

# Creative C-Change

*Analysing the Impact of the Creative Climate Action Initiative  
on Climate Change Awareness, Engagement & Action in Ireland*

## Final Report

Marguerite Nyhan, Alexandra Revez, Joanne Mac Mahon,  
Michelle Burke, Padraig Hogan



Acknowledgments

We would like to thank Creative Ireland for funding this research. We are particularly grateful to all the research participants who took part in Creative C-Change research activities, for their time, interest and commitment. We gratefully acknowledge support from the Creative Climate Action team, Corca Dhuibhne Inbhuanaithe, Repair Acts, Field Exchange, Crumlin Taking Action Together, the KinShip project, Linte na Farraige and M-CO. We would also like to thank the following people for their assistance and collaboration with the project: Aoife Deane, Lily Purcell and Sinead Lynch, and for the graphic design of the report: Nollaig Power. A special thank you to Robert Mooney from Department of the Environment, Climate and Communications for comments on data collection methods.

Cite as: Marguerite Nyhan, Alexandra Revez, Joanne Mac Mahon, Michelle Burke, Padraig Hogan, 2023. 'Creative C-Change - Analysing the Impact of the Creative Climate Action Initiative on Climate Change Awareness, Engagement & Action in Ireland.'

# Table of Contents

Executive Summary	3
Introduction	4
Deep Dive Projects	5
Research Methods	6
Survey Results	8
Participant Observations & Interviews	19
Artist Reflections	33
Workshop and Project Led Reflections	37
Mapping Audiences	38
Key Findings	41
Recommendations	43
References	44

# Executive Summary

This Creative C-Change report presents key insights and learnings from the MaREI Centre for Energy, Climate & Marine and the Future Sustainability Research Group's engagement with five Creative Ireland-funded *Creative Climate Action* projects. The five selected projects were Crumlin Taking Action Together, Field Exchange, Kinship, Linte na Farraige and Repair Acts. The overarching aim of the research was to capture the impact of these arts, cultural and creative projects and their events on climate change awareness, engagement and action in Ireland.

The research team attended 65 *Creative Climate Action* events in 2022 and 2023. Data was collected through over 300 surveys, 19 interviews, 30 participant observations, 12 artist reflections and 2 workshops.

In this research, we found that the Creative Climate Action events had a significant impact on audience members and participants in terms of increased awareness, positive engagement and motivation to act in relation to climate change. It was observed that the *Creative Climate Action* experiences provided new ways of engaging and new spaces for connecting and communicating in relation to the environment and climate change. Over 90% of audiences and participants agreed or strongly agreed that "the arts/creative community has a role to play in addressing climate change" and that "artistic/creative events can inspire people to take positive environmental action". The *Creative Climate Action* experiences enhanced connection with the natural environment and motivated and empowered participants to act in relation to climate change. For example, 70% felt "empowered to take climate action" while 74% planned to take climate action or make changes to their behaviour or lifestyle. The experiences provided a sense of community as well as a sense of place and evoked positive emotional responses in relation to climate action. It was also observed that the unique processes and insights of artists enhanced communication and fostered change.

Reflections from the artists included that the *Creative Climate Action* experiences created a

safe space for enhanced climate change communication. The experiences enabled participants to approach climate change in new and proactive ways facilitated by the unique knowledge, perspectives and creative practices of artists. It was also noted that site-specific contexts enhanced a sense of place and engagement with indigenous issues, as well as sustainability and climate action solutions and community connectedness. Finally, the experiences enhanced bottom-up activism and empowerment in relation to climate action.

Based on our research, it is evident that the *Creative Climate Action* projects had a profound impact on both audiences and artists in terms of increased awareness, engagement and action in relation to the environment and climate change. Our findings demonstrate that the arts and creative communities can play an extremely valuable role in enabling dialogue and engaging audiences in new perspectives and action on climate change. With the urgency of climate change, it is essential to recognise the significant potential of the arts and cultural sector in fostering new and alternative responses to climate change action.





# Introduction

The Creative Ireland Programme, based in the Department of Tourism, Culture, Arts, Gaeltacht, Sports and Media, is an all-of-government initiative which places creativity at the heart of public policy. The core proposition is that participation in cultural and creative activity promotes individual, community and national wellbeing. The *Creative Climate Action* fund was launched in collaboration with the Department of the Environment, Climate and Communications. In its initial phase, it funded fifteen creative and cultural projects that aimed to meaningfully connect people with the profound changes that are happening as a result of climate change, and transform that connection into climate action.

This Creative C-Change report presents key insights and learnings from the MaREI Centre for Energy, Climate & Marine and the Future Sustainability Research Group's engagement with five selected *Creative Climate Action* projects. The overarching aim of the research was to capture the impact of these arts, cultural and creative projects and their events on climate change awareness, engagement and action in Ireland. This research was commissioned by Creative Ireland.

The arts can play a valuable role in enabling dialogue and engaging diverse audiences in new perspectives and action on climate change. Leveraging the arts in action-oriented and engaged contexts offers new opportunities to challenge and collaborate with industry, science and technology. Building the knowledge base required to support this promising area of research and engagement is crucial in order to adequately recognise the untapped potential of the arts and cultural sector to foster alternative responses to climate change. In this context new parameters are needed to explore the arts, that transcend conventional parameters of communication and outreach and embrace the potential of the arts and broader cultural and creative interventions as co-generators of knowledge, climate action and transformative change. By tracing wider interactions between the arts in climate action in the long-term, this enables a more inclusive integration of this sector into

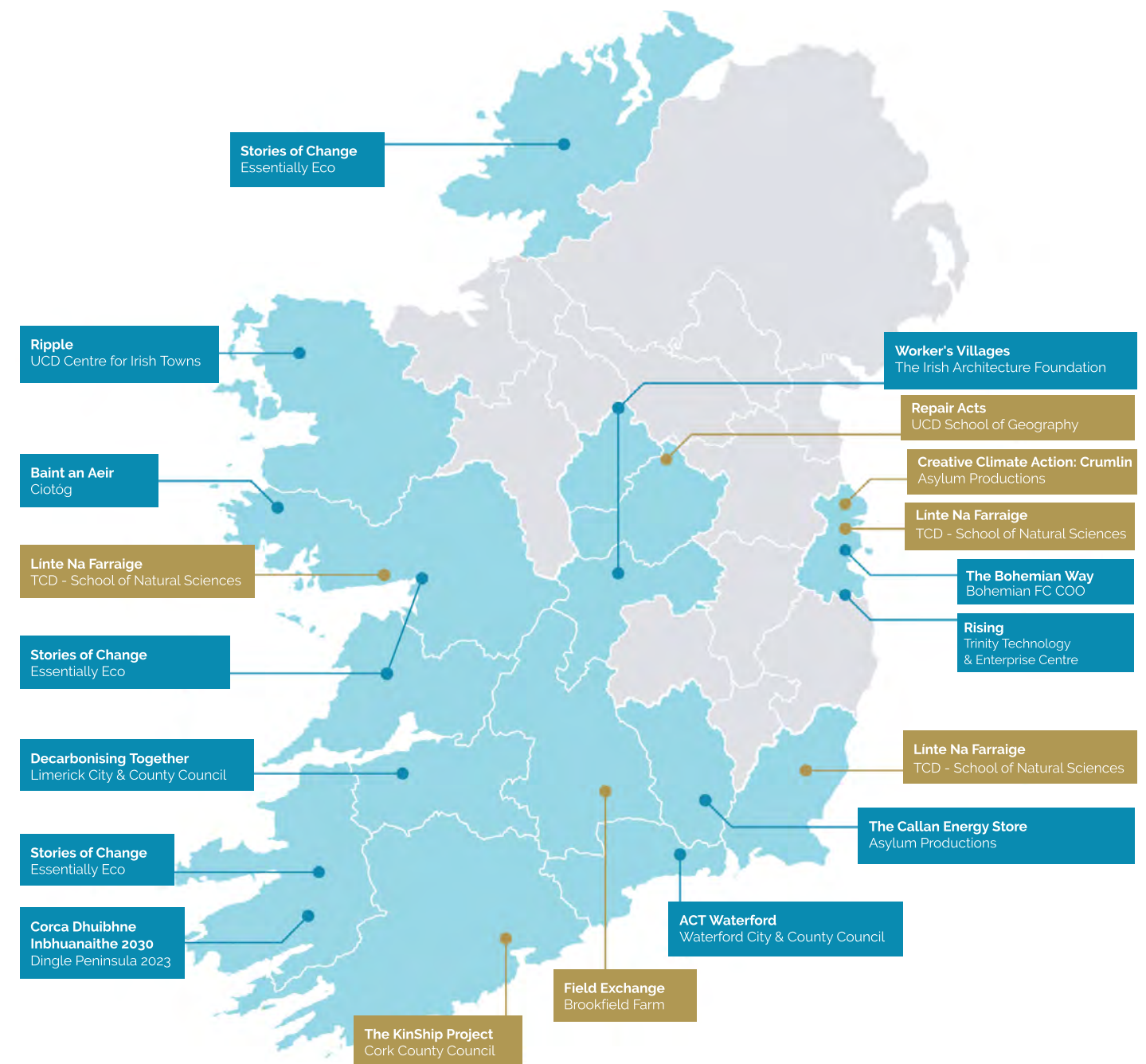


Fig 1: Map showing the geographical distribution of the 15 Climate Action projects across Ireland. The five deep-dive projects which the research team worked with are highlighted in gold.

climate change research, including the wider Climate Action Fund programme and other larger initiatives and partnerships across Europe.

This research provided a framework for evaluating the creative, performative and educational climate action projects funded under the *Creative Climate Action* call. The work included an assessment of impacts in terms of engagement with multiple stakeholders, communities and the broader public. Such impacts included a change in awareness, engagement, attitudes, perceptions and/or behaviour related to climate change and climate change action, as well as other emergent societal impact processes.



# The Deep Dive Projects

A deep dive review was conducted into five of the fifteen Climate Action projects. An overview of each of the five projects can be found below. Follow the links to their respective websites for further information about each project.



## Crumlin Taking Action Together

Starting in Spring 2022, the greater Crumlin area hosted a programme of climate action projects and outdoor events in a unique collaboration between artists, engineers, scientists, over 3000 local residents and a range of passionate local interest groups. Seven diverse initiatives were created by the people of Crumlin in partnership with the DCC Arts Office and the local area office.

<https://www.crumlintakingactiontogether.ie/>



## Field Exchange

The Field Exchange project took place between June and September 2022 and was presented at Brookfield Farm on the shores of Lough Derg, Co Tipperary by farmer Ailbhe Gerrard. An exchange programme of creative agricultural topics was facilitated on the farm and were further contextualised and amplified by Model Plot, a sculptural planting by artist Deirdre O'Mahony. Artist John Gerrard gave a unique presentation of his simulation titled Corn Work.

<https://www.brookfield.farm/pages/field-exchange>

## KinShip Project, Tramore Valley Park

The KinShip Project was a durational public artwork at Tramore Valley Park by Cork City Council in partnership with artists Lennon Taylor (Marilyn Lennon and Sean Taylor), supported by the Creative Climate Action Fund. Local project partners included Cork Nature Network, Cork Healthy Cities, Cork's UNESCO Learning City, Green Spaces For Health, MTU Clean Technology Lab and UCC Environmental Research Institute.

<https://www.corkcity.ie/en/kinship>



## Línte Na Farraige

Línte na Farraige was a series of light installations across Irish coastal sites. The installations revealed the risks of rising seas and storm surges and demonstrated the need to reduce our greenhouse gas emissions, to lower the projected sea level line and adapt together to protect our coastlines. This project was a symbiosis of art and science, inspired by the astonishing light installations from Finnish artists Timo Aho and Pekka Niittyvirta.

<https://info.lintenafarraige.com>



## Repair Acts

Repair Acts, Ireland aimed to foster vibrant and restorative repair cultures in Ireland by connecting past stories about mending and fixing things with what we do today and how we envision the future. With a focus on Westmeath, the project drew on archival material to understand historical and contemporary repair craft heritages and economies in the county.

<https://www.repairacts.ie>





# Research Methods

## Surveys, Interviews, Observations & Reflections

In order to identify key findings on the impact of the *Creative Climate Action* initiative on its audience and participants' awareness, engagement and behaviour related to climate change and climate change action, several sources and methods of data collection were employed. A mixed methods approach drawing from qualitative and quantitative data was used. These established methods are drawn from other studies of arts and cultural interventions in the environmental space (for example Curtis (2006), Curtis (2014) and Burke et al. (2018)). In these, practical social science approaches were successfully employed to assess the impacts of projects on behaviour change and related issues.

Data requirements included participant observations; structured and semi-structured interviews; focus groups/workshops; and, surveys and questionnaires (similar to Curtis (2006) methodologies). Triangulation of different methods was applied to two (or more) methods in order to compare and check the results. This methodology is common in the social sciences and affirms results when different methods lead to the same conclusion (Neumann, 1997; Curtis, 2006).

Two surveys were developed for this research. The first survey was a baseline survey intended for use by participants or audience before attendance or participation in events. The second survey was designed for use after people had attended or participated in events. Due to the problematic nature of uptake of surveys and also due to concerns by projects regarding the influence of baseline surveys on the experience of audience and participants, it was decided that their use would be very limited. In order to overcome this, the post-experience survey included questions designed to give some insight into respondents' underlying perceptions and behaviours in relation to climate change. Some of these were based on questions from the EPA's Climate Change in the Irish Mind survey and recent Eurobarometer surveys (Leiserowitz et al., 2021; European Commission, 2019).

In addition, questions were included from surveys used in similar projects such as the Creative Carbon Scotland Beacons Project and relevant projects in the literature (Burke et al., 2018; Curtis, 2006; Sommer et al., 2019, 2021). Interview guides and reflection questionnaires were also developed for audiences, participants and project teams. The data collection involved project teams and artists, participants in project events, as well as general audience at events.

Seven of our researchers collected data from 65 different *Creative Climate Action* Events including participatory workshops, live demonstrations, installations and presentations, as well as interviews and hosted workshops with participants, artists and project teams. The Methodology visual on page 7 illustrates the volume of data we collected, including surveys, participant observations and interviews, as well as the various stages of our research methodology. This consisted of the initial Study Design stage involving elements such as the selection of the five deep dive projects, a literature review and data collection formulation, through the Data Analysis stage of examining, interpreting and evaluating the data, and finally the generation of key stakeholder messages and recommendations after synthesizing all research findings.



Field Exchange - Brookfield Farm, Nenagh, Co. Tipperary



# Methodology Visualization

## I STUDY DESIGN

15 Project Interviews  
Selection of 5 Deep-Dive Projects  
Literature Review  
Selection of Methodologies  
Formulation of Surveys  
Design of Participant Observation Guide  
Development of Interview Template

## II DATA COLLECTION

272 Complete Surveys / 33 Discarded  
65 Events Attended  
30 Participant Observations  
19 Interviews  
12 Artist Reflections  
2 Hosted Workshops

## III DATA ANALYSIS

### STAGE 1

Analysis of Survey Data  
Qualitative Thematic Analysis  
Case-study Analyses  
5 Horizon Scanning Exercises

### STAGE 2

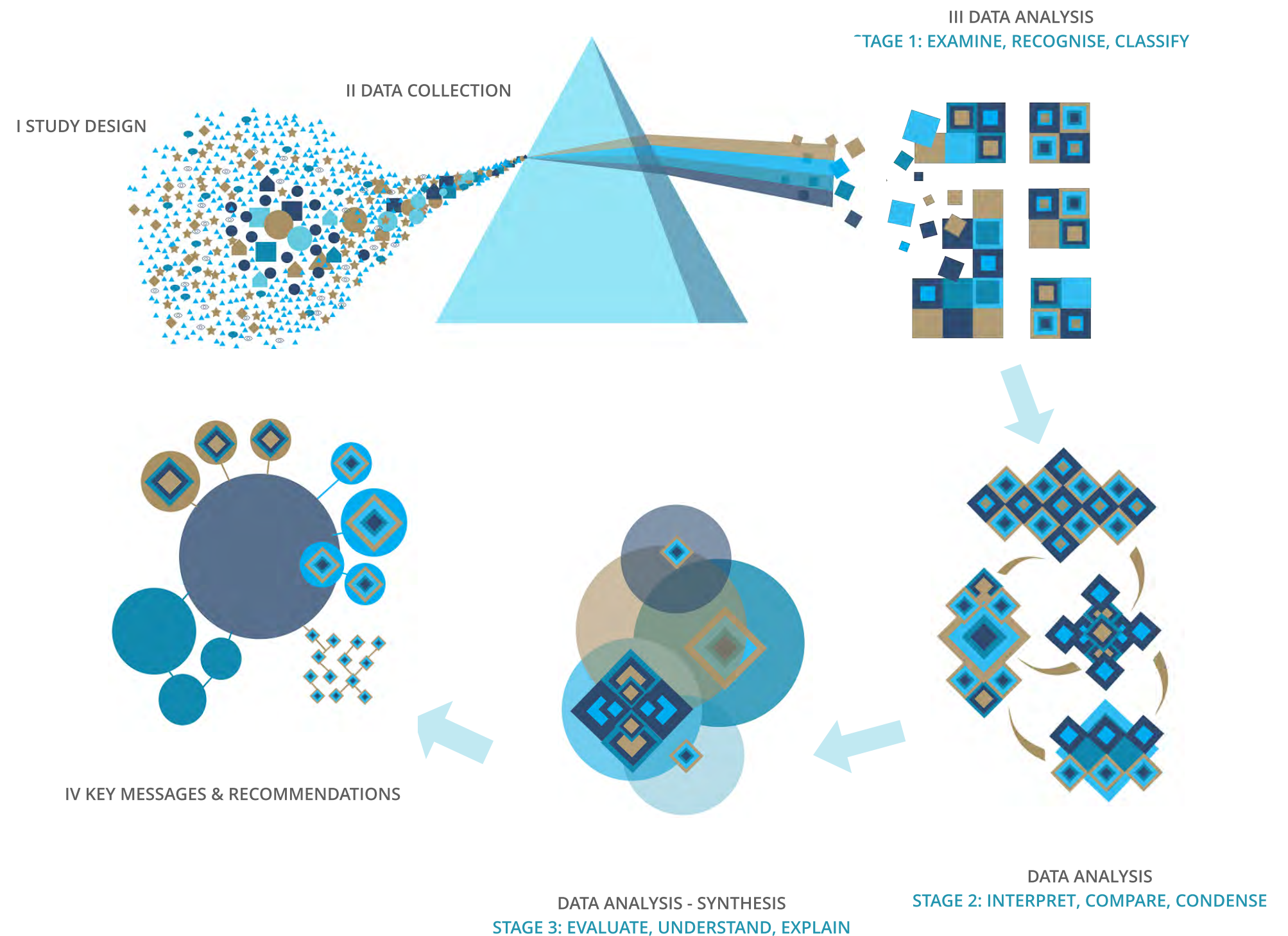
Refining Thematic Analysis  
Audience Mapping  
Behaviour Change Mapping

### STAGE 3

Synthesis of All Research Findings

## IV INTEGRATE, EXTRAPOLATE, GENERATE

Identify Key Stakeholder Messages  
Outline Recommendations







# Survey Results

In this section, we summarise our findings from 272 surveys analyzed under the following themes:

- Projects Attended and Participation Role
- General Perceptions of Climate Change
- Impact of the Arts/Creative Experience
- Demographic Insights

**Figure 1. Please indicate which Creative Climate Action project you participated in or attended.**

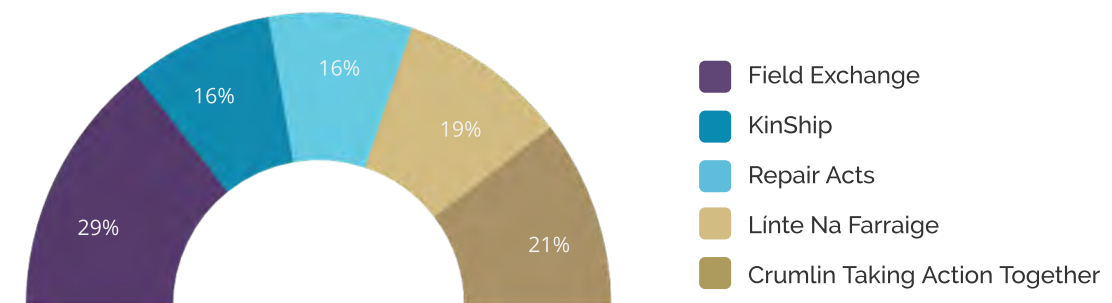


Figure 1 shows that the largest proportion (29%) of survey respondents participated in or attended Field Exchange events in Brookfield Farm in Tipperary. 21% attended Crumlin Taking Action Together events in Dublin. 16% participated in Kinship events in Cork. 16% participated in Repair Acts events in Westmeath and 19% attended Linte na Farraige events.

