PROGRAMS AND INTERVENTIONS TO ADDRESS CLIMATE GRIEF: A CASE STUDIES REPORT

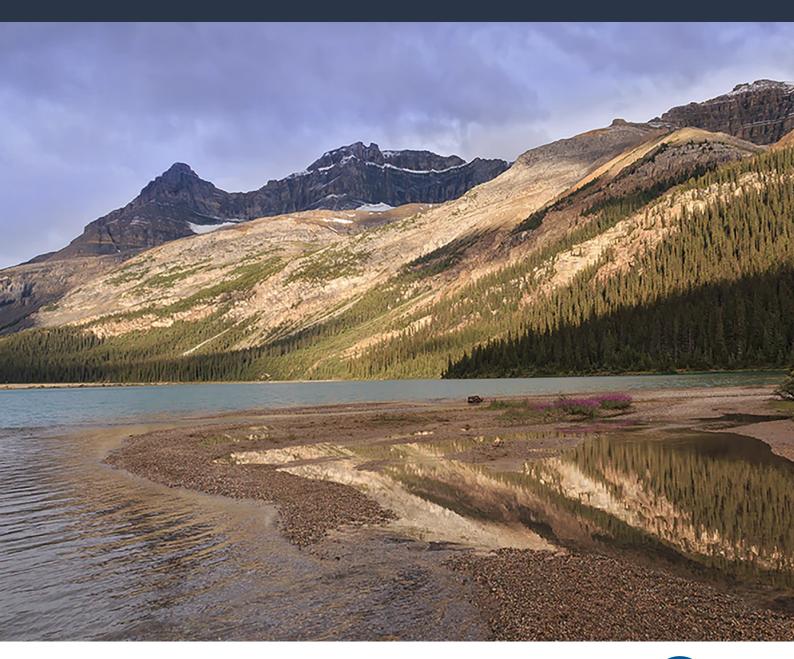
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This report was produced as part of the UBC Sustainability Scholars Program, a partnership between the University of British Columbia and various local governments and organizations in support of providing graduate students with opportunities to do applied research on projects that advance sustainability across the region.

This project was conducted under the mentorship of Fraser Basin Council staff. The opinions and recommendations in this report and any errors are those of the author and do not necessarily reflect the views of Fraser Basin Council or the University of British Columbia.

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PROJECT BACKGROUND

SUSTAINABILITY SCHOLARS PROGRAM

This report was created as part of the University of British Columbia's (UBC) Sustainability Scholars program. The Sustainability Scholars program is an innovative internship opportunity that matches UBC graduate students with sustainability partners to work on applied research projects that advance sustainability across the region.

ABOUT THE AUTHOR

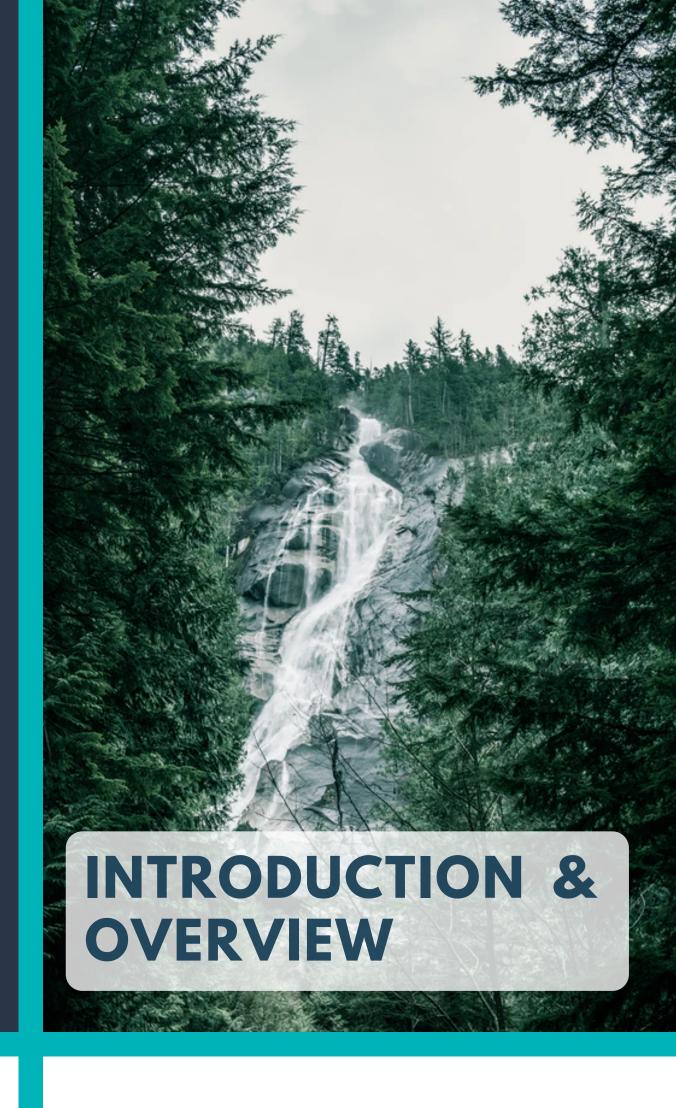
Judy Wu is a graduate student at UBC's School of Population of Public Health (SPPH), pursuing a Master in Public Health (MPH). Judy's passion for environmental conservation and climate change action began at an early age, leading her to complete a BSc in Biology with a focus on ecology and conservation at UBC. Judy also has a strong passion for mental health advocacy and improvement of mental health support, particularly within young people. Through the Sustainability Scholars program and her studies, she has had the opportunity to combine her interests of climate action and mental health.

