approach for example, as opposed to designing with new or toxic materials that we needed to find substitutes for.
- The design team also responded and adapted to new information e.g. re-designing the scaffolding set/stage structures to avoid needing to cut scaffolding poles to size, making it possible for the scaffolding company to dismantle and use in the future (not possible if poles were cut).
- We established a circular economy in relation to production materials - creating a supplier system which prioritised second hand, repurposed, and locally sourced items, and with thought and planning given to where the items could go afterwards to divert them from landfill, and to support local community re-use and recycling initiatives.
- It was very useful having dedicated sustainability roles in the team to work with the production designer and suppliers, including identifying re-use post-production, and having in-house environmental/ecological expertise.
- In operational management systems we minimised carbon impacts by largely working from home with online meetings, encouraging travel by train where possible, and organising sustainable vegan catering for team and participation events.
- The relationships with local community organisations such as CellB and Y Dref Werdd in Blaenau Ffestiniog, were integral to both community integration and circular economy implementation.
- The mitigation 'insetting' approach both helped offset carbon impacts as well as supporting local community energy and environmental initiatives that will save over 3,000T CO2 long term.
- The community engagement programme, the World Building activities, the Young Company initiative, and the involvement of the community cast, gave significant development skills and confidence to those involved.

- The radical inclusion programme meant that people with diverse lived experience were both involved in and informed the project, as well as maximising access for attendees (equal opportunity data evidences this).
- The production team's awareness of the project's sustainability principles meant they pushed themselves to think more sustainably in their roles.



Namit's repair shop. On set filming GALWAD 2052

Things that were less successful or challenges included:

- On-site waste management at Blaenau Ffestiniog, particularly catering waste - although well signposted, recycling and waste sorting was sometimes disregarded and a lot of waste became mixed, resulting in more non-recycled waste than we hoped for.
- The timetable for decision-making around the final event site and subsequent last-minute ecological assessment meant that biodiversity safeguarding arrangements could not be integrated into the production design in advance and had to be worked around. The requirement for bio-security at the lake

event site, was frustrated by the multiple entry points and large numbers of people moving around.

- The commitment to reusing materials and finding sources of second-hand created extra transport mileage, mostly using diesel vans.
- The large numbers of journeys by car between Bristol/South Wales and North Wales created a large emissions impact, despite some lift sharing and public transport use. This combined with accommodation made up the majority of the carbon impact.
- The research on sustainable suppliers, and the findings by the ecologist and resulting restrictions, was not always known about or communicated adequately to all involved.
- Communication on a busy project with a large, dispersed team meant that upholding the sustainability principles was challenging. For example, the whole team may not have known that we were following The Green Book protocol, or how the sustainability team could be involved in decisions at the ground level.
- There is a lot of misinformation around compostable serveware, that need to go to a specific industrial unit to be processed correctly, otherwise they might go to landfill or get mixed into recycling, where they cannot be processed.
- The need for responsive decision-making in rehearsals at the last stage meant that some props needed to be sourced at the last minute, requiring extra van journeys.
- Sticking rigorously to sustainability commitments sometimes meant compromising the wellbeing of the busy production team in regard to appropriate rest.
- With hindsight, it would have been useful for the sustainability team to have a more constant presence on location during rehearsals and production.
- The infrastructure does not always exist locally to make a more sustainable choice. For example electric cars and vans are very difficult to hire within Wales and there are gaps in charging facilities.
- There was resistance among some crew members towards a vegetarian/vegan-only catering (that saves a lot of carbon emissions) - personal choice and physical wellbeing may preclude this. A forced change of diet to vegan-only food on a stressful, manual-labour intensive project would be a big change, affecting energy levels and physical wellbeing. Caterers must better accommodate nutritional needs (particularly protein) and variety if vegan or vegetarian food is on offer, rather than simply removing animal products.
- Budgets are finite - sustainable options can be a more costly option, for example HVO is about 50% more costly than diesel. As procurement of consumables and smaller kit is often undertaken by more junior roles (and often during the latter, more rushed stages of the project), it was challenging for those individuals to work independently to make decisions that balanced the requirements of the budget and sustainability principles. This required

discussion with senior team members to make decisions, when time was extremely limited.



HOW WE MITIGATED FOR UNAVOIDABLE IMPACTS

As noted above, despite our best efforts there was a significant carbon impact, some waste sent to landfill, and some impacts on local communities and the environment.