**Figure 2. What was your role in the project?**

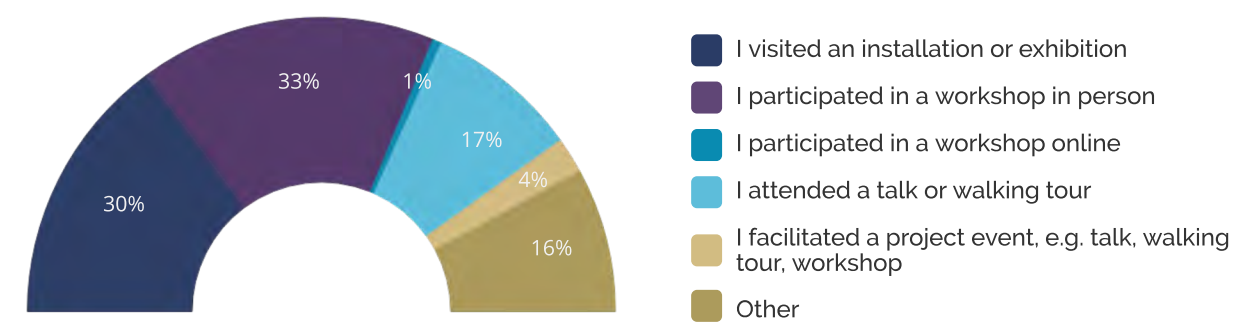
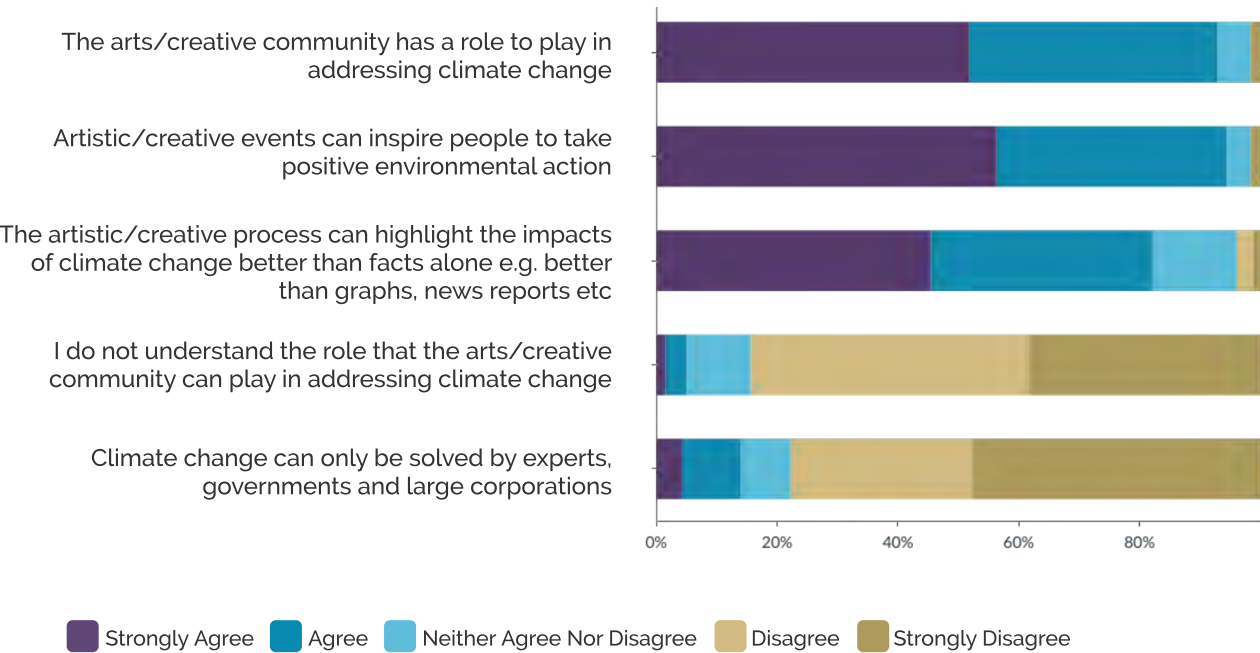


Figure 2 shows that most of the survey respondents (33%) participated in or attended a workshop in person. 30% visited an installation or exhibition. 17% attended a talk or walking tour. 4% facilitated a project event, 1% participated in a workshop online while 16% had another role in the events.

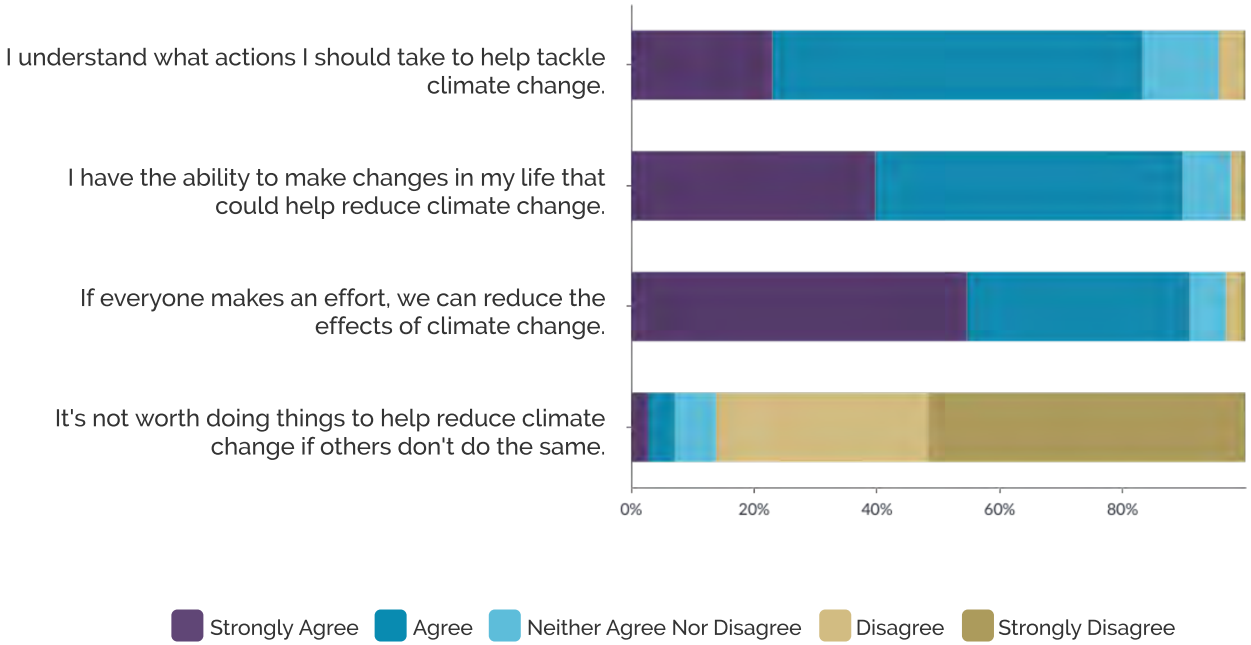


Figure 3. To what extent do you agree or disagree with the following statements?  
Please select one response for each statement.



- Figure 3 shows that the vast majority of respondents (93%) agreed or strongly agreed that “the arts/creative community has a role to play in addressing climate change”.
- A larger majority of respondents (95%) agreed or strongly agreed that “Artistic/creative events can inspire people to take positive environmental action”.
- 82% agreed or strongly agreed that the “artistic/creative process can highlight the impact of climate change better than facts alone”.
- Only 5% agreed or strongly agreed with the statement “I do not understand the role that the arts/creative community can play in addressing climate change” while only 14% agreed that “climate change can only be solved by experts, governments and large corporations”.

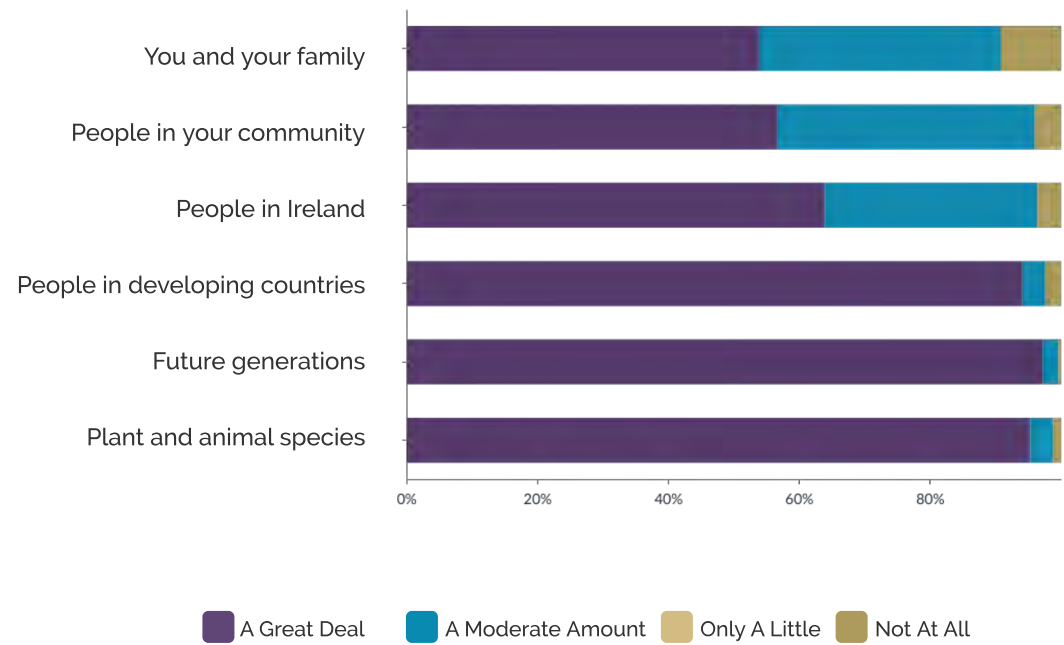
Figure 4. Responses to a variety of statements about climate change action.



- Figure 4 shows that a majority (83%) of survey respondents agreed or strongly agreed that they understand what actions they should take to help tackle climate change.
- A larger proportion (89%) agreed or strongly agreed that they have the ability to make changes in their life that could help reduce climate change.
- A similar proportion (91%) agreed or strongly agreed that “if everyone makes an effort we can reduce the effects of climate change”, and only 7% agreed that “It's not worth doing things to help reduce climate change if others don't do the same”.

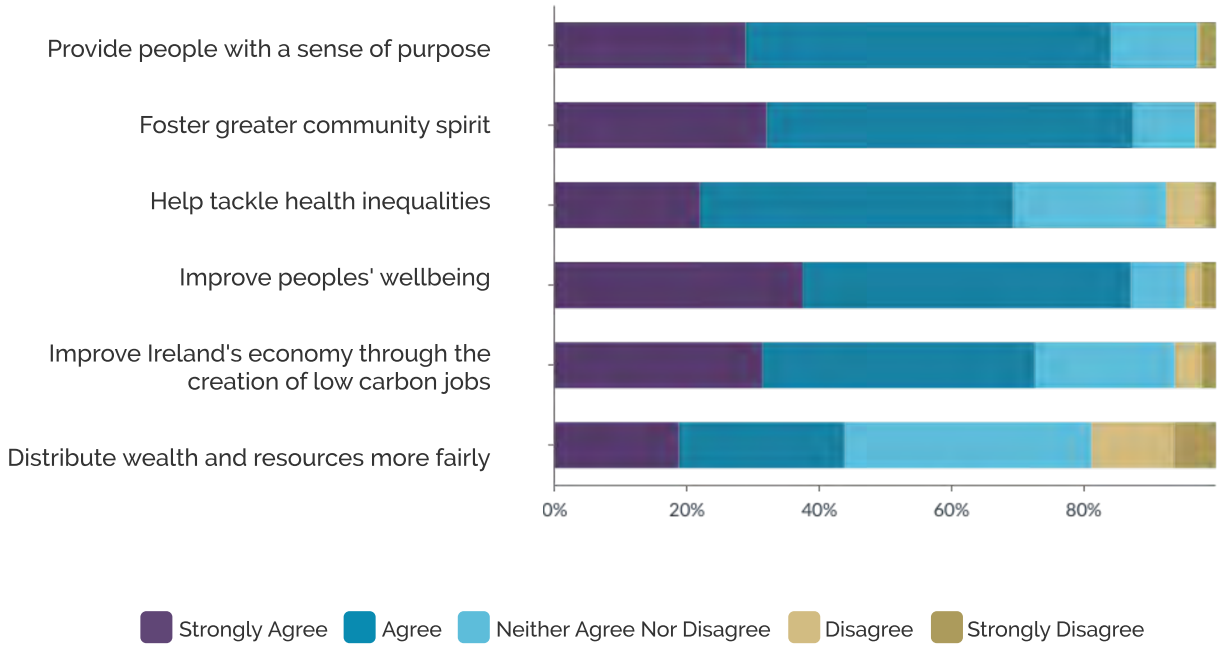


Figure 5. To what extent do you think climate change will harm the following groups? Please select one option for each group.



- Figure 5 portrays that the vast majority of survey participants think that climate change will harm people and nature.
- 92% of survey respondents think that climate change will harm them and their family "a moderate amount" or "a great deal".
- 95% think that climate change will harm people in their community.
- 96% think that climate change will harm people in Ireland,
- 96% think it will harm people in developing countries.
- 99% think it will harm future generations while 98% think it will harm plant and animal species.

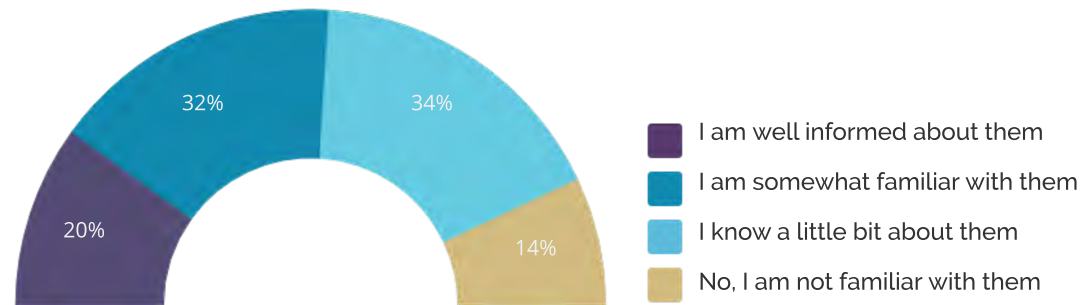
Figure 6. To what extent do you agree or disagree with the following statements? Please select one response for each statement. "Addressing climate change will....."



- Figure 6 shows agreement with many of the positive effects of addressing climate change.
- 85% agreed or strongly agreed that addressing climate change would provide people with a sense of purpose.
- 88% agreed or strongly agreed that it would foster greater community spirit.
- 70% agreed that it would help tackle health inequalities while 88% agreed that it would improve people's wellbeing.
- 73% agreed that it would improve Ireland's economy through the creation of low-carbon jobs.
- Only 45% agreed that addressing climate change would help "distribute wealth and resources more fairly".

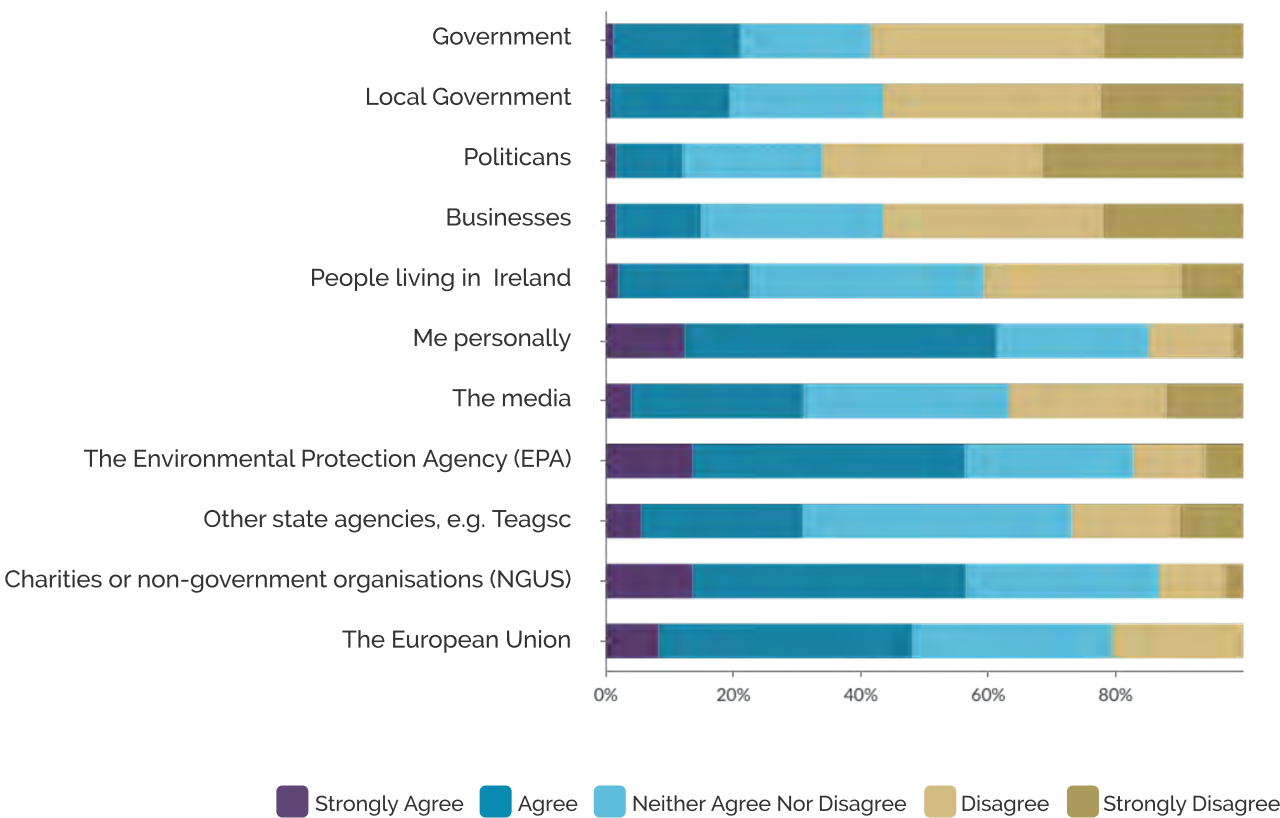


Figure 7. Are you familiar with Ireland’s plans to reduce carbon emissions by 50% by 2030?



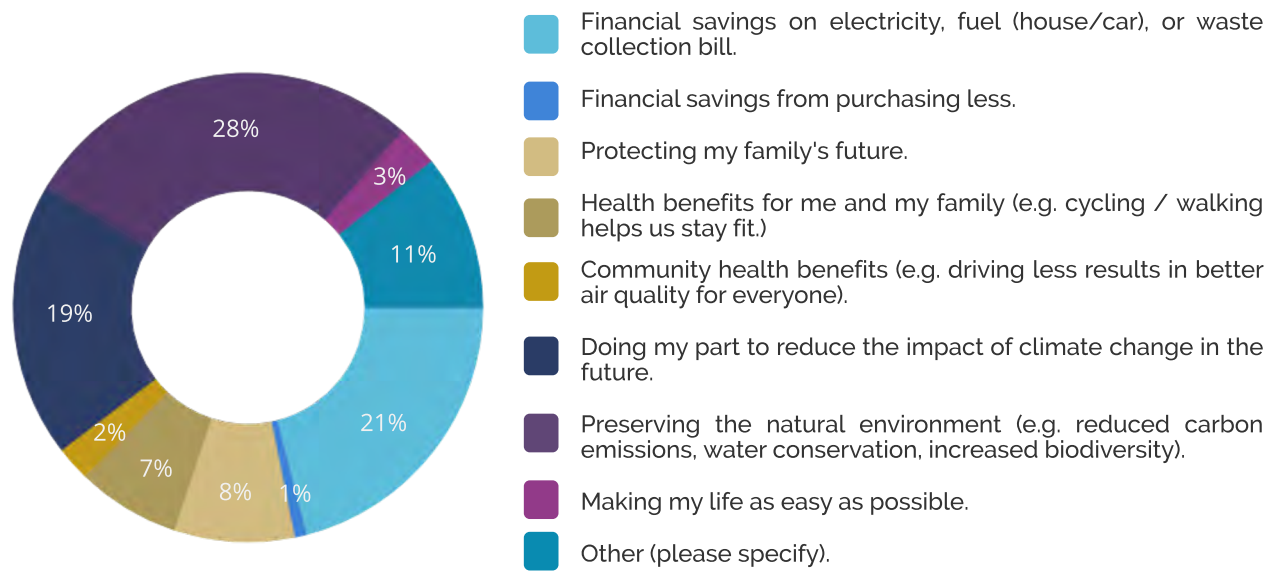
- Figure 7 demonstrates that approximately 20% of survey respondents were “well-informed” about Ireland’s plan to reduce carbon emissions by 50% by 2030”.
- Approximately 32% were “somewhat familiar with them”.
- 34% stated that they “know a little bit about them” while 14% were “not familiar with them”.