ABOUT THE PARTNER ORGANIZATION

This report was created in collaboration with Fraser Basin Council as a part of the BC Regional Adaptation Collaborative III (BC RAC). BC RAC is a partnership formed of the Fraser Basin Council, the BC Ministry of Environment and Climate Change Strategy - Climate Action Secretariat, and Natural Resources Canada. BC RAC aims to strengthen regional capacity and increase action to advance adaptation planning and implementation in local governments, Indigenous governments, and the natural resource sector. Fraser Basin Council's coordinator of the BC RAC program, Cait Murphy, served as Judy's mentor and partner contact during the Sustainability Scholars program.

LAND ACKNOWLEDGEMENT

This report was written by the author who lives, works, and plays on the ancestral, unceded, and traditional territories of the Coast Salish Peoples, including the $x^wm\partial\theta k^w\partial\dot{y}\partial m$ (Musqueam), $S\underline{k}w\underline{x}w\acute{u}7mesh$ Úxwumixw (Squamish), and $s\partial\dot{l}il\dot{w}\partial ta?$ (Tsleil-Waututh) Nations.



BACKGROUND

The effects of anthropogenic or human-induced climate change are vast and inter-connected, impacting most if not all aspects of life on Earth. Historically, climate change has often only been considered an environmental health issue, with its effects solely relevant to wildlife populations or biodiversity. However, with continuously rising global temperatures and increasing knowledge of climate change, the deeply intertwined and multi-directional relationships between humans and nature becomes increasingly apparent.

In particular, greater consideration has been given to the impact of climate change on human health. For instance, an increasing number of studies and people's lived experiences have shown the physical health effects of climate change. Rising temperatures have been linked to higher rates of heat-related illnesses such as heat stroke and highly polluted air may exacerbate pre-existing respiratory conditions such as asthma. Moreover, climate change-related disasters such as wildfires, flooding, and storms may also cause acute fatal and non-fatal physical trauma. The indirect effects of climate change on physical health have also been previously studied. Environmental changes can impact food and water systems and may lead to food insecurity and water scarcity. As a result, climate change may lead to health challenges such as malnutrition or growth stunting.

Despite the increased focus on climate change and human health, the psychological and mental health effects remain largely overlooked. Physical and mental health are intrinsically linked and become difficult, if not impossible, to disentangle from one another. For instance, multiple studies have found an association between increased ambient temperatures and a higher number of mental health related emergency department visits. It has been hypothesized that increased heat may lead to physiological changes within the body that can exacerbate pre-existing mental health disorders. In another example, experience of food insecurity and water scarcity can be a significantly distressing event, both physically and mentally, and may exacerbate an individual's mental health symptoms or compound other life stressors. Individuals experiencing malnutrition are also more likely to have an altered mental state that may have acute and long-term mental health consequences.

Previously, the majority of mental health and climate change research has been focused on the impacts of climate change related disasters. Disasters related to and exacerbated by climate change typically have long-term impacts after the initial post-disaster period. Depending on the type of disaster, populations and communities may experience severe infrastructure damage to the community, destruction of homes and livelihoods, displacement or mass migration, and loss of life. When considered individually, these events are likely to cause adverse mental health symptoms such as suicidal ideation or mental health disorders such as depression, anxiety, and post-traumatic stress disorder (PTSD), but when occurring in conjunction to one another - as seen in many climate change related disasters - these impacts may become amplified.