Following the principle of [‘insetting’](#), we aimed to both minimise impacts within the project, and also mitigate for inevitable impacts through creating appropriate local benefits. Areas for mitigation action included contributing to projects which address:

- *energy* – saving energy, reduction of fossil fuel use, or enabling renewables
- *environment and biodiversity* - local initiatives, for example community gardens
- *waste reduction* through re-purposing initiatives, composting, or compost toilets
- *transport* - electric vehicles, community or public transport
- *local economy* – supporting skills development

INITIATIVES BEING SUPPORTED	NATURE OF SUPPORT	MITIGATION CATEGORIES	BENEFITS
CellB: 4.4kw solar PV installation on CellB main roof, with battery storage, enabling Studio Clinic music production and music skills development	match funding & help sourcing low cost equipment and installation; advice	<i>energy; local economy</i>	lifetime (25 years) savings of approx. 22t Co2; financial benefit approx.£12k (and increasing with energy inflation); weekly use of studio by around 50 young people and children developing music skills
CellB: youth wildlife garden development, enabling learning about eco-gardening and ‘back yard’ ecology	match funding; advice on garden planning; advice	<i>environment and biodiversity; waste reduction</i>	weekly use by around 30 young people and children; encouraging new urban biodiversity
Y Dref Werdd: increasing the hours of a team member dedicated to environmental/climate change education, and planting 5000 trees	match funding	<i>environment</i>	7 primary schools doing regular workshops; tree planting (over 25 years 5000 trees can absorb over 3,000 tonnes of CO2)

<p>Y Dref Werdd: supporting electric bicycle conversion, repair shop, and wood recycling initiatives, advice on community market garden</p>	<p>match funding; advice</p>	<p><i>waste and materials - re-use; transport; energy; environment</i></p>	<p>short/medium term behaviour change; energy saving from use of electric bikes over 10 years saves approx. 21 tonnes of CO2 emissions; over 50 local people involved with market garden</p>
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WHAT NEXT?

WHAT A SUSTAINABLE ARTS NETWORK COULD DO

We might pursue a vision that the arts sector in Wales becomes a world-leading example of how to embody best practice in sustainability, directly responding to the climate and ecological emergencies.

The network could be:

- a resource for skills, know-how, and case studies
- a campaigning voice and goal-setting focal point
- a networking and learning resource

It might, for example, set 10-year objectives for the arts sector such as:

- realising zero net carbon in production - develop insetting models, but offsetting responsibly if needed
- meeting circular economy principles with zero waste to landfill
- enhancing natural capital and zero pollution of air, land and water
- enabling co-creation, nurturing wellbeing and inclusive participation
- the arts becoming a driver of social and behavioural change



LINKED DOCUMENTS

DETAILED IMPACT DATA FROM A TRACE

Results are in this [linked document](#)

THEATRE GREEN BOOK COMPLIANCE

We followed this guidance as far as possible. Results are in [this linked document](#).

RESPONSES FROM SUPPLIER SURVEY POST-EVENT

16 suppliers returned a post-event survey to assess their actual performance in relation to our sustainable development and access and access and inclusion objectives. The results, question by question, are available [here](#).

INFORMATION SHEETS AND LINKS

A number of information sheets and links were made available to the team and audiences during production, and include the following:

- [Zero waste policy protocols](#)
- [Compostable cup options](#)
- [Water policy protocols](#)
- [Energy policy protocols](#)
- [Sustainable catering guide](#)
- [Sustainability and kindness](#)
- [Top tips for living sustainably](#)
- [Approach and facts relating to travel](#)
- [Standards and accreditations for sustainable production](#)
- [Theatre Green Book summary](#)
- [Albert Action Plan summary](#)
- [ISO 20121 Sustainable Events guide](#)

PHOTO CREDITS

Page 1: Courtesy Mad as Birds

Page 2: Photo by Kirsten McTernan

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Page 6: Photo of Swansea Arena by James O'Doherty

Page 7: Photo by Mo Hassan

Page 23: Photo by Warren Orchard

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GALWAD Sustainability and Impacts team:
Simon Michaels, Ruth Stringer, Roisin Roberts,
Jennie Porton

GALWAD was part of UNBOXED: Creativity in the UK, co-commissioned with Creative Wales with funding from Welsh Government and UK Government

GALWAD was produced by Collective Cymru, a pan-Wales partnership led by National Theatre Wales including Frân Wen, Centre of Alternative Technology, Clwstwr, Disability Arts Cymru, Ffilm Cymru and Sugar Creative.

Our world-building community partners included CellB, Citizens Cymru, Disability Arts Cymru, Ethnic Minorities Youth Support Team (EYST) and Merthyr Tydfil Leisure Trust.

The People's Newsroom project was led by The Bureau of Investigative Journalism and Solutions Journalism Network.

National Theatre Wales
30 Castle Arcade
Cardiff
www.galwad.cymru

FRONT PAGE IMAGE: Solar panels on set filming GALWAD 2052 drama. Photo by Kirsten McTernan

UNBOXED

CREATIVITY IN THE UK



Cymru Greadigol
Creative Wales

Funded by



HM Government



Northern Ireland
Executive



Scottish Government
Riaghaltas na h-Alba



Llywodraeth Cymru
Welsh Government

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