Figure 8. To what extent do you agree or disagree that the following groups are taking adequate measures to address climate change? Please select one option for each group.



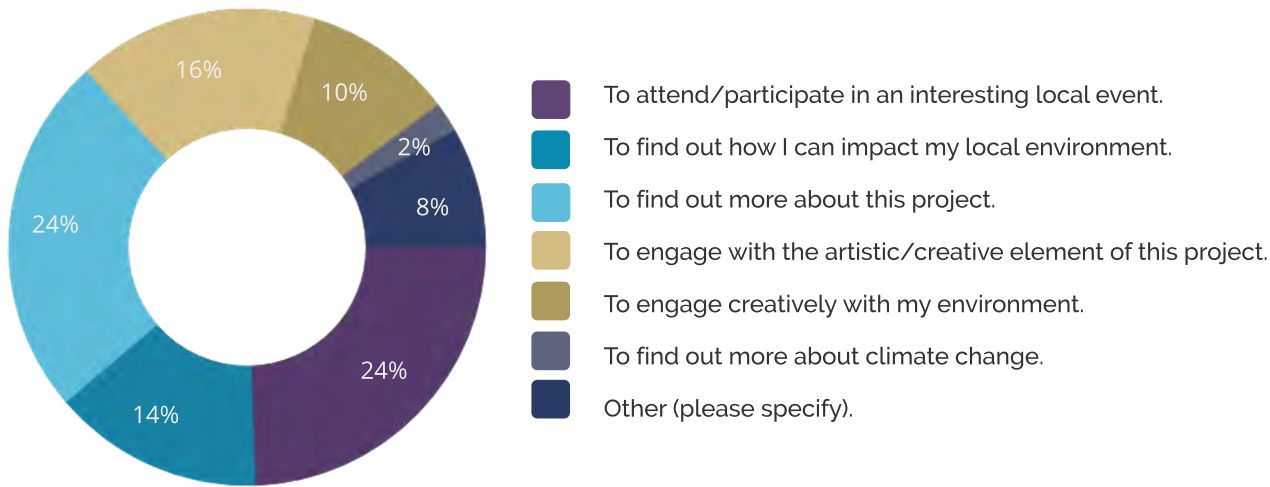
- Figure 8 shows that 21% of respondents agreed or strongly agreed that the government was taking adequate action to address climate change.
- 20% agreed that local government, politicians and businesses were taking adequate action.
- 12% agreed that people living in Ireland were taking adequate action while 31% agreed that the media were doing a sufficient amount.
- 63% agreed that they personally were taking adequate action.
- 57% agreed that the Environmental Protection Agency were taking adequate action while 31% agreed that other state agencies were doing enough.
- 58% agreed that charities and non-governmental organisations were doing a sufficient amount while 47% agreed that the EU was doing enough to address climate change.

Figure 9. Which of the following is most likely to motivate you to practice green /sustainable behaviours (e.g. using less energy at home, cycling/walking instead of driving, reducing waste)? Please choose one.



- Figure 9 shows varied responses to the question of which options would be most likely to motivate the respondent to practice green or sustainable behaviours.
- 28% stated that “preserving the natural environment” was most likely to motivate them.
- 21% cited “financial savings on electricity, fuel, or waste collection” while 19% stated that “doing my part to reduce the impact of climate change in the future” was most likely to motivate them.
- 8% cited “protecting my family’s future” and 7% cited “health benefits for me and my family”.
- Less than 4% cited “community health benefits” and “making their life as easy as possible” as motivators for climate action.

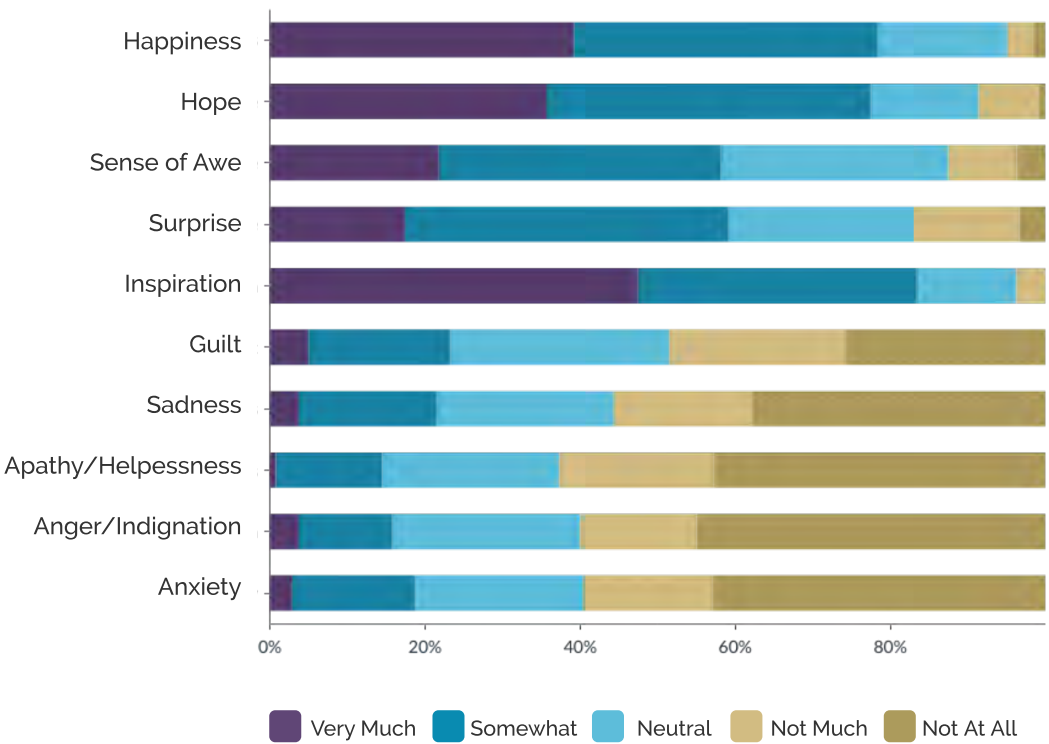
Figure 10. Which best describes the main purpose of your attendance at this event/experience? Please choose one option.



- Figure 10 shows that 24% of survey respondents cited that their main purpose of attendance was to attend or participate in an interesting local event
- 14% attended to find out how they could impact their local environment while 24% wanted to find out more about each project.
- 16% attended to engage with the artistic/creative element of the project, 10% wanted to engage creatively with their environment, 8% selected another reason while 2% stated that wanting to know more about climate change was their main objective in attending the event.



Figure 11. To what extent did the experience or event bring up each of these feelings within you? Please select one response for each.



- Figure 11 shows that most (83%) survey respondents felt that the experience or event instilled "inspiration" somewhat or very much in them.
- 78% felt happiness, 76% felt hope, 66% felt awe while 60% felt surprise in response to the experiences or events they attended or participated in.
- 18% felt guilt, 20% felt sadness, 14% felt apathy or helplessness,
- 13% felt anger while 19% felt anxiety in response to the experience or event.

Figure 12. To what extent do you agree or disagree with the following statement? "The creative aspect of this project made me feel more engaged with climate action."

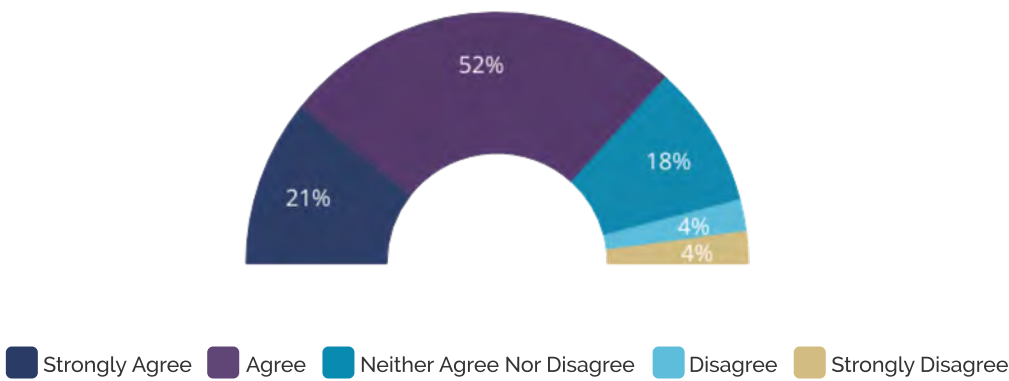


Figure 12 shows that 73% of respondents indicated they agreed or strongly agreed that the creative aspect of the project made them feel more engaged with climate action.

Figure 13. To what extent do you agree or disagree with the following statement after attending this experience? "I am more informed about climate change."

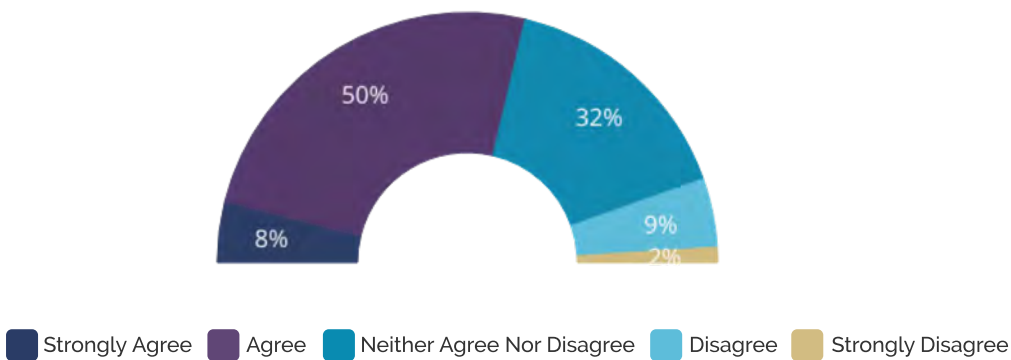
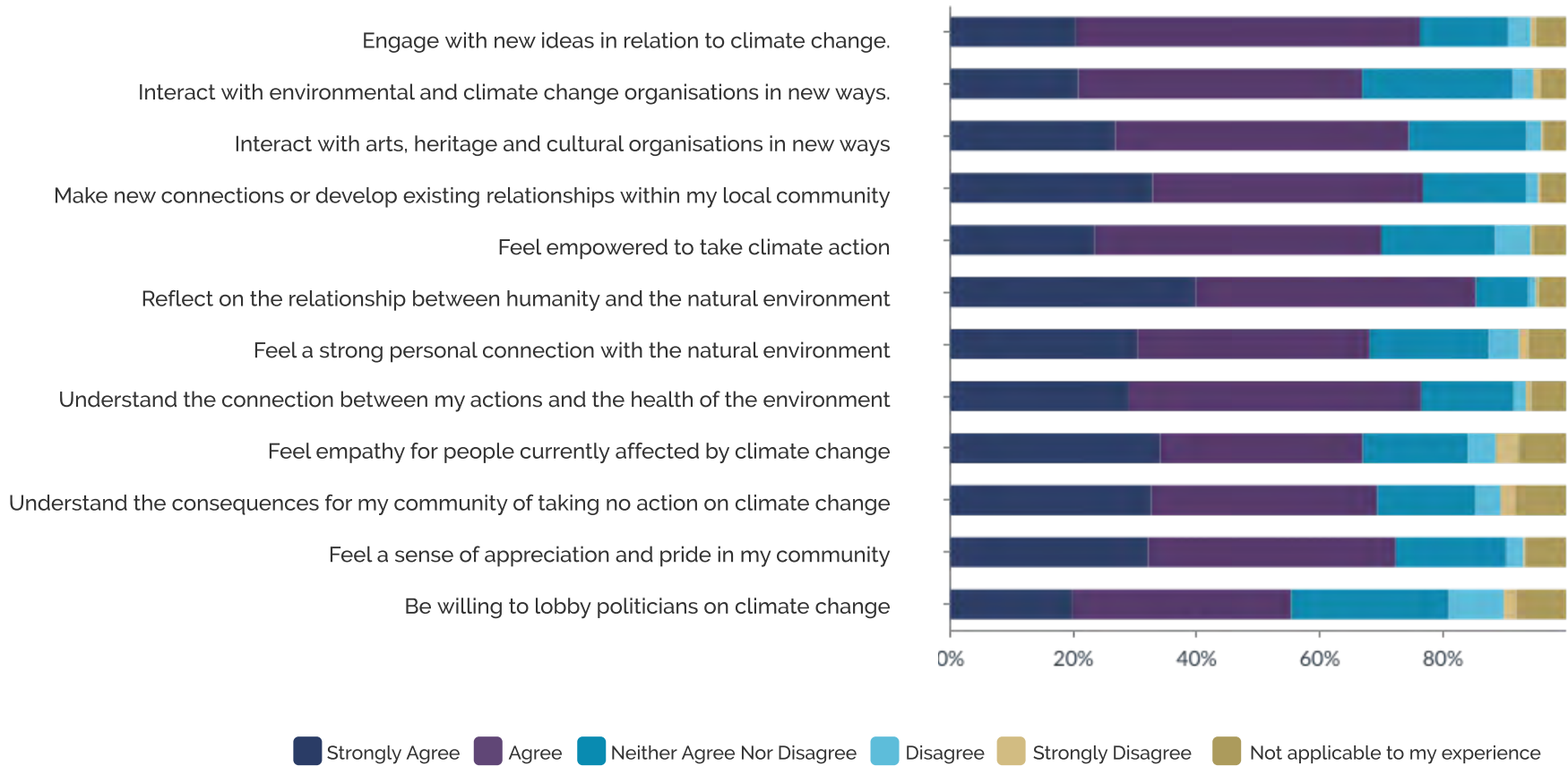


Figure 13 shows that 58% of respondents indicated they agreed or strongly agreed that they were more informed about climate change after attending the experience.

Figure 14. Which of the following, if any, has this experience helped you to do? Please select one response for each statement.



- Figure 14 shows that over three-quarters (77%) of respondents agreed or strongly agreed that the experience helped them to reflect on the relationship between humanity and the natural environment.
- Two-thirds (66%) said that it helped them to interact with the environment and climate change in new ways while 76% said that it helped them interact with arts, heritage and cultural organisations in new ways.
- 79% said that it helped them to make new connections or develop existing relationships within their local community.
- Almost three-quarters (74%) of respondents felt "empowered to take climate action".
- 89% of those surveyed said that it helped them to reflect on the relationship between humanity and the natural environment. 81% said that it helped them to feel a strong personal connection with the natural environment while 77% said it helped them to understand the connection between their actions and the health of the environment.
- 67% and 69% said that it helped them to feel empathy for people currently affected by climate change and understand the consequences for their community of taking no action on climate change, respectively. 67% responded to say that it helped them to feel a sense of appreciation and pride in their community while 55% said that the experience instilled in them a willingness to lobby politicians on climate change.



Figure 15. Do you plan on taking action or making changes to your behaviour or lifestyle after attending this event/participating in this project?

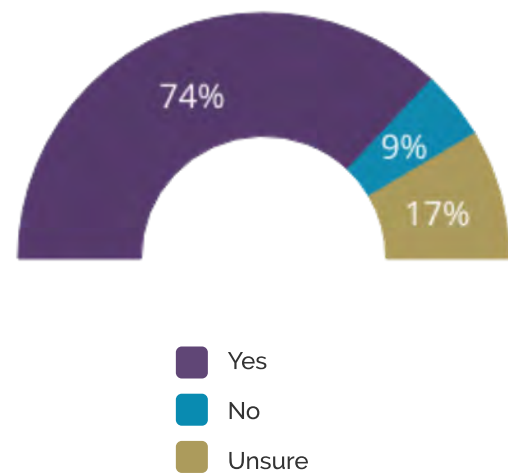


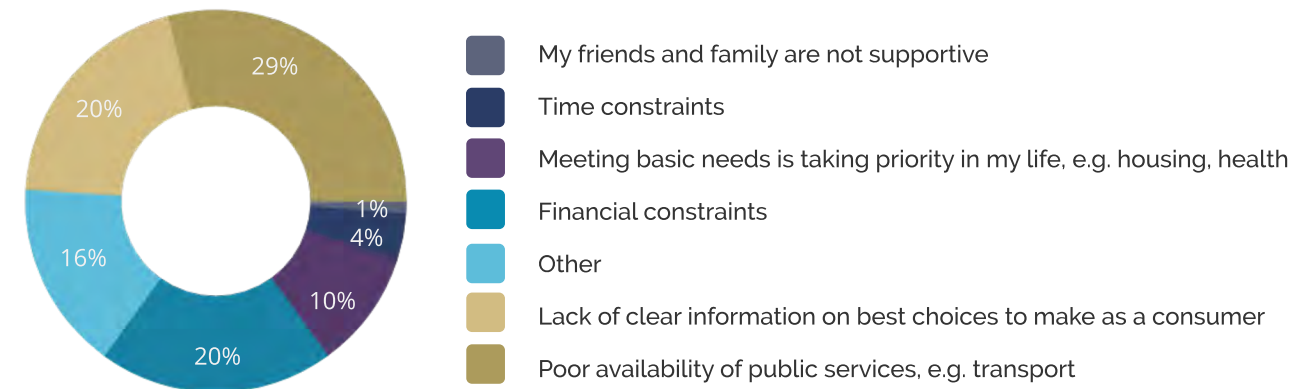
Figure 15 shows that 74% of respondents planned to take climate action or make changes to their behaviour or lifestyle after attending the event or participating in the project. 9% indicated they would not while 17% were unsure.

Figure 16. If you said yes to the above question, do you plan on taking action in any of the following areas over the next 12 months? Please choose which categories apply.



- Figure 16 shows what climate actions survey respondents were planning on taking in the 12 months following the survey.
- 48% were planning on planting for biodiversity and/or create better green spaces;
- 58% planned on reducing household waste and recycling more; 56% planned on repairing damaged possessions where possible instead of replacing them.
- 53% planned to reduce consumption of disposable items,
- 55% planned to purchase less non-essential items and 50% planned to buy second-hand goods where possible.
- At the lower end of the scale only 14% planned to buy a low-fuel or electric car and only 8% planned to purchase a low-energy home.

Figure 17. Which barrier is most significant to you when trying to make positive environmental choices? Please choose one option.



- Figure 17 shows that “poor availability of public services” was the most frequently cited barrier to making positive environmental choices with 29% of respondents selecting this reason.
- This was followed by financial constraints (20%) and a lack of clear information on best choices to make as a consumer (20%), other reasons (16%), meeting basic needs such as housing and health (10%), time constraints (4%) and unsupportive family and friends (1%).

Figure 18. To what extent do you agree or disagree with the following statement? "Attending this experience has shown me how I can apply creativity to environmental aspects of my personal life."

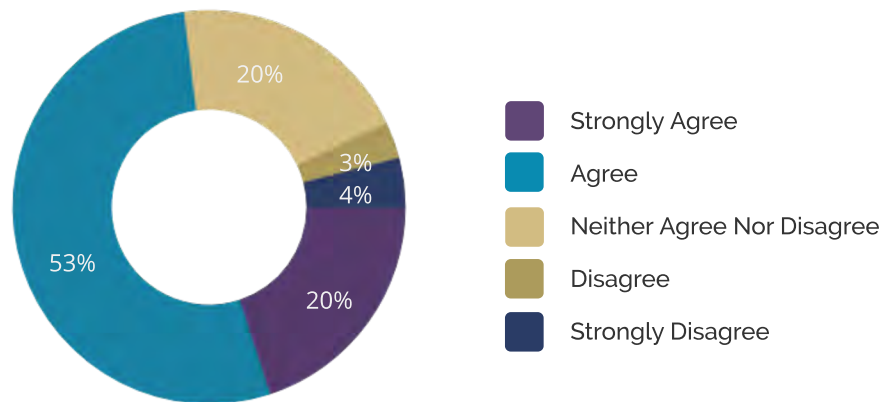


Figure 18 shows that the majority (73%) of people agreed or strongly agreed that the experience showed them how they could apply creativity to environmental aspects of their personal life.