However, mental health effects of climate change can also be felt in those who have not experienced a climate change related disaster. With recent emergence into academia and popular culture, the terms 'climate anxiety' or 'eco-anxiety' terms describe anxiety related to the global climate crisis and the threat of environmental disaster. 8-9 Symptoms associated with eco-anxiety may include panic attacks, insomnia, and obsessive thinking.¹⁰ Feelings of climate or eco-anxiety may also compound other daily stressors to negatively affect overall mental health, potentially leading to increases in stress-related problems such as substance use disorders, anxiety disorders, and depression.8 Additionally, individuals may feel 'solastalgia,' a term used to describe distress produced by environmental change to one's home environment.¹¹ Although solastalgia may be experienced in acute climate change related disasters, the term may also be applied to the observation of slow, long-term environmental changes and degradation such as deforestation, rising sea-levels, and loss of biodiversity.

For the remainder of this report, mental health effects associated directly and externally to a climate change related disaster will fall under the broad umbrella term of 'climate grief'. The term climate grief has been increasingly used within the climate change field and encompasses a broad range of mental health impacts. More specifically, climate grief can be defined as "The grief felt in relation to experienced or anticipated ecological losses, including the loss of species, ecosystems, and meaningful landscapes due to acute or chronic environmental change."

PURPOSE

The purpose of this report is to outline case studies of interventions that have been utilized to address, mitigate or prevent climate grief within a population, community, or individual. This report is not an exhaustive list of the ways populations, communities, or individuals may experience climate grief, nor is it an exhaustive list of the ways in which climate grief can be addressed, mitigated, or prevented. Rather, this report serves to exhibit a wide variety of strategies and methods that can be used when considering climate grief, and hopes to inform and inspire future climate grief interventions.

Findings from the case studies were also used in the creation of the author's second report for the UBC Sustainability Scholars program, titled "Addressing and Coping with Climate Grief: A Toolkit for Group and Individual Use."

NAVIGATING THE CASE STUDIES

There are 18 climate grief cases included in this report. Of the 18 cases, 10 are external to a climate change related disaster (Section I), and 8 are directly related to a climate change related disaster (Section II). Interventions in Section I are not specifically developed for acute climate events, but instead attempt to address eco-anxiety and solastalgia.

Of the interventions related to a climate change disaster (Section II), 5 cases are related to flooding, 2 cases are related to hurricanes, and 1 case is related to a long-term drought season. Section II interventions are further divided into 'direct' and 'indirect' methods of addressing climate grief. Direct interventions describe strategies and programs that explicitly address mental health impacts of the disaster, whereas indirect strategies and programs focus on building personal or community resilience. Although certain indirect strategies and programs may not appear to connect with mental health or climate grief, building personal and community resilience through social cohesion, disaster preparedness, and climate change education interventions may be effective in reducing mental distress.⁸

Brief overview tables are presented at the beginning of the report and include information on the location of the intervention and/or disaster and the organizations that were involved. The Section II overview table also categorizes interventions as 'direct' and 'indirect.'

INTERVENTION EVALUATIONS

Where applicable, evaluations of the interventions are provided with the case study. If available, academic, research-based, and peer-reviewed evaluations of the intervention are included. Academic evaluations were most commonly available for case studies in Section II as mental health effects associated with climate change related disasters have been more widely included within the academic literature.

As interventions found within Section I are less likely to be included within academic literature, a large portion of the case studies do not have academic, peer-reviewed evaluations. Instead, Section I evaluations were often informed by informal participant feedback.

A note is made for case studies where no evaluation of any sort was identified.

LESSONS LEARNED AND CONSIDERATIONS

A 'Lessons Learned and Considerations' section is provided for each case study. This section is informed by intervention outcomes and evaluations as described in the relevant sources, as well as by interpretations from the report's author. This section is meant to inform development or improvement of new and existing climate interventions.

REFERENCES

References are provided at the end of each case study for ease of accessibility. Academic references for the introduction section are provided at the end of the report.

OVERVIEW

SECTION I. INTERVENTIONS EXTERNAL TO A CLIMATE CHANGE EVENT

INTERVENTION TYPE; LOCATION	ORGANIZATION(S)	INTERVENTION	DESCRIPTION
Online and In-person; International	Carbon Conversations	Carbon Conversations Support Groups	An educational support group that uses a climate grief emotion-focused approach to help participants decrease their carbon footprint.
Online and In-person; International	Work That Reconnects	Work that Reconnects Learning Process	A learning process that helps participants acknowledge and process their emotions related to the current climate crisis and transform emotions to active hope.
In-person; Boulder, Colorado	Inside Greenhouse Project University of Colorado	Stand up for Climate Change Comedy Show	A comedy show that uses humour to help teach and process emotions related to the climate crisis.
Online and In-person; International	Good Grief Network	10-Step Approach Support Groups	Based on Alcoholics Anonymous, GGN's 10- Step approach is a 10- week support group to help those experiencing heavy emotions regarding the climate crisis.
Online Webinar; London, UK	London School of Hygiene and Tropical Medicine	Eco-anxiety: From Worry to Action	A workshop facilitated by two students at the London School of Hygiene and Tropical Medicine, aimed at providing coping strategies for eco-anxiety.