Figure 19. What is your gender?

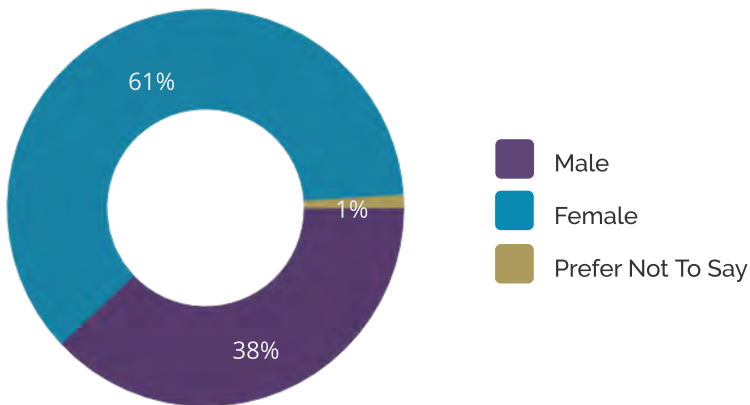
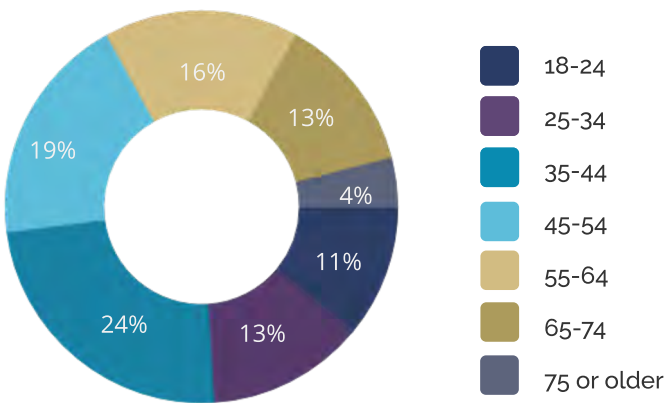


Figure 19 shows that over half (61%) of the respondents were female, 38% were male and about 1% preferred not to say.

Figure 20. What is your age?



- Figure 20 shows that most respondents were aged between 35 and 44 years (24%).
- This group were followed by those aged between 55 and 64 (16%) and those aged between 45 and 54 years (19%).
- 11% of individuals were aged between 18 and 24 years and 4% were aged 75 years or older.



Figure 21. What is your current working status?"

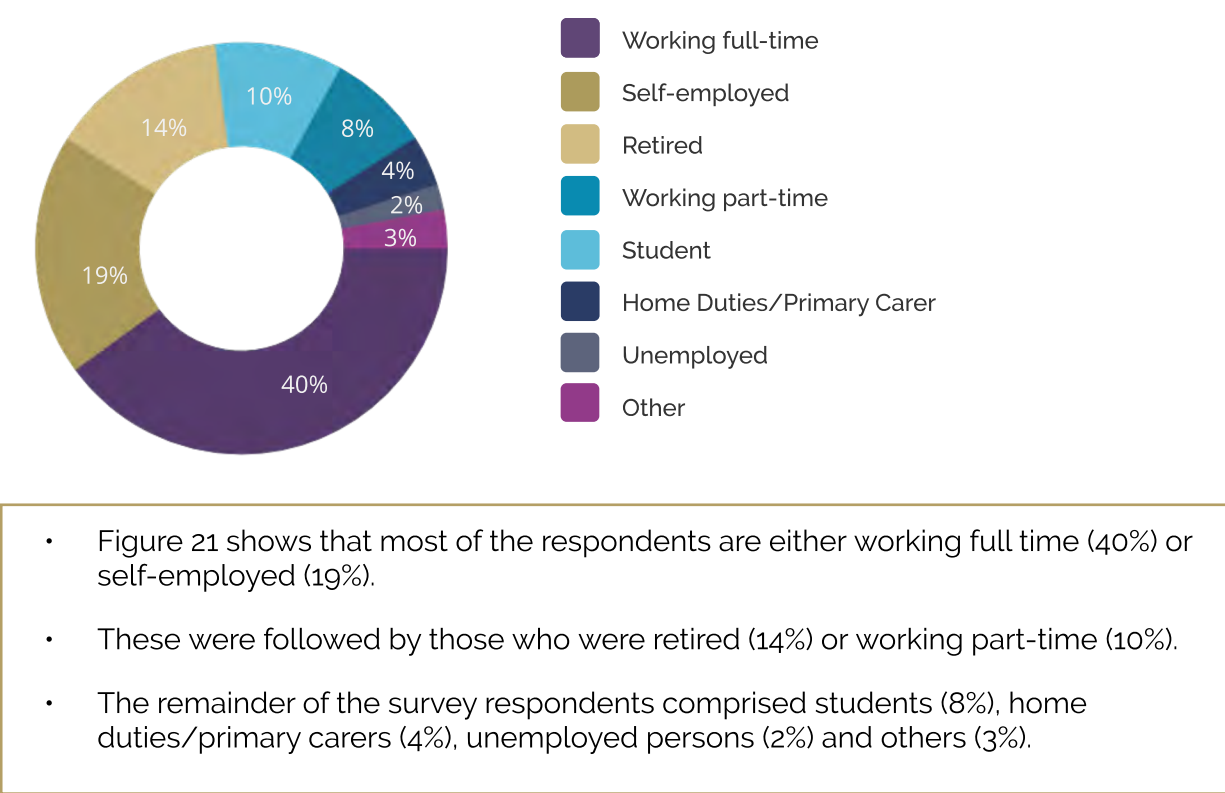


Figure 23. What is the highest level of education you have completed to date?

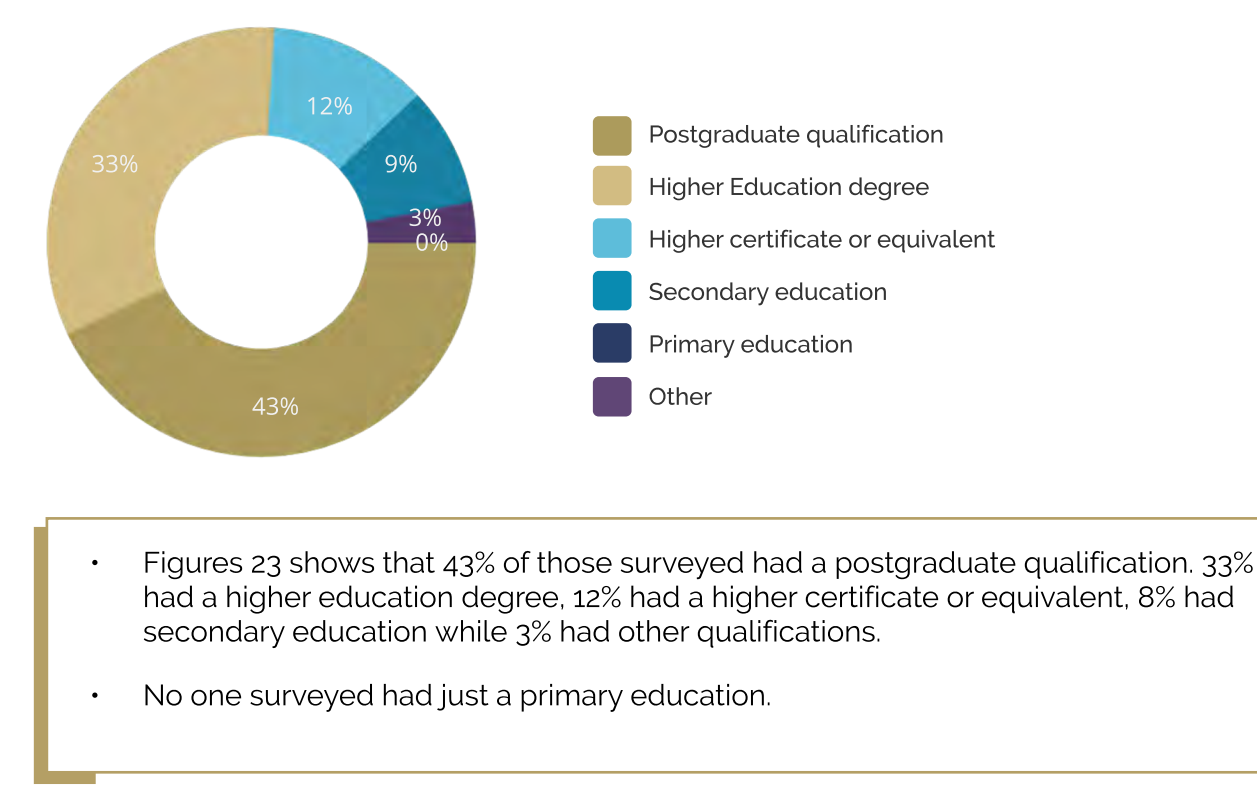
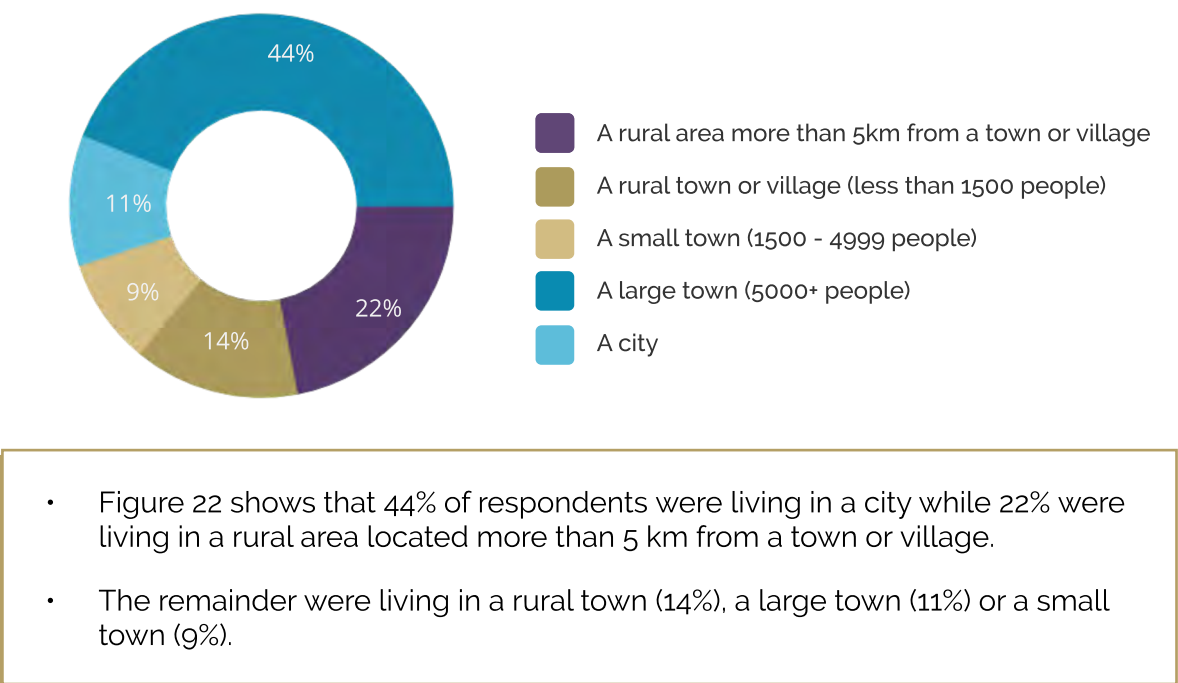


Figure 22. Which phrase best describes the area where you live?



## Comparing results from the Creative Climate Action (CCA) post-experience survey

We compared results from the Creative Climate Action (CCA) post-experience survey with similar questions from the EPA Climate Change in the Irish Mind survey (Leiserowitz et al., 2021) and the Eurobarometer survey on climate change (European Commission, 2019).

### Negative Impacts Of Climate Change

- Over **94%** of participants from CCA and EPA Climate Change in the Irish Mind (CCIM) surveys felt that climate change will harm people in developing countries, future generations and plant and animal species a moderate amount or a great deal.
- Over **95%** of CCA participants felt that climate change will harm people in their community and in Ireland a moderate amount or a great deal, compared with over **75%** of respondents to the CCIM survey.

### Economic Growth And Jobs

- **73%** of CCA respondents agreed or strongly agreed that addressing climate change will improve Ireland's economy through the creation of low carbon jobs, compared with **62%** of respondents to the CCIM survey, who felt that taking action to reduce climate change will improve economic growth and create jobs.

### Quality Of Life

- Over **70%** of CCA participants agreed or strongly agreed that addressing climate change will provide people with a sense of purpose, foster greater community spirit, help tackle health issues and improve people's well-being. (**83%** average across all four factors.)
- **78%** of respondents to the CCIM survey felt that taking action to reduce climate change would improve people's quality of life.

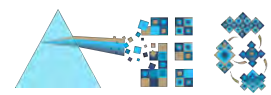
### Attitudes Towards Responsibilities And Actions Of Government, Local Government And Businesses In Relation To Climate Change

- **57-58%** of CCA participants disagreed or strongly disagreed that the government, local government and businesses are taking adequate measures to address climate change, compared to **89-90%** of CCIM respondents, who felt these groups should be doing more or much more.
- **39-48%** of Eurobarometer respondents felt that national governments; regional and local authorities; business and industry are responsible for tackling climate change.

### Attitudes Towards Responsibilities And Actions Of Themselves Personally, The EPA, Politicians, Citizens And The Media In Relation To Climate Change

- **16%** of CCA participants disagreed or strongly disagreed that they personally were taking adequate measures to address climate change, compared with **80%** of CCIM respondents who felt that they personally should be doing more or much more. **43%** of Eurobarometer respondents felt that they were personally responsible for tackling climate change.
- **18%** of CCA respondents disagreed or strongly disagreed that the EPA was taking adequate measures to address climate change, while **72%** of CCIM respondents felt that the EPA should be doing more or much more. **30%** of Eurobarometer respondents felt that environmental groups were responsible for tackling climate change.
- **16%** of CCA participants disagreed or strongly disagreed that politicians were taking adequate measures to address climate change, compared with **90%** of CCIM respondents who stated that politicians should be doing more or much more.
- **22%** of CCA participants agreed or strongly agreed that people living in Ireland were taking adequate measures to address climate change, while **90%** of CCIM respondents felt that citizens should be doing more or much more.
- **31%** of CCA participants agreed or strongly agreed that the media was taking adequate measures to address climate change, while **79%** of CCIM respondents felt that the media should be doing more or much more.





## Participant Observations and Interviews

### Behaviour Change Themes

Understanding whether the *Creative Climate Action* Initiative brought about behavioural change in the target audience and participants was a key focus area in our research. A set of indicative variables was established for our measurement strategy based on the Behaviour Change Wheel from Michie et al's (2011) COM-B Behaviour System Model. The COM-B model was originally produced for public health behaviour change intervention research and has since been adapted to climate mitigation including energy system change (see Axon et al., 2018). The model is framed around nine interventions aimed at overcoming obstacles in up to three conditions: motivation, opportunity and capacity. For analysis of the participant interviews and observations, themes were established for these conditions under Opportunity to Change, Motivation to Change and Capacity to Change. Figure 2 shows an overview of these findings, which will be discussed in more detail further below. Other key impact areas and findings from the participant interviews and observations included how *Creative Climate Action* experiences imparted new knowledge of locally relevant issues and solutions related to climate change and sustainability, generated new perspectives through the creative lens and unique presence of artists and artworks, elicited a range of emotional responses which are significant in terms of motivating people to take positive environmental action, and promoted high levels of engagement through participatory style events and workshops.

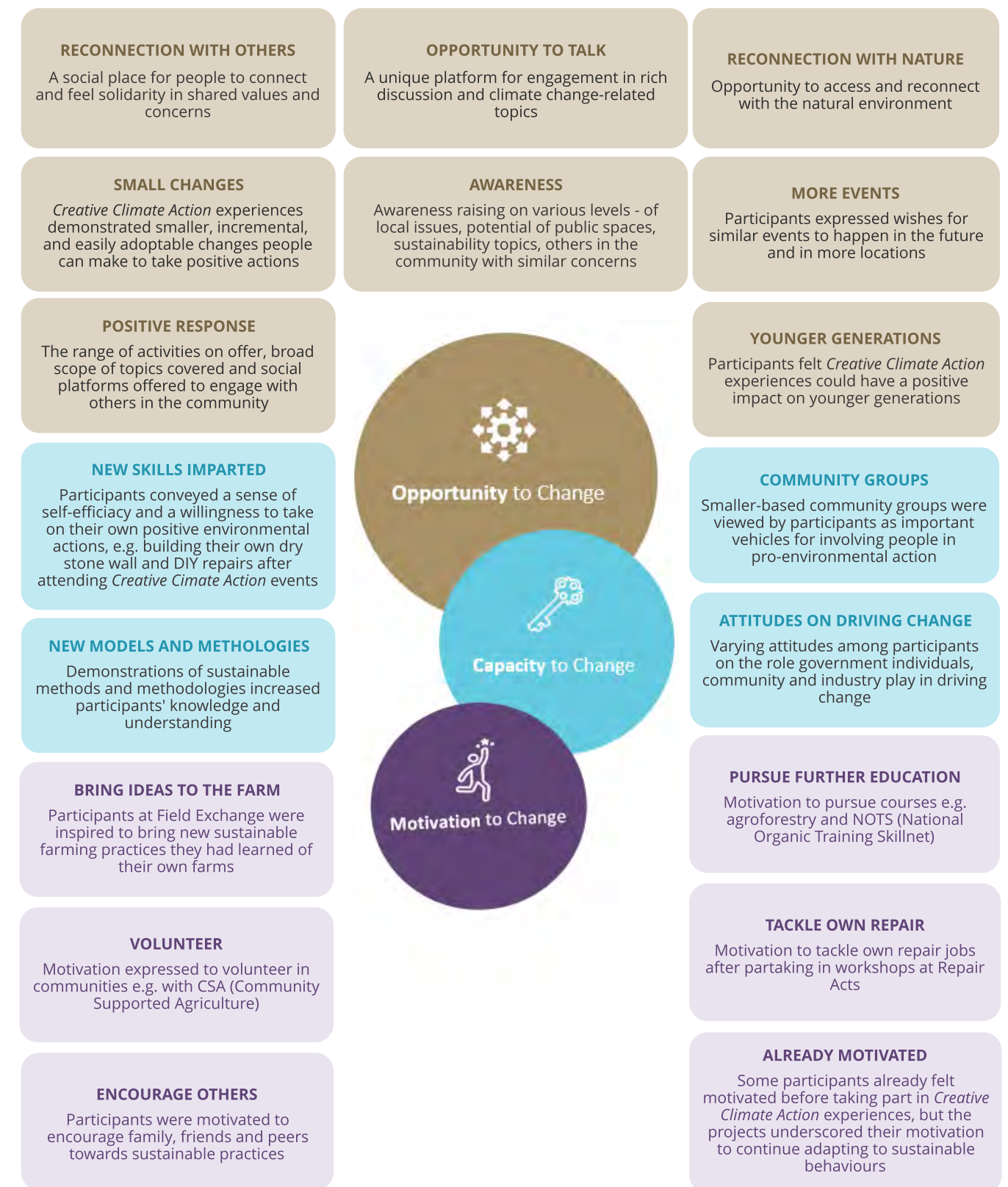


Fig 2: Key findings within the opportunity, capacity and motivation to change categories

## Opportunity to Change

What was striking from the analysis under the 'opportunity to change' category is how *Creative Climate Action* events presented themselves as a unique platform for participants to connect with one another and find common ground through rich and respectful discussion in a neutral environment. We found recurrent themes for this under the categories of reconnection with others and opportunity to talk. There is a neurobiological argument that the arts prevailed in evolution because they had survival value for humans: they helped cement social groups; promote social organisation; assist with communication; and compensate for emotional imbalances caused by fear, anger, desire and grief (Domasio, 2012). In essence, the arts have been suggested to help strengthen social cohesion which has been defined as the extent of connectedness and solidarity among societal groups (Manca, 2014). Malerba (2022) found social cohesion to be a major determinant of acceptance of climate mitigation policies, especially through institutional and social trust.

*Creative Climate Action* events provided a collaborative environment conducive to respectful communication and interactions between people from different age-groups and cultural backgrounds, and between public organisations and community groups. Artworks, and the presence and unique perspectives of artists, contributed to these events, by facilitating an opening dialogue and discussion among participants where they could express their views, find common ground and feel solidarity with one another, such as sharing similar concerns about climate change. While we cannot quantify levels of social trust building and cohesion at *Creative Climate Action* events, sentiments from participants indicated their interactions with others were favourable to promoting social trust and cohesion, which may be fruitful in acceptance of climate mitigation policies and personal adaptation behaviour in the future. Several participants remarked on the solidarity they felt after attending *Creative Climate Action* events:

*"My energy for these issues had been waning, but the solidarity I feel here has reenergized me to act."*

Participant, Field Exchange

A participant at the KinShip Rammed Earth Demonstration commented to a researcher about the benefits of bringing artists into climate change initiatives, as it is a way of trying to deal with the problem as a whole of society problem, i.e. a way to bring everyone into the

conversation and find solutions that work. At Linte na Farraige Galway, the striking element of the light installation and its height and location in relation to the historical backdrops of the Claddagh and Spanish Arch was reported to stimulate discussion among participants and people in their community. People found the artwork to be thought-provoking through highlighting a future sea level rise scenario in their locality:

*"I thought it was very well executed, it looked well. And gave everyone a good sense of perspective of what might happen. That was the feedback I got from people that saw it - customers in the bar and things like that. It was kind of "oh, did you see the height of the line that's on that?"*

Participant, Linte na Farraige

Another theme that emerged under the Opportunity to Change category is reconnection with the natural environment, particularly at KinShip and Field Exchange in the surroundings of Tramore Valley Park and Brookfield Farm.

Sommer et al. (2019) point to the space that art creates for reflection, as well as to grow empathy for nature and to allow an emotional connection to develop, and notes that art can help disseminate scientific information while facilitating engagement and activating emotions, which aids communication between researchers, practitioners, and citizens. Curtis et al. (2014) suggest that creating empathy for the natural environment through large art-environment events that involve and motivate communities can impact people emotionally in a positive way, and stimulate them to contemplate on their relationship with the environment.



Linte na Farraige light installation, Galway. Credit: Pekka Niityvirta. Courtesy of Linte na Farraige



Through placing artworks in nature, communities can be pointed to the beauty that exists in their everyday lived environment along with the ideas communicated by the artwork, to encourage environmental awareness (Marks et al., 2016). Environmental artworks can enhance appreciation and respect for nature which can translate to affirming attitudes and beliefs toward the natural environment (Curtis, 2009). The following quotes from participants illustrate the appreciation and connection felt with the natural environment:

*"I mean, this farm is really inspiring for me. Yeah I'm just appreciating the kind of different areas that they have, like the area for the birds, you know, for the bird-nesting for the bees, the different kinds of varieties of grass swards that they're growing... I think we do need to kind of pull back a little bit on how we farm and just kind of slow down and listen to the land more."*

Participant, Field Exchange

*"Having the connection with parks and having connection with growth and, even local plants and so forth - it's really important. It's about grounding, it's about earthing, it's about connecting people too, and the idea of the KinShip and the sharing of this knowledge is critical as part of that process."*

Participant, KinShip

Another participant remarked on the beauty of Brookfield Farm where they felt there was an opportunity to combine climate action with the enjoyment of art and aesthetic beauty:

*"I think there's a great opportunity for art enjoyment and climate action in a very nice aesthetic and nice experience, which is visiting a farm, beautiful farm, beautiful site."*

Participant, Field Exchange



'Aran & Im', Repair Acts. Credit: Paul Moore Photography. Courtesy of Repair Acts

Previous researchers have asserted that in order to maintain supportive attitudes towards eco-friendly behaviour, it is important that daily actions are consistent with climate knowledge while not requiring too much effort, since it is difficult to break habits (Lorenzoni et al., 2007). Further to this, another key finding in the analysis under the Opportunity to Change category was the positive response to *Creative Climate Action* events demonstrating smaller, more incremental and easily adoptable changes that participants could make to take positive environmental actions. Examples of this included interviewees seeing the benefit of swapping clothes to reduce consumption of fast fashion at Change Clothes Crumlin, showing interest in viable alternatives for gradually adapting to more sustainable farming techniques at Field Exchange, and feeling at ease with trying out new repair techniques after Repair Acts events.

*"Well, I'm going home to make some changes...small changes now, you know...reducing the nitrogen and thinking about the seeds you're putting into your soil and the grass, and definitely it's food for discussion in our home now."*

Participant, Field Exchange

*"I really do feel like something like this really gives you a kick that you really feel like, okay, I can go and do that. Now I have a list as long as my arm at home, of DIY things that I want to do, but never have. So I do think that this weekend I will, I'll get one of them off my list anyway."*

Participant, Repair Acts

*Creative Climate Action* projects were also found to promote awareness amongst participants on various levels: highlighting others in communities that shared similar concerns about climate change (Field Exchange); raising local issues and putting them back on the agenda for political discussion (flooding at Linte na Farraige); highlighting the potential of public spaces for environmental restructuring or rewilding (KinShip); facilitating important dialogues around sustainability-related topics, such as the provenance and carbon footprint of building materials (KinShip). Awareness-raising was viewed by a Repair Acts participant as a precursor for taking action:

*"In the immediacy of this moment, what comes to mind again is just the awareness raising, more than anything else. An awareness raising for me is going to transfer, hopefully into actions at given points in time."*

Participant, Repair Acts

At KinShip, a participant pointed to an important conversation around building materials that had taken place during the day's activity:

*"There's a huge conversation today about, or has been for the last 10 or 15 years about environment - in terms of buildings, in terms of the energy values and U-values and so forth...there's a question of the provenance of materials and where they come from and their impact and the carbon footprint to bringing these materials in."*

Participant, KinShip



As well as awareness raising, *Creative Climate Action* experiences encouraged positive responses from participants who expressed a desire for more events to happen in the future and in more locations. They found their experiences to be helpful, enjoyable and interesting. Participants responded positively to the range of activities on offer at KinShip, the broad scope of topics covered at Field Exchange and the social platform offered to engage with others at Repair Acts. Positive emotions can play a major role in engaging people in pro-environmental action, as well as being an outcome of that engagement (the role of emotional engagement will be discussed in more detail in the Other Emerging Findings section).

*"You'd get a vast amount of topics covered there, so it's good. Like they were two very different ones this morning, an urban co-op and social farmer. There was a big diversity. And even the ones that are going on in a few weeks, there's a big difference again, too. So it's good."*

Participant, Field Exchange

*"I think it's brilliant. I think it's absolutely brilliant because I've started to talk to people about repairing and everything."*

Participant, Repair Acts

*"I do believe that there should be more, more of it...There's so much interest in it...It feels really good. I do think there's great interest in it."*

Participant, Repair Acts

*"I think the range of activities that they're offering through this project is incredible."*

Participant, KinShip

*"Yeah, I think it's been really helpful. I'd love to be able to bring my dad here. So I think more, if more of these kinds of events were happening... maybe even like, in more locations."*

Participant, Field Exchange

*"People have really enjoyed it and I think that's kind of what you'd read from it you know, if people are enjoying it then absolutely there should be more of it...and it has such a practical side to it, so enjoyment and practicality rolled into one."*

Crumlin Taking Action Together

*Creative Climate Action* experiences may have impacted positively on younger generations also. At Crumlin Taking Action Together, an interviewee expressed the enjoyment she and her teenage daughter have in going to second-hand shops and the advantage of having the Change Clothes Crumlin event close by in their community:

*"My daughter's 14 now and in the last year or so she just started going to second-hand shops...so I've been going with her recently to second-hand shops which is brilliant craic and it's nice to have one here now just popping up here for a little bit, doing something where we live like, something that's good that there's something on the doorstep."*

Participant, Crumlin Taking Action Together

At Linte na Farraige in Galway, an interviewee suggested that the light installation might generate a dialogue about waste disposal amongst younger people who socialise in the Spanish Arch area:

*"Because that whole area of the Spanish Arch is so popular with young people who go drinking there and partying there. And unfortunately, they contribute a huge amount of waste to the local ecosystem. Maybe that light installation is so inescapable in their evening's revelry that they might have a conversation amongst themselves or put their rubbish in the bin or or even just have the conversation."*

Participant, Linte na Farraige

The KinShip project was viewed by another interviewee as an educational vehicle outside of the school environment:

*"I think they're incredibly important as vehicles for education because they act as an outreach to groups that may not necessarily directly engage. So they may be interested in the idea of going to the park, but then they're in the park and then there's a tour and then it's part of that tour. It's about an exposure. Because I think for a lot of people, education [.....] may stop at school for different reasons for no fault of their own, through just different reasons, they have to go."*

Participant, KinShip



Crumlin Swap Shop NCAD Exhibition.  
Crumlin Taking Action Together



Kinship Project Timeline Poster



## Motivation to Change

As a fundamental variable in understanding behavioural change brought about by the *Creative Climate Action* Initiative, Motivation to Change was a primary theme of focus in our data analysis.

One of the key findings to emerge under this category was the motivation indicated by individuals to take positive action after attending *Creative Climate Action* experiences. Themes emerged of bringing ideas to the farm whereby participants at Field Exchange felt inspired to bring new sustainable farming practices they had learned of to their own farms, and motivated to pursue further education, whereby people expressed interest in pursuing agroforestry and NOTS (National Organic Training Skillnet) courses.

Others expressed motivation to take on their own repair jobs after partaking in workshops at Repair Acts and motivation to volunteer in community groups. At Field Exchange, a participant was inspired by the day's activities and expressed their willingness to volunteer with CSA (Community Supported Agriculture) as a result:

*"The day has given me the confidence to take action. I'm going to sign up for the CSA and do some volunteering."*

Participant, Field Exchange

Participants also conveyed that they would encourage others:

*"I think maybe just at a very basic level, having conversations with people, I told somebody about it yesterday evening now and the minute I started to tell them about it, you know, their interest, I could see their interest was getting ignited. Now they weren't in a position to come here today. But I could see that they could, they understood the greater purpose of it."*

Participant, Repair Acts

Motivational factors such as feelings of inspiration, feeling connected to others and enjoyment were also conveyed by participants after partaking in *Creative Climate Action* experiences. Positive emotions can have the effect of being antecedents of pro-environmental and climate action (this is discussed further in the emotional response section). A participant at Field Exchange felt positive in connecting with others at the project, and how that sense of connection could result in taking action:

*"Lovely to connect with people. Connection leads to action."*

Participant, Field Exchange

Other participants expressed how they were already motivated before taking part in *Creative Climate Action* but that the projects underscored or reinforced their motivation to continue adapting to sustainable behaviours. At Linte na Farraige, the installation proved to be a motivation for an interviewee to rethink and reinforce their own sustainability efforts:

*"It would help solidify them definitely. It's another tool in the artillery of reasons to alter my day-to-day behaviours. And so yes, it's definitely a contributor to my behaviour change."*

Participant, Linte na Farraige



Brookfield Farm, Nenagh, Co. Tipperary. Credit: Marc O'Sullivan. Courtesy of Field Exchange



## Capacity to Change

*Creative Climate Action* experiences that helped participants learn new skills and improve their knowledge of sustainable practices appeared to enhance a sense of their own capacity to take on positive environmental behaviours. This is illustrated by the following quote from a participant at Repair Acts who conveyed their own sense of comfort in going to a hardware shop to discuss DIY repairs after the Rediscovery Centre DIY event:

*"Well, I think I will, I actually will, do a bit more DIY now. Yeah. I do....I would be less afraid to mention those things in a hardware shop...I have a basic understanding of what they're actually talking about. If somebody's recommending something to me I feel like I could actually hold the conversation on it you know."*

Participant, Repair Acts

Other forms of knowledge imparted at *Creative Climate Action* experiences that appeared to strengthen capacity for engagement in pro-environmental behaviours were in the form of showcasing new methods and models of sustainable practices. At Field Exchange, participants were inspired after learning about sustainable farming practices, such as overwintering methods for cattle, incorporating more trees on the land, and crop diversification. They felt that they might try these practices at home:

*"I was just looking at the organic oats there and they have flowers going in and out between them. So I thought it was a nice idea...And they have legumes growing on them as well. So I might try a bit of that."*

Participant, Field Exchange

Another participant at KinShip expressed their awe at how the landfill site had been converted into a public amenity and the potential for this method to be replicated in other places for rewilding of run-down areas:

*"I think for the local community, it's nice to see something that has gone from a dump to a really nice park and then it probably gives people hope for all these other kinds of places around town. Places that are a bit run down or a bit crappy or something like this that they can actively find solutions for...As we said about, even the idea of covering a big mound of rubbish like this and turning it into a public amenity, it's pretty amazing. It's a massive project and I'm just pretty blown away about it."*

Participant, Kinship

Another key finding under the Capacity to Change theme was how smaller-based community groups were viewed by participants as important vehicles for involving people in pro-environmental action. Smith et al. (2021) suggest that perceived community attachment and resilience have the potential to activate social norms and climate change risk perception. Specifically, community attachment requires strong social networks and so promoting friendship and kinship within communities may serve to intensify perceived community attachment, regardless of individuals' length of residence in that community (Theodori, 2004).

An individual's trust of the perceived reliability of a source of information also plays a major part in the likelihood of that information being accepted (Corner et al., 2012), and it has been found that people are more likely to trust information from a friend, relative or respected community member (Moser and Dilling, 2011; Petty and Cacioppo, 1986). It has been argued that mistrust in governments and the media have contributed to a failure of national behaviour change campaigns (Ockwell et al., 2009). Where expert-led campaigns fail in this regard, a move to other modes of disseminating information to groups in the form of peer-to-peer or non-expert-led communication, particularly the kind embodied by participatory arts initiatives which actively encourages conversation and debate (Burke et al., 2018) could hold a key for involving more people in climate change discourse and action.

*Creative Climate Action* participants felt that community groups are the way forward in engaging people, as opposed to interacting with bigger advocacy groups where they expressed feeling powerless. Others were hopeful that the community-based project model could be replicated in other areas in Ireland, and felt they could learn more by interacting in a community-based setting. The following quotes illustrate these points:

*"Yeah I think it's the future, I think it's the only way, actually. Like I think one of the things that came out of the discussions the other day was how powerless people feel interacting with big local national government organisations and bodies because it's just like talking to a wall. I think actually, the future is smaller, local, not necessarily local, but more intimate community-based groups."*

Participant, Field Exchange





*"I heard them talking about the women's shed. Do you know? I'd love to do something like that. Yeah, where you are gaining new skills and you're doing it with a community setting. I really believe that community is such an important part of it. That's why I think that doing it in person is much better as well. That you're learning but I would learn more when I'm chatting to other people about it."*

Participant, Repair Acts

Another interviewee at Repair Acts felt that aligning with a community group could influence future policy-making through strength in numbers, as opposed to an individual acting on their own basis:

*"Well, for me, I suppose it has given me a much wider and deeper insight into looking at - there's me and what I can do as an individual, but then there's what I can do as an individual when I align myself with other people or interlink with them. So I suppose the old thing of there's more power in numbers and there's probably more influence in numbers, particularly if you have a group of people and you can be a net contributor somehow to that. To influence down the line, to maybe send influence towards policymakers."*

Participant, Repair Acts

From analysis under the Capacity to Change category we also found different attitudes among participants regarding the role government, industry, community groups and individuals play in driving change and facilitating climate action and pro-environmental behaviours. An interviewee at Linte na Farraige expressed that the power to drive change is

a responsibility that lay with local and national governments. They felt, however, that the government is incapable of driving change correctly, and that responsibility therefore rested with individuals:

*"That's all dependent on each person individually, unfortunately, I think. I will be honest I don't have much faith in our local government, whatever about our national government and it has to be down to them - they need to drive the change but they need to drive it correctly which I don't think they are capable of doing."*

Participant, Linte na Farraige

A participant at KinShip commented that the government holds huge responsibility and has the power to change systems in the face of the existential threat posed by climate change. Another interviewee at Linte na Farraige concluded that the onus for finding solutions to climate change and facilitating behavioural change is on the state, where they felt it has more power than individuals.

*"You know, ultimately the solution that a lot of people feel aside from, you know, all the climate change behaviour requirements that are needed globally, is that it's kind of falling back on the state...ultimately, it's the OPW and Galway City Council that need to address it, you know. We can keep beating the drum with them and raising awareness and talking to councilors and TDs and various things about it. But ultimately, an individual property owner doesn't really have an awful lot of tools in the toolbox to be able to deal with it on their own."*

Participant, Linte na Farraige

In terms of the Linte na Farraige project's capacity to promote change, the same participant felt that the light installation was a catalyst for putting the issue of flooding back on the local agenda for discussion again:

*"I think it created a level of awareness and discussion that it kind of puts it back on the local agenda for discussion, again - to force political discussion about it and force City Hall to discuss it again, with the various representative groups there that are affected mainly by flooding, which are the areas around the city centre that are traditionally affected by it."*

Participant, Linte na Farraige

When discussing climate change a participant at Crumlin Taking Action Together expressed that change can only be made from the bottom up by individuals and communities as opposed to big companies and industry. At Field Exchange, another participant remarked on the power held by the community to make a workable system for creating a sustainable future:

*"It comes back to community. If everyone works together and is provided for by the land."*

Participant, Field Exchange



Linte Na Farraige light installation, Wexford. Credit: Pekka Niittyvirta. Courtesy of Linte Na Farraige

## Emerging Findings:

### Awareness, New Knowledge and Emotional Responses to Events

Other key findings derived from our analysis of the participant interviews and observations include the impact on engagement and awareness generated by *Creative Climate Action* projects, as well as other impact areas such as new knowledge acquisition and emotional responses to events. Table 1 below presents an overview of these findings, which will be discussed in more detail in the following sections.

OTHER KEY FINDINGS FROM INTERVIEWS AND PARTICIPANT OBSERVATIONS		
Findings	Description	Relevant Communities
New Knowledge	Improved participants' indigenous knowledge of impacts and solutions around climate change and sustainability-related topics, aided by artist-led events and peer-to-peer communication with others in the community.	Linte Na Farraige Field Exchange KinShip Repair Acts
Emotional Responses	Range of emotional responses were mostly positive, including feelings of positivity, enthusiasm, solidarity and inspiration. Relevant in terms of social psychology and climate communication, as effective engagement (emotional engagement) has been suggested to be influential in shaping perceptions and motivating action (Burke et. al, 2018).	Crumlin Taking Action Together Linte Na Farraige Field Exchange KinShip Repair Acts
New Perspectives	The presence of artists, their creative way of imparting knowledge and contribution of unique perspectives and narratives was observed to spark inspiration, positive interaction and engagement among participants, as well as facilitate rich discussion on various topics such as climate change, waste disposal and sustainable farming practices.	Linte Na Farraige Field Exchange KinShip Repair Acts
High Levels of Engagement	Observed at <i>Creative Climate Action</i> events. People appeared to engage on a cognitive, emotional and practical level.	Crumlin Taking Action Together Field Exchange KinShip Repair Acts
A Sense of Place	Surroundings of the local and lived environment were observed to affect how people experienced events.	Crumlin Taking Action Together Linte Na Farraige Field Exchange KinShip
Storytelling	Had a significant effect in terms of engaging participants.	KinShip Repair Acts

Table 1: Other key findings from the participant interviews and observations

### New Knowledge

More materialistic ways of living and a rapid population increase have contributed to anthropogenic (human-induced) climate change (Lehtonen, 2019). Many scientists have concluded that the human race has even entered a new era called the Anthropocene, where human activities, such as the burning of fossil fuels, are the main factor determining the future of our civilization (Lehtonen, 2019). In this regard, it is of utmost importance that we learn as much as we can to envision and secure a more sustainable future for ourselves.

At an individual level, one of the most easily identifiable barriers to engagement in climate change action and discourse is a lack of basic knowledge (Lorenzoni et al., 2007). This is due to factors that include a perceived lack of locally-relevant information about impacts or solutions, a perceived lack of credibility of the source of information (such as distrust in mass media), and information formatted in a way that is inaccessible to non-experts (Lorenzoni et al., 2007).

*"I've really enjoyed the day and it's been very educational."*

Participant, Field Exchange

Our analysis found that *Creative Climate Action* events helped participants learn new locally-relevant knowledge in an accessible format through peer-to-peer and non-expert-led communication, as well as more imaginative formats through the unique perspectives of artists and the creative lens of artworks.

The idea that the arts can be used to educate has been well established and can play a vital role in supporting the cultural transformation necessary to achieve a more sustainable future (Lehtonen, 2019). The arts can provide a platform for disseminating climate change information through emotionally involving the audience, creative visioning, active agency and personal meaning-making (Lehtonen 2012; 2015a, b).



Pocket Forests, Repair Acts. Credit: Paul Moore Photography





Credit: Marilyn Lennon. Courtesy of KinShip.