OVERVIEW

INTERVENTION TYPE; LOCATION	ORGANIZATION(S)	INTERVENTION	DESCRIPTION
Online and In-person; International	Love and Loss Extinction Rebellion	Feeling Nature Workshop	Based on the concept of 'Grief Tending,' the Feeling Nature workshops provide space for participants to gather and process feelings of grief related to climate change.
Online and In-person; International	Various organizations	Climate Cafés	A support group, modelled off Death Cafés, with the goal of providing space for participants to share thoughts and emotions related to the climate crisis.
Online; International	Eco-Anxious Stories	Eco-Anxious Story Resources	An online platform that aims to normalize feelings of eco-anxiety and provide resources for coping with emotions related to the climate crisis.
Online; International	Climate Therapist Alliance	Emotional Resilience Toolkit	A toolkit of activities to address climate grief activities, compiled by a group of climate psychologists in the Pacific Northwest.
In-person; USA & Spain	Ecodharma Centre Rocky Mountain Ecodharma Retreat Center (RMRC)	Ecodharma retreats	Ecodharma centers provide nature-based retreats to ease feelings of eco-anxiety and climate grief. Retreats are typically based around meditation and spiritual practices.

OVERVIEW

SECTION II. INTERVENTIONS ASSOCIATED WITH A CLIMATE CHANGE EVENT

Location	Climate Change Event	Indirect interventions addressing climate grief	Direct interventions addressing climate grief
Boulder, Colorado	Flooding	Perceptions of Resilience Programming	N/A
Jamestown, Colorado	Flooding	Community Hub	Weekly Meditation Group
Boulder County, Colorado	Flooding	Community Grants	Mental Health Drop-In Program, Mental Health Voucher System
Liverpool, UK	Flooding	Resilience Hub, Flood Action Group, Flood Awareness Play	N/A
Various Albertan communities	Flooding	Hearts and Minds Programming	Minds and Heart Programming, Video Project
New Orleans, Louisiana	Hurricane	N/A	Mindfulness for mental health workers
Port-au- Prince, Haiti	Hurricane(s)	3-Day Disaster Preparedness Intervention Workshop	3-Day Disaster Preparedness Intervention Workshop
New South Wales, Australia	Drought	Rural Adversity Mental Health Program	Rural Adversity Mental Health Program



CARBON CONVERSATIONS



DESCRIPTION²⁻⁵

LOCATION

Carbon Conversations began as a UK-based organization offering inperson sessions.
Currently, all materials and resources have been made publicly and internationally available online, through their website.

OBJECTIVES

To address the practicalities of carbon reduction while accounting for complex emotions and social pressures that can make carbon reduction difficult, and to help participants engage with their emotions surrounding climate change and understand how emotions play a role in climate change engagement initiatives

ORGANIZATION

Carbon Conversations

INTERVENTION POPULATION

Carbon Conversations is an intervention program designed for anyone looking to reduce their carbon emissions.

Carbon Conversations was developed in 2005 by psychotherapist, Rosemary Randall, and engineer, Andy Brown. The project uses a small group-based method to educate participants on climate change and carbon emissions.

Carbon Conversations was actively hosted in the United Kingdom from 2006-2010 by the Cambridge Carbon Footprint charity organization, from 2011-2012 by the Climate Outreach charity, and from 2013-2017 by the Surefoot Effect Community Interest Company. It is estimated that over 2,000 people have participated in a Carbon Conversations group in the United Kingdom, with hundreds more groups occurring around the world.

During a Carbon Conversations group, facilitators help participants address distress related to climate change through carbon reduction. Groups meet between 6-12 times and explore four key aspects of personal carbon footprints:

- 1. Home energy
- 2. Travel
- 3. Food
- 4. Other consumption

Carbon Conversations is primarily focused on emotional engagement to strengthen intrinsic motivations for change, making it unique from other small climate change groups focused on climate change mitigation. Carbon Conversations acknowledges that climate change engagement can cause difficult emotions, but also emphasizes that engagement with these emotions and inner conflicts is necessary for behaviour change.