*"I think it put things very much in perspective. And made it very tangible and real for people as opposed to another stat on the news about global warming and flooding in Thailand, it makes it a bit more real, for the immediate locality."*

Participant, Línthe na Farraige

At Field Exchange, a participant spoke of how farmers would consider trying something new that another farmer has tried but may be slow to take advice from non-farmers even if they are experts. This highlights how people accept information from trusted sources such as their peers and community members, as well as the need for that information to be disseminated in an accessible format.

*"Farmers will only really listen to other farmers, as they will trust that source of information."*

Participant, Field Exchange

Knowledge around a variety of climate-change and sustainability-related topics was observed to be gained by participants, including knowledge on future local sea level rise scenarios (Línthe na Farraige), urban waste, biodiversity and the circular economy (KinShip), repair and planned obsolescence (Repair Acts) and sustainable farming methods and food production (Field Exchange).

*"It's really interesting that she's kind of bringing those in from the past as potential crops that we could use in the future, particularly with climate change and stuff, things that are, you know, drought-resistant."*

Participant, Field Exchange

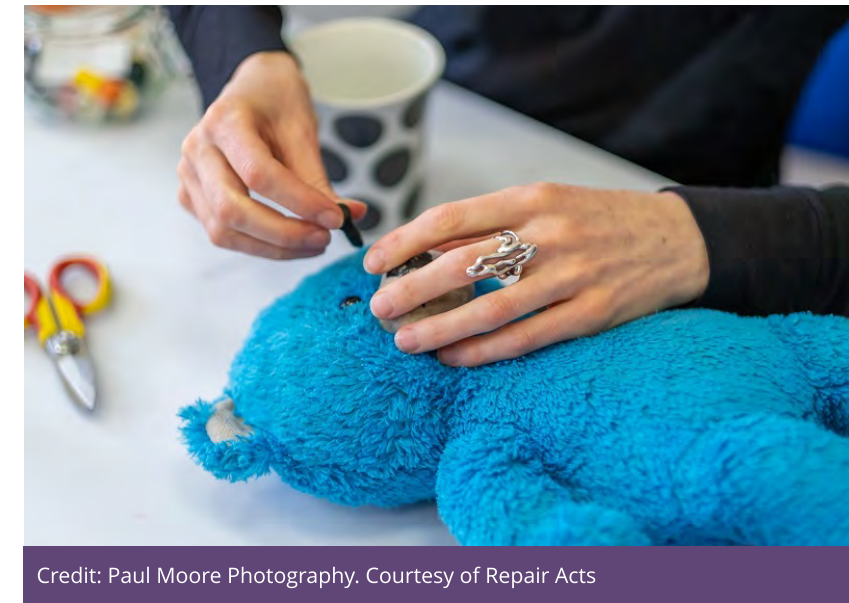
*"Participants were particularly interested in current waste disposal in the city and plans for the future in this regard. The idea that waste is shipped abroad seemed genuinely surprising for some."*

Observer, KinShip

## Emotional Responses

Artworks and creative experiences can affect viewers and participants at a personal and emotional level. Previous researchers have argued that artworks can be a source of agency and emotional influence enabling a connection between inner and external realities (Ioannides et al., 2021, Golding, 2013). The evocative nature of art gives artworks personal and cultural significance which in turn facilitates the emergence of connections and associations that are meaningful and engaging to participants. In this sense they can lead to emotional changes from apathy to engagement or they help process difficult emotions (Froggett et al., 2015). Installations and artworks are commonly seen to elicit deep emotional associations, empathy and imaginative activity. This is oftentimes described as resonance, in that it gives personal and cultural significance that help individuals feel part, (or imagine being part) of a shared cultural space (Froggett and Trustram, 2014).

While we cannot make a direct link between this personalised meaning and action, in terms of describing or anticipating measurable behaviour changes, we can ascertain how emotional responses to artworks might reframe, regulate, or activate different behaviours (Evans and Hall, 1999). Roeser (2012) argues that emotions are necessary for understanding the moral impact of the risks of climate change, and they also paradigmatically provide for motivation, and so emotions might be the missing link in effective communication about climate change. To date, most policy efforts around climate change communications have focused on attaining cognitive engagement, or understanding of the issue through information-led communication (Whitmarsh et al., 2012).



Credit: Paul Moore Photography. Courtesy of Repair Acts





Repaired Object (Repair Acts)

Furthermore, exploring the idea of art as a healing or restorative process can also be fruitful, particularly in the context of ongoing climate change debates which can lead to issues such as denial, climate anxiety and frustration (Luke, 2015).

A wide range of emotions and effects regarding climate change and climate action emerged from the analysis of the participant interviews and observations.

What is striking from the analysis is the range of positive emotions that *Creative Climate Action* projects elicited. In terms of collective action to address climate change, hopeful feelings can be beneficial to public engagement (Sommer et al., 2019) and it has also been found that hope can predict individual pro-environmental behaviours (Ojala, 2007, 2012). Positive emotions have been increasingly recognised as antecedents of climate change engagement and collective action, as well as a consequence of taking positive environmental action (Schneider et al., 2021).

Participants at *Creative Climate Action* events expressed feelings of hope, inspiration, empowerment, solidarity and enthusiasm:

*"I was delighted that I did make it because I feel really, really positive that there's so many people here. Because that shows me how interested people are. But yeah, it's kind of an empowering feeling when you come into a group of people that are willing to talk about being more self-sufficient and, and doing things themselves."*

Participant, Repair Acts

*"It makes me feel hopeful, hopeful for more projects like this, that I think the end goal is to be taken over by the community. And I'd love to see it, this model being used in other places in Ireland. And it makes me hopeful that we become more aware of nature and all the different things that go on."*

Participant, KinShip

*"I feel solidarity in meeting other people who care."*

Participant, Field Exchange

In terms of more negative impacts, concern for the future was the resounding emotion expressed by participants, mainly from the Linte na Farraige interviews where the light installation provided a tangible guide for people to envision a future sea level rise scenario:

*"What comes to mind? I guess the destruction. I guess the destruction that comes in hand with rising sea levels. The fact that a whole community such as The Claddagh and our community could be lost permanently."*

Participant, Linte na Farraige

*"We live in Ireland and have sons who are in their mid-twenties[...]concerned about their future, and[...]their children's future, you wonder how will that be for them you know, quite worried about that actually."*

Participant, Linte na Farraige

At Field Exchange, a discussion about transitioning to sustainable agriculture and a lower carbon society led to a concerned question of whether change would happen fast enough:

*"If we can get more for our product, then we'll have less animals and then less of everything and that'll be better for the environment. And if we can cut out food waste, it'd be a big thing. But like climate change is happening rapidly. So like, are we going to get there quick enough?"*

Participant, Field Exchange



Field Exchange. Brookfield Farm, Nenagh, Co. Tipperary





Credit: Aengus McMahon. Courtesy of Field Exchange.

## New Perspectives

Previous researchers have asserted that the act of perceiving art demands attention and engages parts of the brain that are not usually accessed by typical communications about climate change (Hulme, 2011). Art can offer audiences a personal experience with the subject matter and a means of developing new perspectives on an issue through the use of novel metaphors, analogies or narratives (Roosen et al., 2018), which is significant in terms of emotional engagement that can trigger action. Analysing the participant interviews and observations from *Creative*

*Climate Action* projects we found that the presence of artworks and the unique contributions of artists helped to generate new perspectives among participants on topics such as sea level rise, their relationship with the natural environment and personal value-behaviour alignment.

At Linte na Farraige, the light installation inspired a moment of quiet reflection and personalised the risk of future sea level rise for a participant:

*"Yeah, like, just the way that it's exhibited in a public space, that is really - you have to observe it from far away. It's not like a piece of art where you go up and look at it closely. And it's not tactile, it's visual. So it's a lovely kind of quiet, but glaringly obvious reminder. And I thought that's quite impactful. For example, if I'm walking the dog at night, in the middle of the night, and it's howling wind outside, and nobody else is on the street, and it's just you, the dog, and this imaginary tideline - it's a nice kind of personal, quiet, stark reminder."*

Participant, Linte na Farraige

At KinShip, a participant pointed to how the project promoted a mental shift in terms of humans' relationship with the natural environment, and the need to work in a collaborative process with nature:

*"The idea of how you live with nature. And, you have to kind of change your mental attitude before you can have much more practical solutions. And if you change your mental attitude, towards a collaborative process with nature, you know, and you're not trying to tame it, or you're not trying to work against it. You're not trying to work against it in any kind of way. You know, humans have to live with nature. So anyway, I think that the idea of kinship changes your mind. Changing the mind to work with nature is the first part, you know."*

Participant, KinShip

A participant at Field Exchange expressed how art can demonstrate change in a novel way, forming a new connection and different perspective that can be individualised but shared with others.

*"Art brings a different dimension..I think that using art - it's a different way of demonstrating change and how change can happen and it's a connection as well that you might not have seen before, it brings up a different perspective but a shared perspective. And it can be interpreted in so many different ways, art, can't it so that I might take something away from it, you might take something differently, somebody else might interpret it in a different way. So it's lovely in that it's not black and white. It can be individualized, you know - you can personalize it to yourself."*

Participant, Field Exchange

A Repair Acts interviewee felt the project was influential on their thought process, enabling them to think critically and challenging them to reflect on their personal values:

*"Because I think it has an influence on thinking and going forward that I'd be thinking, yeah, you know, how can I, how can I actually align what are my fundamental values with my behaviour more...so this type of project helps because it challenges it. Challenges upstairs. Challenges thinking. And challenges behavior as well. Gets you to think, gets me to think a little bit outside the box."*

Participant, Repair Acts



Aerial View of Deirdre O'Mahoney's Model Plot. Credit: Brendan Keogh. Courtesy of Field Exchange



## Levels of Engagement

High levels of engagement were observed at *Creative Climate Action* events, where interaction was sparked through the mediums of participatory-style workshops, presentations, demonstrations and exchanges led by artists, guest speakers and skilled specialists. Some of these, for example, included the dry stone wall demonstration at Field Exchange, the Creative Crumlin Up-Cycling Workshops at the Swap Shop Exchanges, Stories of Repair sessions at Repair Acts, and the park history and biodiversity walks at KinShip. Participants expressed their keen interest and showed enthusiasm engaging with the topics, new skills and methodologies covered at these events, and a willingness to bring the new knowledge imparted to them into their daily lives and actions.

Wolf and Moser (2011) assert that engaging individuals with issues of climate change is achieved on three levels: cognitive engagement, affective engagement and practical actions, or what they refer to more poetically as minds, hearts and hands (Wolf and Moser, 2011). There is still much research to be undertaken on how to sustain engagement and effectively motivate people on all these levels, but it has been well established that unidirectional communication tends not to cultivate deep cognitive engagement or systematic information processing, and is mostly insufficient in leading to sustained behavioural engagement (Whitmarsh et al., 2012). To date, most campaigns around climate communication have been focused on attaining cognitive engagement, i.e. informing about impacts and solutions through rational arguments, scientific graphs and statistics (Whitmarsh et al., 2012).

*Creative Climate Action* experiences engaged people practically through workshops and demonstrations that enhanced their sense of self-efficacy, capacity and understanding of



Fig 3; Engaging individuals with issues on climate change is achieved on 3 levels - Minds, Hearts and Hands (Wolf and Moser, 2011)

skills that promote eco-friendly actions, such as DIY and sustainable farming practices. *Creative Climate Action* events also elicited positive emotional responses in participants which, as mentioned previously, can be conducive to taking pro-environmental actions. *Creative Climate Action* projects appeared to engage people on all three levels: the mind, heart and hands.

*"Participants took turns at the rammed earth stage of the process, which continued even after the demonstration was completed. Participants asked many questions specific to the process, particularly in terms of sustainability and weatherability of the structure and materials. Despite uncomfortably hot weather conditions...participants were interested and engaged in this demonstration and asked plenty of questions. This created a very positive experience for participants and people broke into groups naturally afterwards, discussing various topics related to the demo."*

Observer, KinShip



Dry Wall Demonstration, Kilbeggan, Co. Westmeath. Credit: Paul Moore Photography. Courtesy of Repair Acts





Credit: Marilyn Lennon. Courtesy of KinShip.

## Sense of Place

A sense of place was found to be important in how participants experienced events, particularly at Field Exchange, Linte na Farraige, and KinShip.

The local situatedness of the Linte na Farraige installations generated place-specific conversations around climate change, such as the potential loss of the Claddagh and Long Walk communities in Galway city due to rising sea levels.

The location of the Field Exchanges at Brookfield Farm was found to frame the experience for participants, as the sights and sounds of a working

farm punctuated discussions around topics such sustainable farming practices, food production and agroforestry, as well as a trip to the Model Plot which allowed people to take in the sights of beautiful wildflower meadows near the shore of Lough Derg.

At KinShip, people connected to the park and its sense of place through walk and talks about its history and biodiversity, as well as engaging in artistic forms like poetry creation and sound mapping, which prompted people to reflect on Tramore Valley Park's unique past, and interact with it's natural and local environment in the present.

Walker and Chapman (2003), in a study conducted at an outdoor park, found that a sense of place significantly affected both empathy and perspective-taking, and that perspective-taking significantly affected empathy. Furthermore, a sense of place was found to significantly affect place-related environmental intentions indirectly through empathy, and both empathy and sense of place affected a range of environmental behavioural intentions (e.g. picking up other peoples' litter, paying higher entrance fees, volunteering to work on park projects).

Burke et al.'s (2018) research on a participatory arts project called Bird Yarns found that the situation of the artwork within the everyday lived environment was a major factor in the participants' self-expressed experience of why it impacted them and how they engaged with it. The local situatedness of the art was specifically recognised to generate informal

discussion and place-specific conversation around the idea of climate change (Burke et al., 2018). The following participant observation excerpts indicate sense of place as an important factor:

*"The event successfully provided a sense of place for participants and allowed them to connect this place, i.e. Tramore Valley Park, to the wider city. The talk sparked interest in points relevant to climate change such as recycling and waste disposal, as well as energy re-use."*

Observer, KinShip

*"People were genuinely surprised and delighted with the diversity of plants and wildlife which they could potentially see in the park (the birds of prey seemed to be a real surprise). This was a very hands-on event and was very effective in connecting people to the park and wetlands. People asked many questions related to the park, how it is maintained, its environmental function etc. There seemed to be real interest in the mechanics of the park and how everything works."*

Observer, KinShip



Linte Na Farraige installation, Dublin. Credit: Pekka Niittyvirta. Courtesy of Linte Na Farraige.



## Storytelling

Storytelling was observed to have a significant effect in terms of engaging participants, particularly at Repair Acts and KinShip events. Previous researchers have concluded that cultural narratives or stories are an effective means of motivating interest and sustaining engagement in climate change communication, as they tend to touch people more deeply (Wolf and Moser, 2011).

Stoknes (2014) argues that positive environmental stories, with positive emotions attached to them about people who care and act on the basis of vision and determination, help to envision a better world to live in and motivate people through hope and inspiration. Community arts projects in particular can help develop prosocial behaviours and altruism and the effects of seeing other people (peers) concerned about the environment has an impact (Curtis et al., 2014).

*"People were keen on sharing stories and learning tricks for repairing and maintaining everyday objects in the home. They appeared keen to keep engaged and learn more about repair practices."*

Observer, Repair Acts

*"The use of local history was used very effectively to engage people with Tramore Valley Park. The presentation was both entertaining and informative with lots of funny anecdotes and historical accounts provided. Participants appeared to learn new things at this walk and talk. The event successfully provided a sense of place for participants and allowed them to connect this place, i.e Tramore Valley Park, to the wider city. The talk sparked interest in points relevant to climate change such as recycling and waste disposal, as well as energy reuse. It is clear from this talk that historical storytelling is an excellent way to engage people and impart information."*

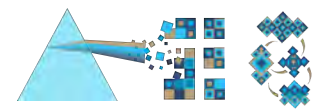
Observer, KinShip

*"I felt that the event was positive and had a feel-good atmosphere to it, aided by the stories of online community building and helping people and animals in their lives. These stories are important for people to identify with. I felt moved and inspired by how Sugru helped that doctor in Haiti, and the pet chicken with his prosthetic leg. Other audience members seemed to be moved too, with happy laughter when Jane talked about the chicken. Stories that are emotive can draw inspiration within people, and perhaps move them to act for positive climate change action."*

Observer, Repair Acts







# Artist Reflections

*"How these Creative Ireland projects will gain traction is when the artist's knowledge is considered as equal to the other stakeholders around the table. Not simply as a producer of assets, it's not about the image. It's about the process and of real changes to take place".*

*Reflections from the Artists, 2022*

Critical to the *Creative Climate Action* programme was the contribution of various artists and creative partners who sought to engage and mobilise people across Ireland through art-based and cultural processes designed to disrupt, unpack and/or amplify current approaches to climate action. How artists see their role and their contribution in this space is a key line of enquiry that brings valuable insights. Overall, we carried out seven unstructured interviews with nine artists. The format of the interviews was largely conversational in that there was little structure to the questions posed as we were keen to capture more spontaneous reflections and impressions related to the creative climate action projects. Below we offer an overview of these reflections.

## A Closer Look at Creativity

Creativity and art-based climate action is fast becoming a powerful notion within policy arenas, academic spheres, and grassroots spaces. Taking a closer look at the different ways in which creativity is leveraged by the artists allows for a more critical assessment of creative performances and ideas. Creativity as a process was a common theme across all interviews, indicating that we should pay attention to the methodologies and the context in which creative work takes place.



Credit: Marilyn Lennon, Courtesy of KinShip



Art and creativity as a process opens a space where instead of making value judgements on people's choices and what they make, it instead focuses on introducing new methods and practices in a way that is appropriate to context, and that draws out new ways of approaching a problem or an issue (Sharp and Macklin, 2019). As summarised in Table 2 whether through site activation work, art-science methodologies, using an aesthetic lens or experimenting, the focus is shifted to engaging in processes rather than engaging in an overt critique about behaviours or individual choices. The following quote from one of the interviews we carried out speaks of experimentation within a farming context and provides an example of this point.

*“By its very nature, farming is relatively conservative because you know, you are, working with complex systems in challenging conditions trying to make a living. And you know, art school is all about experimentation. I don't think farming historically has been all about experimentation. [...] So, I would say, you know, the arts school environment probably fosters a spirit of experimentation.”*

Reflections from the Artists, 2022

Another illustrative quote concerns the art-science nexus and draws attention to the opportunities and benefits that artists can provide within scientific, or policy-driven climate action spaces.

*“I'm not an expert. And I think that's what artists can bring to this whole discourse, if you don't represent a sector, if you're not the social scientist [...] it does open up a space of potentiality - of possibility, that doesn't arise otherwise. [...] It's to poke a stick of those attitudes that are not spoken but underlie what's considered important and relevant in the world today”.*

Reflections from the Artists, 2022

Another meaningful quote explores the use of engaged art practice as a collaborative process of art creation and as a space of potential that is unburdened by pre-conceived targets and expectations.

**Artist A:** *“You know social art practice is actually a spectrum of practices. I mean, it's not a single practice. It's a whole load of different practices that come under a kind of a single title. Essentially, though it normally means that there is participation and collaboration. There's some kind of collective action and there's a sort of some kind of negotiation that happens within the practice.”*

**Artist B:** *“[...] what you're doing is you're creating a condition or the conditions for kind of an exchange of ideas. [...] You have to trust the process and not think specifically about outcomes.”*

**Artist A:** *“Yeah, I mean, this is the other thing our practice is an improvisation. It's a reflective practice.”*

Reflections from the Artists, 2022

Similar to what has been found in other research projects, such as Andersen et al.'s (2021) *Mapping the Socially Engaged Arts in Europe*, we find that artistic practices within the *Creative Climate Action* space are typically directed toward engagement and developing relationships rather than the material artwork as an object.













			
Activating Spaces	The Art-Science Nexus	The Aesthetic Lens	The Gender Lens
Working with derelict, unused or neglected spaces	Constructive dialogue and knowledge creation through science-art nexus	Exploring the value of beauty, and the intersection between climate action and aesthetics	Querying problematic 'toxic masculinity' cultures and exploring feminine 'caring' cultures
			
Experimentation	Site-Specific Art Practice	Heritage Crafts	Authenticity and Salience
Art closely tied to experimentation and embracing uncertainty. Disrupting more conventional approaches to change	Artworks designed for a specific location and creative place-making practices	Reclaiming skills, practices and traditions from previous generations	Ensuring artworks are deemed authentic and meaningful to their audience
			
Embedded Artist	Tacit Knowledge	Engaged Art Practice	Sense of Humor
Drawing from the skills and knowledge of the artist alongside others & developing artworks within a practical context	Valuing and building on knowledge gained through personal experiences	Collaborative and participatory forms of art creation	Humour as a balancing element within fear and anxiety induced climate action messaging

Table 2: Illustration of themes emerging from interviews with artists on 'creativity as process'.



## The Artist's Role

There is much richness and diversity in how artists understand their role within the five *Creative Climate Action* projects evaluated. Some spoke of their unique knowledge and perspective, others mention their role in creating a space to acknowledge and tackle complexity around climate action, including embracing interdisciplinary thinking and knowledge sharing. Other artists mentioned changing cultural behaviours.

Across most of the interviews, we see the artist grappling with multiple roles as they seek to address the climate action challenge. The following quote illustrates this point.

*"I'm thinking about, gosh, this book, 'The Great Derangement', I'm thinking about Donna Haraway's turn of phrase Staying with the Trouble. I'm thinking about - Deborah Bird Rose's, ideas - and Singh's ideas of living - the 'Arts of Living on a Damaged Planet', you know, I'm thinking from that context - what does an artist do? [...] Because I think, as an artist, you are a witness and you're an observer, documenter, a recorder, a magician, a healer, social worker, a reflector, quasi-academic, quasi-social work, quasi-politician, and producer, you know".*

Reflections from the Artists, 2022

While we cannot determine or fix a role for the artist within the complex space of climate action, we note that there is a decided turn to understanding art and creativity as both a lived and shared cultural process that involves socially engaged and collective action (Castellano, 2021).

While the autonomy and individuality of the artists is mentioned often there is a notable concern for enabling bottom-up creativity and activism. The role of the artist in this space is exemplified by the following quote:

*"Today we're in a place where the urgency around climate change is really bringing home the need to change how we engage with landscape, but the methods being used to engage stakeholders has remained the same. And there's a lovely paper that was produced a long time ago that describes the kind of state policies as one of Decide, Announce, Defend - nicely known as DAD. And you would think that after so many conflicts that have arisen because of that kind of policy [there would be changes, but...] nothing seems to be learned."*

Reflections from the Artists, 2022

## The Appeal of the Site

During the various reflections with the artists, we noted that working within site-specific contexts and using public art practices appealed to the artists. This involved the siting of art in unconventional or public spaces including: outdoor environments such as the light installations (Linte na Farraige), and murals (the Weight Project, Crumlin Taking Action Together); street exhibitions and demonstrations found in Crumlin ('Live Like Your Gran' and What's Watt, Crumlin Taking Action Together), "Den Talamh" rammed earth building in Cork (KinShip), and 'Caring for Repairing' street exhibits in Westmeath (Repair Acts); outdoor sculptures (Model Plot and Corn Work, Field Exchange), among other art ideas around the use of public space.



Outdoor light installation at the Spanish Arch, Galway by Linte Na Farraige.



This reflects a concern for the use of art not merely as decorative objects within public spaces but as practices that seek to activate, critique, and build connectedness within society (Miles, 2005). The following quotes offer some insights into how various sites and public spaces have appealed to the artists within *Creative Climate Action* projects.

We have noted a concern to explore caring cultures within neighbourhoods from the '*Is It All On You?*' project in Crumlin and to trace the collective journey needed to achieve this:

*"If you're in an environment where you don't see the place being looked after, it doesn't encourage you as a citizen to look after it in turn, so it was, it was about kind of going on that a journey".*

Reflections from the Artists, 2022

Another example of the use of site and public space is portrayed through the work involved in the '*Caring for Repairing*' street exhibits in Westmeath by Repair Acts:

*"I've got a background in set design and stage design. So that's sort of like what, where my head is inhabiting now, when it comes to thinking through what does the actual art - I call it art install, you know, but it's a subtle, subtle kind of use of objects in space through which to kind of like, orientate conversation really."*

Reflections from the Artists, 2022

More critical and future-oriented explorations of public spaces also emerge in conversation as illustrated below in relation to the work carried out in Tramore Valley Park (KinShip project):

*"How could you change the narrative around the history of the site whilst also thinking about what future uses the park could be put to and what is you know the bigger question like- What is a public park in the 21st century? Is it a resource that is passively used by the citizens or could it be imagined as something else?"*

Reflections from the Artists, 2022



Ardan Wood, Kilbeggan, Co. Westmeath. Credit: Paul Moore Photography. Courtesy of Repair Acts



# Workshop and Project Led Reflections

## Perceptions of Change in the Short, Medium and Long Term

We conducted a short online survey to capture perceptions of change within the five deep dive projects<sup>1</sup>. Table 3 offers a summary of the main findings. Aligning these findings from the short closing survey capturing the view of project managers/partners with the findings from our artist-led reflections, we can see that change processes as they are perceived by the project leads in the short-term are similarly associated with the activation of spaces and places for engagement with climate action. Change processes also include the start of new conversations and raising awareness of emerging climate action themes. Lead prospects in the short to medium term include promoting ownership of these projects by community members and/or organisations, securing additional funding and expanding outreach. These outlooks speak of concerns over the temporary nature of projects, the need to extend activities through additional project-inspired work, or indeed a subsequent maturing of such activities through social enterprise models or devolved community ownership structures. This is true for both local authority-led, and public-led projects funded by the *Creative Climate Action* programme. In many ways, these findings suggest that the temporary nature of these interventions, while providing a space for experimentation and innovation, also leads to potentially fragmented climate action interventions. This has been documented elsewhere around themes such as the "projectification of everything" (Jensen, Thuesen and Geraldi, 2016) where we see projectification trends adding emphasis to innovative thinking, entrepreneurial behaviour but also a much increased level of responsibility placed on individuals.

CHANGE PERCEPTIONS FROM PROJECT MEMBERS		
Key Achievements		
<ul style="list-style-type: none"><li>• Raised awareness of neglected spaces</li><li>• Reclaimed public use of brownfield land</li><li>• Built/consolidated relationships</li><li>• Created new community spaces</li><li>• Started new conversations</li><li>• Raised awareness of local climate action networks</li><li>• Obtained bridging supports, resources and/or funds to continue activities post-project completion</li></ul>		<ul style="list-style-type: none"><li>• Project media resources kept available</li><li>• Continued engagement with the public</li><li>• Take-up of new practices and niche innovations by local businesses and organisations</li></ul>
Future Prospects		
<ul style="list-style-type: none"><li>• New funding opportunities</li><li>• Finding community leaders</li><li>• Retaining local buy-in and enrolling more local individuals and groups</li><li>• Expanding and/sharing ownership of projects</li><li>• Amplifying audience reach</li><li>• Prompting further local government actions</li></ul>	<ul style="list-style-type: none"><li>• Setting up a social enterprise</li><li>• Create a vision statement to activate multiple stakeholders</li><li>• Establishing community centres</li><li>• Establishing resource structures for community-led facilitation</li><li>• Moving to community ownership of projects</li><li>• Inspiring other climate/sustainability projects</li><li>• Expanding outreach from local to city-wide/regional</li><li>• Policy work on new actor constellations and governance</li><li>• Helping public engagement in climate-friendly practices structures</li><li>• Enabling communications through bridging art, technical skills and real-world dynamics</li></ul>	<ul style="list-style-type: none"><li>• Showcasing nature-based solutions for mitigation and adaptation</li><li>• Pursuing a Social Enterprise Model</li><li>• New perspectives on green spaces</li><li>• Securing continued support from local government</li><li>• Providing supports in advisory</li><li>• Model replicated/practiced in other places capacity</li><li>• Project members engaging public on climate change topics</li><li>• Ensuring longevity of pilot project with community buy-in</li><li>• Community ownership</li><li>• Project media resources kept available</li><li>• Become an institution or annual festival</li></ul>
Short-Term (Next Year)	Medium-Term (3-5 Years)	Long-Term (10 Years)

Table 3: Summary of findings from the project-led workshops

Apart from concerns over continuity and expansion of reach or activities associated with the projects, there is also the hope that new practices and perspectives of green spaces and nature-based solutions will become more widespread in the long term (in ten years' time).

[1] Online survey was distributed to Field Exchange, Linte na Farraige, Repair Acts and Creative Climate Action (n=5), it was completed by all project leads and some project partners, for Kinship the online survey was completed alongside a blended focus group with the lead and partners (n=12)



# Mapping Audiences

This section is developed around three key questions about audiences and participation. These questions include:

1. Who were these projects directed at?
2. Where is participation/engagement/behaviour change focused?
3. What are their demographic characteristics?

## Targeted and Exploratory Audiences

Attempts to map the various audiences identified by the five *Creative Climate Action* projects help us unfold a number of interesting insights<sup>[1]</sup>. Firstly, (as seen in Figure 4) we note that overall there is a wide-ranging number of groups identified which stem from different sectors of society. We also note that while some audiences are targeted more intentionally there is also an expressed interest in exploring engagement with a wider set of audiences. We thus find it helpful from an evaluation standpoint to distinguish between targeted audiences and exploratory audiences. We find that for targeted audiences there are more defined goals, whereas with exploratory audiences there are no pre-established outcomes. The sector most targeted was the general public, followed by civil society and industry. The following excerpts drawing from our mid-point workshop with the five deep dive projects illustrate who the projects wished to direct their attention to and the types of behaviour change sought:

*"Our target audience is obviously everybody but in terms of the people that we have engaged with, [they are] knowledgeable about climate action and climate change, they do know what's happening and they do have concerns about it. This [imagined] person feels kind of overwhelmed by that knowledge and doesn't really know what they can personally do."*

Workshop Excerpts, 2022

<sup>[1]</sup>We base these findings on two workshops carried with project partners from all five deep dive projects and from secondary materials such as website information.

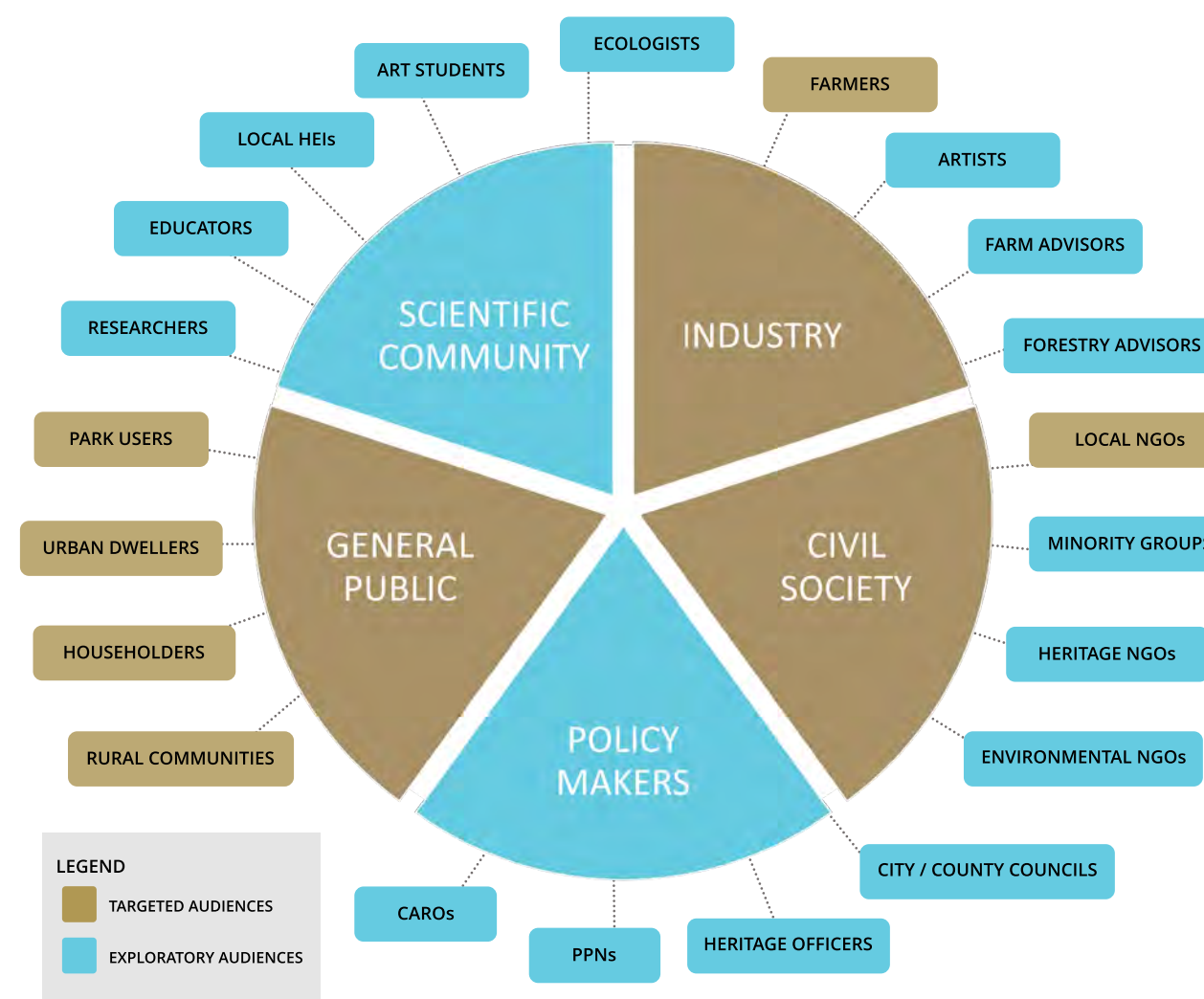


Fig 4: Mapping of targeted and exploratory audiences

*"[One of the targeted audiences] were parents. So, for example, if a child wants a new school bag going back to school in September, for that parent to be able to say, well actually no, we're going to maybe give this one a wash or fix it. You don't need a new school bag every year. But also, to know why that might be a good idea and what are the well-being benefits from doing that and how it connects to other things going on in the community."*

Workshop Excerpts, 2022

Often targeted audiences as well as exploratory audiences were described as clusters within groups, whether they were larger more formalised groups such as farmers, minority organisations or very informal groupings such as parents. What is telling is that these were typically understood as important reference groups that are relevant and influential in terms of how individuals behave through various mechanisms from access and trust of information, relatable experiences, peer pressure and social comparison.

Demographics and Level of Influence on Behaviour Motivation and Perceived Barriers to Change

One of the concerns for deeper levels of research analysis was attention to socio-demographic and socio-economic differences with respect to behaviour and motivation to change. Attempting to develop a better understanding of the data collected we offer a breakdown of two selected questions and the potential influence of different socio-demographic and community factors. While there are limitations in offering this brief level of analysis in that it significantly reduces complexity and may distort the original data, nevertheless it enables a valuable evaluation of different socio-demographic factors. The profile of the respondents constitutes the underlying basis for this analysis and a brief overview is offered below.

As can be seen in Table 4 overall the influence of demographic variables is not very high. In general we have found that the following socio-demographic factors are more impactful:

- City dwellers are more likely to both consider financial savings as motivators to change and deem financial constraints as the main barrier for making further environmental choices than rural-dwellers (who indicate preserving the natural environment as a key motivator and poor services as the main barrier).
- Those with lower educational attainment are more likely to indicate financial constraints as a barrier for making further environmental choices contrary to higher educated participants who indicate poor services.
- Males are more likely to indicate financial constraints as the main barrier for making further environmental choices contrary to females who indicate poor services.

Limitations to Mapping Audiences

We note that our findings and conclusions are based on the data we collected, which is small sample of a wider cohort of participants. This sample has it's limitations and may not fully represent the profile and views of those participating in such events. This is particularly relevant where projects were part of wider initiatives such as large festivals or where public spaces were used.

Demographic variables	Variability across selected questions concerning behaviour			
	Motivation to practice green/sustainable behaviours*		Barriers to making positive environmental choices**	
	Ranked highest: 1: Preserving the natural environment 2: Financial savings 3: Doing my part		Ranked highest: 1: Poor services 2: Financial constraints 3: Lack of information	
Gender	No effect		Moderate effect	Females ranked poor services as the highest; males ranked financial constraints as the highest.
Age	No effect		Low/no effect	
Educational attainment	Low/no effect		Moderate effect	Postgraduates and those with Higher Education Degrees ranked poor services as the highest. Those with Higher Education Certificates or Secondary Education ranked financial constraints as the highest.
Employment status	No effect		Low/moderate effect	
Living location	Moderate effect	City dwellers ranked financial constraints as the highest; rural dwellers ranked poor services as the highest.	Moderate effect	City dwellers selecting financial constraints highest, rural dwellers selecting poor services highest.

Table 4: Explored demographic aspects and level of influence/ drivers for engagement in climate action

\* See page 12, figure 9 for overall survey results

\*\* See page 16, figure 17 for overall survey results



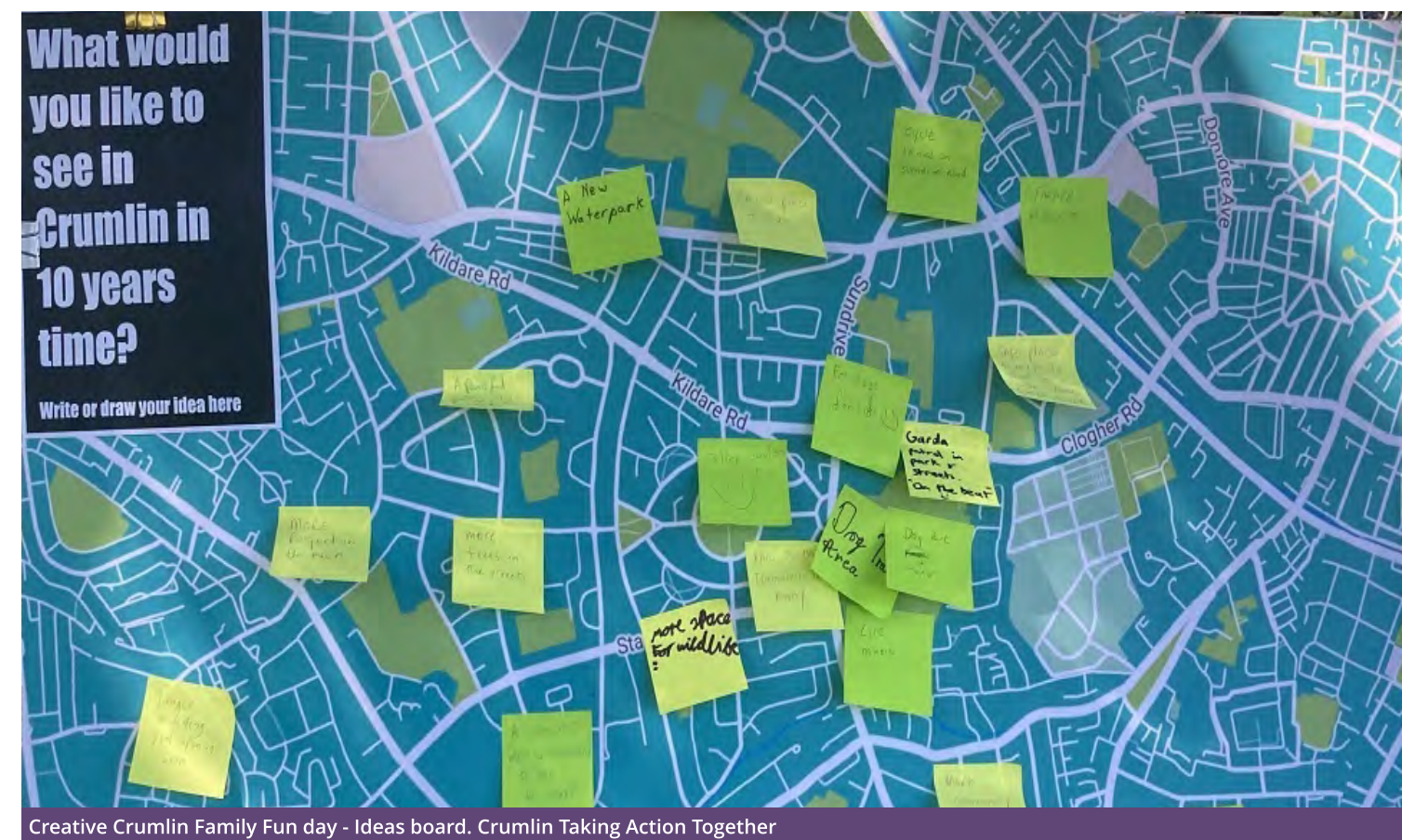
## Mapping Behaviour Change

The characterisation of behaviour change interventions for the five deep dive projects is outlined in table 5 below. Three key intervention clusters were identified. These were education, persuasion, and enablement. For the impact assessment, Michie et al's (2011) COM-B Behaviour System Model was used to support a preliminary characterisation of behaviour change and establish a set of indicative variables to include in our measurement strategy. It has been widely noted in previous research on behaviour change that interventions to change behaviours have shown modest and variable impacts (Michie, 2011; Michie et al. 2020).

Aside from current debates on the need for more holistic interventions, there are practical steps to ensure better delivery. These include a clear description and evaluation of existing strategies to improve interventions by capturing what works and how. Initial engagement with the various projects and results of this preliminary analysis indicates that there was little formal analysis of target behaviours and associated mechanisms of action.

	Repair Acts	KinShip	Creative Crumlin	Field Exchange	Línte na Farrage
Restrictions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Education	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Persuasion	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Incentivization	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Coercion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Training	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Enablement	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Modelling	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Environmental Restructuring	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*Table 5 Characterisation of behaviour change interventions for the five Creative Climate Action deep dive projects*



As found in other areas of work, such as public health and energy system change most interventions are based on implicit and unqualified models of behaviour which presents challenges in terms of assessing effectiveness and up-scaling interventions (Michie and Johnston, 2012, Axon et al. 2018).

There are some aspects that align well between the clusters of intervention that we found in the mapping and the motivations and barriers outlined in the previous section. For instance, the top motivator to change was preserving the natural environment and we have found enablement interventions in this space. Equally educational interventions align with the need for clearer information on best choices to make as consumers, users, clients or patrons. The issue around financial constraints and poor services suggests that more future interventions focused on environmental restructuring would be beneficial. The gap or difference between city dwellers and rural dwellers is also interesting and suggests that city dwellers may feel less empowered to change due to financial constraints. Enablement and incentivisation interventions targeting this cohort would potentially also be beneficial.

# Key Findings

Key findings and similarities between the various research methods employed are summarised here.

## Surveys, Interviews and Observations

Survey results point to a significant impact on audience members and participants in terms of increased awareness, positive engagement and motivation to act in relation to climate change. Key survey findings are shown in Table 6.

Key findings from nineteen interviews with participants and thirty participant observations conducted at various *Creative Climate Action* events, workshops, exchanges and exhibitions are shown in table 7.

### Key Messages from Surveys, Interviews and Observations:

- Experiences provided new ways of engaging and new spaces for connecting/ communicating.
- Experiences enhanced participants' connection to the natural environment.
- Experiences motivated and empowered participants to make changes and affect change.
- Experiences enhanced a sense of community and a sense of place.
- Experiences evoked positive emotional responses.
- Unique processes and insights of artists were observed to enhance communication and foster change.

Theme	Key responses from participants/audience
Important role of the arts and creative events	<ul style="list-style-type: none"><li>• Over 90% agreed or strongly agreed that "the arts/creative community has a role to play in addressing climate change" and that "artistic/creative events can inspire people to take positive environmental action".</li></ul>
Enhanced climate change communication	<ul style="list-style-type: none"><li>• 82% agreed or strongly agreed that the "artistic/creative process can highlight the impact of climate change better than facts alone".</li></ul>
Positive emotional responses to creative events	<ul style="list-style-type: none"><li>• 83% felt inspiration; 78% felt happiness; 77% felt hope.</li><li>• 73% agreed or strongly agreed that the creative aspect of the experience made them feel "more engaged with climate action".</li><li>• 67% responded that their experience helped them to feel empathy for people currently affected by climate change.</li></ul>
New ways of engaging and connecting	<ul style="list-style-type: none"><li>• A large majority indicated that the experience helped them to interact with environmental and climate change organisations (67%) and with arts and cultural organisations (74%) in new ways.</li><li>• Over 70% responded that the experience helped them to make new connections in their community and to feel a sense of appreciation and pride in their community.</li></ul>
Enhanced connection with the natural environment	<ul style="list-style-type: none"><li>• A large majority responded that their experience helped them to reflect on the relationship between humanity and the natural environment (85%); to understand the connection between their actions and the health of the environment (77%); and to feel a strong personal connection with the natural environment (68%).</li></ul>
Anticipated behaviour change	<ul style="list-style-type: none"><li>• 70% felt "empowered to take climate action" and 74% planned to take climate action or make changes to their behaviour or lifestyle.</li></ul>

Table 6: Key findings from surveys.

Theme	Key observations and participant insights in relation to impacts of experiences and events
Opportunity to Change	<ul style="list-style-type: none"><li>• Provided safe spaces for building community connections and for open and respectful dialogue about climate change and sustainability.</li><li>• Gave opportunities to access, appreciate and reconnect with the natural environment.</li><li>• Enhanced learning was facilitated by artists and peer-to-peer communication.</li><li>• Appreciation for the range of activities and broad scope of topics on offer and a clear desire for more events in more locations into the future.</li></ul>
Motivation to Change	<ul style="list-style-type: none"><li>• Motivation to change already evident among many participants but their <i>Creative Climate Action</i> experiences renewed this commitment.</li><li>• Providing support and sense of community seen as important for sustained change.</li><li>• Participants felt motivated to take individual action and to encourage others to act.</li></ul>
Capacity to Change	<ul style="list-style-type: none"><li>• Learning new skills encouraged a sense of self-efficacy and a willingness to take action.</li><li>• Demonstrations of small, incremental, and easily adoptable changes towards sustainable behaviours were viewed positively.</li><li>• Community groups identified as important vehicles for including people in change.</li></ul>
Other	<ul style="list-style-type: none"><li>• The unique perspectives and communication skills of artists were identified as aids to fostering new perspectives among participants.</li><li>• A range of positive emotional responses were evoked among participants.</li><li>• High levels of engagement by participants on cognitive, emotional and practical levels. A sense of place recognised as important in the overall experience.</li></ul>

Table 7: Key findings from interviews and participant observations.



Reflections From The Artists

Key findings from seven interviews carried out with nine lead artists from the five *Creative Climate Action* projects are shown in Table 8.

Key Findings from Artists' Reflections	
Role of Creative Forms and Art Practices in Public Engagement	A wide range of creative forms and art practices were employed to engage people in processes that draw out new ways of approaching issues, rather than overtly critiquing individual behaviours and choices.
Role of Artists	Artists identified a rich and diverse variety of roles for themselves as they seek to address the challenges of climate action including: unique knowledge and perspective sharing, creating a safe space for tackling complexity around climate change, embracing interdisciplinary thinking, changing cultural behaviours, and enabling bottom-up creativity and activism.
Role of Site, Location or Place in the Artistic Process	Working within site-specific contexts and the use of public art spaces were identified as important aspects of the artistic process and the use of art in these contexts was not solely for the purpose of aesthetic gain, but as a vehicle for activation and critique, and for building a sense of connectedness within the community.

Table 8: Key findings from artists reflections

Key Messages from Participant Responses/Insights and Artists' Reflections

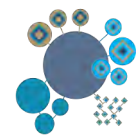
- Experiences created a safe space for enhanced climate change communication
- Experiences enabled participants to approach climate change in new and proactive ways facilitated by unique artist knowledge, perspectives and creative practices
- Site-specific contexts enhanced sense of place, engagement with indigenous issues and solutions, and community connectedness
- Experiences enhanced bottom-up activism and empowerment to take climate action

Important Aspects of Change Identified by Five Deep Dive Project Teams

We conducted two workshops and a short online survey with project teams in order to capture project-led perceptions of change within the five deep dive projects across short, medium and long-term timeframes.

Important aspects of change across short, medium and long-term time frames as identified by project teams and artists

- Activation of spaces and places for engagement with climate action in the short term (within 1 year), including the start of new conversations around climate action themes.
- Promotion of project ownership by community members and/or organizations by expanding outreach and securing additional funding in the short to medium term (1 - 5 years).
- Importance of continuity and expansion of project reach, and the need to extend project-inspired activities through social enterprise models and devolved community ownership structures.
- Desire for new practices and perspectives of green spaces and nature-based solutions to become more widespread in the long term (10 years time).



# Recommendations

## Recommendations to Help Foster Impactful Creative Climate Action Behaviour Change Interventions

### *Supporting Projects*

1. The exploratory and experimental nature of creative climate action projects and the new processes it offers delivers a promising space to journey beyond conventional methods and approaches to address climate action. More stakeholders and public institutions should feel encouraged and empowered to work alongside creative partners.
2. The literature indicates a growing interest in leveraging creative climate action solutions, but to maximise this growing interest further steps should be sought to help integrate this work with other areas of climate action. This includes pathways to support long term work in this space and to disseminate and integrate work across academia, policy, and other sectors.
3. The temporary nature of creative climate action projects (meaning project as a structure of work occurring within a limited timeframe and a constrained work structure) can lead to more fragmented approaches to climate action and could be supported through complementary structures and supportive pathways to enable longer term ventures (for instance social enterprise models, community ownership models, steering group structures among others).

### *Enhancing the Role of Evaluation*

1. Designing effective and replicable pathways to behaviour change requires clear identification of target behaviours, effective prioritisation of interventions, execution of interventions, and measurement of results. Simple models such as the Ipsos 4 i process can provide a suitable pathway to develop clearer and measurable pathways. The 4 i process includes:
  - a. identification of behaviour/s to change,
  - b. contextual insights,
  - c. design of intervention,
  - d. measurement over time (Bourgeat, 2017).
2. Linking evaluation of climate action to Responsible Research & Innovation. More specifically linking the need to capture learnings in real-time as a key approach to contending with the accelerated pace of climate policy and research.
3. A mixed approach to evaluation drawing from internal, external, and participatory evaluation ensures team buy-in, inclusion of salient metrics, adequate access to people and information, while supporting the expertise and unbiased process of external evaluators.

### *Targeting Behaviours*

1. Educational interventions align with the need for clearer information on best choices to make as consumers, users, clients, or patrons. This was a key barrier expressed by participants in our survey. Continued work in this space to offer salient and clear information is certainly beneficial.
2. Furthermore, the key issue also emerging from the surveys concerning financial constraints and poor service provision suggests that it would be beneficial to see some future interventions focusing on environmental restructuring, enablement and incentivisation strategies.



# References

- Andersen, K.R., Renza, V.A. and Fieseler, C. (2021) Mapping the Socially Engaged Arts in Europe.Artsformation Report Series, available at: (SSRN) <https://ssrn.com/abstract=3861625>
- Axon, S., J. Morrissey, R. Aiesha, J. Hillman, A. Revez, B. Lennon, M. Salel, N. Dunphy & E. Boo (2018). The human factor: Classification of European community-based behaviour change initiatives. *Journal of cleaner production*, 182, 567-586.
- Bohr, J. (2014). Barriers to environmental sacrifice: The interaction of free rider fears with education, income, and ideology.*Sociological Spectrum*,34(4), 362-379.
- Bouman, T., Verschoor, M., Albers, C. J., Böhm, G., Fisher, S. D., Poortinga, W., ... & Steg, L. (2020). When worry about climate change leads to climate action: How values, worry and personal responsibility relate to various climate actions.*Global Environmental Change*,62, 102061.
- Bourgeat, P. (2017), MAPS- The Road to Behaviour Change, IPSOS Australia E-BOOK <https://www.ipsos.com/sites/default/files/2017-07/MAPS-TheRoadToBehaviouralChange.pdf>
- Brosch, T. (2021). Affect and emotions as drivers of climate change perception and action: a review.*Current Opinion in Behavioral Sciences*,42, 15-21.
- Burke, M., Ockwell, D., & Whitmarsh, L. (2018). Participatory arts and affective engagement with climate change: The missing link in achieving climate compatible behaviour change?. *Global Environmental Change*, 49, 95-105.
- Castellano, C. G. (2021).Art Activism for an Anticolonial Future: State University of New York Press.
- Corner, A., Whitmarsh, L., & Xenias, D. (2012). Uncertainty, scepticism and attitudes towards climate change: biased assimilation and attitude polarisation.*Climatic change*,114, 463-478.
- Curtis, D. J., Reid, N., & Reeve, I. (2014). Towards ecological sustainability: Observations on the role of the arts.SAPI EN. S. Surveysand PerspectivesIntegratingEnvironment and Society, (7.1).
- Curtis, David. (2009). Creating inspiration: The role of the arts in creating empathy for ecological restoration. *Ecological Management & Restoration*. 10. 174 - 184. 10.1111/j.1442-8903.2009.00487.x.
- Curtis, D. (2006). Mobilising rural communities to achieve environmental sustainability using the arts. *Agricultural Economics Review*, 7(389-2016-23352), 15-25.
- Damasio, A. R. (2012).Self comesto mind: Constructingthe consciousbrain. Vintage.
- European Commission, 2019. Eurobarometer Climate Change Factsheet Ireland April 2019:<https://europa.eu/eurobarometer/surveys/detail/2212>
- Evans, J., & Hall, S. (Eds.). (1999).Visual culture: The reader. Sage. Froggett, L., Manley, J., & Roy, A. N. (2015, September). The visual matrix method: Imagery and affect in a group-based research setting. InForum: Qualitative Social Research(Vol. 16, No. 3). Qualitative Social Research.
- Froggett, L., & Trustram, M. (2014). Object relations in the museum: A psychosocial perspective.*Museum Management and Curatorship*,29(5), 482-497.
- Golding, V. (2013). Museums, poetics and affect.*Feminist Review*,104(1), 80-99.
- Hulme, M. (2011). Meet the humanities.*Nature Climate Change*,1(4), 177-179.
- Ioannides, E., Pantagoutsou, A., & Jury, H. (2021). Contemporary artworks as transformational objects in art psychotherapy museum groupwork.*The Artsin Psychotherapy*,73, 101759.
- Jensen A, Thuesen C and Gerdal J (2016) The projectification of everything: Projects as a human condition.*Project Management Journal*. 47(3): 21–34.
- Lee, D. (2013). How the arts generate social capital to foster intergroup social cohesion.*The Journal of Arts Management, Law, and Society*,43(1), 4-17.
- Lehtonen, A., Salonen, A. O., & Cantell, H. (2019). Climate change education: A new approach for a world of wicked problems.Sustainability, human well-being, and the future of education, 339-374.
- Lehtonen, A. E. A. (2012). Future Thinking and Learning in Improvisation and a Collaborative Devised Theatre Project Within Primary School Students. *Procedia? Social and Behavioral Sciences*,45, 104?113.
- Lehtonen, A. E. A. (2015a). Evaluating Students? Agency and Development of Ownership in a Collaborative Playmaking Project. *The European Journal of Social and Behavioural Sciences*, 14(3). <http://dx.doi.org/10.15405/ejsbs.171>.
- Lehtonen, A. E. A. (2015b). Call for Creative Collaboration. *Drama*, 2015(3), 34?37.
- Leiserowitz, A., Carman, J., Rosenthal, S., Neyens, L., Marlon, J., Desmond, M., Smith, S., Rochford, M. F., O'Mahony, J., and Reaper, L. (2021). Climate Change in the Irish Mind. New Haven, CT: Yale Program on Climate Change Communication.
- Loewenstein, G. F., Weber, E. U., Hsee, C. K., & Welch, N. (2001). Risk as feelings.*Psychological bulletin*,127(2), 267.

- Lorenzoni, I., Nicholson-Cole, S., & Whitmarsh, L. (2007). Barriers perceived to engaging with climate change among the UK public and their policy implications. *Global environmental change*, 17(3-4), 445-459.
- Luke, T. W. (2015). The climate change imaginary. *Current Sociology*, 63(2), 280-296.
- Malerba, D. (2022). The Effects of Social Protection and Social Cohesion on the Acceptability of Climate Change Mitigation Policies: What Do We (Not) Know in the Context of Low-and Middle-Income Countries?. *The European Journal of Development Research*, 34(3), 1358-1382.
- Manca, A.R. (2014). Social Cohesion. In: Michalos, A.C. (eds) *Encyclopedia of Quality of Life and Well-Being Research*. Springer, Dordrecht. [https://doi.org/10.1007/978-94-007-0753-5\\_2739](https://doi.org/10.1007/978-94-007-0753-5_2739)
- Marks, M., Chandler, L., & Baldwin, C. (2016). Re-imagining the environment: using an environmental art festival to encourage pro-environmental behaviour and a sense of place. *Local Environment*, 21(3), 310-329.
- McLoughlin, N. (2021). Communicating efficacy: How the IPCC, scientists, and other communicators can facilitate adaptive responses to climate change without compromising on policy neutrality. *Climatic Change*,
- Michie, S., M. M. Van Stralen & R. West (2011). The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implementation science*, 6, 1-12.
- Michie, S., & Johnston, M. (2012). Theories and techniques of behaviour change: Developing a cumulative science of behaviour change. *Health Psychology Review*, 6(1), 1-6.
- Moser, S. C., & Dilling, L. (2011). COMMUNICATING CHANGE SCIENCE:-CLOSING ACTION CLIMATE. *The Oxford handbook of climate change and society*, 161.
- Neumann, W. L. (1997). *Social Research methods - Quantitative and qualitative approaches*. Boston, USA: Allan and Bacon.
- Ockwell, D., Whitmarsh, L., & O'Neill, S. (2009). Reorienting climate change communication for effective mitigation: forcing people to be green or fostering grass-roots engagement?. *Science Communication*, 30(3), 305-327.
- Ojala, M. (2007). Hope and worry: Exploring young people's values, emotions, and behavior regarding global environmental problems (Doctoral dissertation, Örebro universitetsbibliotek).
- Ojala, M. (2012). Hope and climate change: The importance of hope for environmental engagement among young people. *Environmental Education Research*, 18(5), 625-642.
- Petty, R. E., Cacioppo, J. T., Petty, R. E., & Cacioppo, J. T. (1986). The elaboration likelihood model of persuasion (pp. 1-24). Springer New York.
- Roeser, S. (2012). Risk communication, public engagement, and climate change: A role for emotions. *Risk Analysis: An International Journal*, 32(6), 1033-1040.
- Roosen, L. J., Klöckner, C. A., & Swim, J. K. (2018). Visual art as a way to communicate climate change: a psychological perspective on climate change-related art. *World Art*, 8(1), 85-110.
- Schneider, C. R., Zaval, L., & Markowitz, E. M. (2021). Positive emotions and climate change. *Current Opinion in Behavioral Sciences*, 42, 114-120.
- Sharp, J., & Macklin, C. (2019). *Iterate: Ten lessons in design and failure*: MIT Press.
- Smith, E. K., & Mayer, A. (2018). A social trap for the climate? Collective action, trust and climate change risk perception in 35 countries. *Global Environmental Change*, 49, 140-153.
- Smith, C. J., Dupré, K. E., McEvoy, A., & Kenny, S. (2021). Community perceptions and pro-environmental behavior: The mediating roles of social norms and climate change risk. *Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement*, 53(2), 200.
- Sommer, L. K., Swim, J. K., Keller, A., & Klöckner, C. A. (2019). "Pollution Pods": The merging of art and psychology to engage the public in climate change. *Global Environmental Change*, 59, 101992.
- Sommer, L. K., & Klöckner, C. A. (2021). Does activist art have the capacity to raise awareness in audiences? A study on climate change art at the ArtCOP21 event in Paris. *Psychology of Aesthetics, Creativity, and the Arts*, 15(1), 60.
- Stoknes, P. E. (2014). Rethinking climate communications and the "psychological climate paradox". *Energy Research & Social Science*, 1, 161-170.
- Theodori, G. L. (2004). Exploring the association between length of residency and community attachment: A research note. *Southern Rural Sociology*, 20(1), 107-122. <https://egrove.olemiss.edu/jrss/vol20/iss1/6>
- Walker, G. J., & Chapman, R. (2003). Thinking Like a Park: The Effects of Sense of Place, Perspective-Taking, and Empathy on Pro-Environmental Intentions. *Journal of Park & Recreation Administration*, 21(4).
- Whitmarsh, L., Lorenzoni, I., & O'Neill, S. (Eds.). (2012). *Engaging the public with climate change*. Taylor & Francis.
- Whitmarsh, L., O'Neill, S., & Lorenzoni, I. (2013). Public engagement with climate change: what do we know and where do we go from here?. *International Journal of Media & Cultural Politics*, 9(1), 7-25.
- Wolf, J. and Moser, S.C. (2011), Individual understandings, perceptions, and engagement with climate change: insights from in-depth studies across the world. *WIREs Clim Change*, 2: 547-569. <https://doi.org/10.1002/wcc.120>
- Xie, B., Brewer, M. B., Hayes, B. K., McDonald, R. I., & Newell, B. R. (2019). Predicting climate change risk perception and willingness to act. *Journal of Environmental Psychology*, 65, 101331.