Group meetings consist of a mixture of facilitator input on specific topics, small group discussions, games, and tasks to complete at home.

CARBON CONVERSATIONS



EVALUATION ⁶

A survey of 113
participants found that
50% of participants
agreed or strongly
agreed that taking part
helped them 'face their
worries about climate
change.'

In interviews conducted with several of the participants, Carbon Conversations activities were noted to give space to participants to talk about climate change, and helped with 'taking a big scary thing and facing it together.'

Others noted that they valued the opportunity to share difficult emotions about climate change, as this was something that other initiatives did not offer.

ADDITIONAL DETAILS

Carbon Conversations has since transitioned from active partnership with organizations to become a publicly available online resource through their website.

DESCRIPTION²³

In particular, the 'Fears for the Future' activity invites participants to directly address their emotions and fears regarding climate change. Participants are provided with a list of various fears and worries associated with climate change. They are instructed to work through and discuss the list of fears in pairs, noting which fears they may identify with. Additional space is provided at the bottom of the handout for participants to add to their list. Following the pair discussion, a whole group discussion and reflection is initiated.

Providing a space for participants to connect with feelings of sadness, anxiety, and fear, may help participants process the complex emotions associated with climate change. Alternatively, facilitators may also choose to add an artistic component by having participants present their fears through drawings. This may allow participants to process and express emotions that may be difficult to describe with words.

There is no formal training to become a Carbon Conversations facilitator, however training documents are available through their website. It is recommended that facilitators are those with therapeutic group experience and/or professional training in group facilitation.

LESSONS LEARNED & CONSIDERATIONS

- Participant feedback highlights the need for safe spaces to discuss emotions and distress related to climate change
- Emotional engagement with feelings of climate grief and concern may help participants reduce carbon emissions within their daily lives

CARBON CONVERSATIONS



- 1. Carbon Conversations. Carbon Conversations logo [image on the Internet]. [Publisher unknown]: Carbon Conversation; [date unknown] [cited 2021 Feb 5]. Available from:
 - http://www.carbonconversations.co.uk
- 2. Carbon Conversations. [Internet]. [Publisher unknown]: Carbon Conversations; [date unknown] [cited 2021 Feb 5]. Available from: http://www.carbonconversations.co.uk
- 3. Using Carbon Conversations. [Internet]. [Publisher unknown]: Carbon Conversations; [date unknown] [cited 2021 Feb 5]. Available from: http://www.carbonconversations.co.uk/p/running-group.html
- 4. Büchs M, Hinton E, Smith G. 'It helped me sort of face the end of the world': the role of emotions for third sector climate change engagement initiatives. Environ Values. 2015; 24(5): 621-640.

WORK THAT RECONNECTS



LOCATION

The Work That
Reconnects (WTR) is an
international
organization with
nearly 200 facilitators
located around the
world. WTR also offers
online groups.

OBJECTIVE

To help participants acknowledge, experience, and understand the emotions that may empower or inhibit action related to the current ecological and climate crisis

ORGANIZATION

Work That Reconnects Network

INTERVENTION POPULATION

The Work That
Reconnects (WTR) is an
intervention program
designed for anyone
seeking to
acknowledge,
experience, and
understand their
emotions related to the
current ecological and
climate crisis.

DESCRIPTION

Drawing from practices of deep ecology, systems theory, ecopsychology, Buddhism, and political activism, Joanna Macy developed the Work That Reconnects (WTR) in the 1970s. It is a learning process aimed at moving participants from emotional defensiveness or paralysis towards feelings of active hope.

The WTR framework unfolds as a spiral journey with four stages, each designed to build upon the previous one. A variety of activities can be completed with each stage. Activities range from meditation to interactive and conceptual insight activities. The four stages include:

COMING FROM GRATITUDE

The framework begins with gratitude to allow participants to reconnect with empathy and personal power

E.g., Open Sentences Activity

- Participants form pairs or small groups and finish a short phrase such as "The place in nature most special to me is..."
- Partners or group members take turns finishing the short phrase with no interruptions in between participants

HONOURING OUR PAIN FOR THE WORLD

This stage of the WTR framework invites participants to work through experiences of suffering, whilst honoring their pain for the world

E.g., <u>Honoring the Rainforest</u>

- Participants meditate to sounds and visuals of a rainforest
- Pictures of deforestation, sounds of logging, and statistics about deforestation are then presented
- Participants are encouraged to fully open their awareness to the suffering of the world, and to experience the pain but not remain in it

WORK THAT RECONNECTS



EVALUATION 3

Mark Hathaway, an university educator and WTR facilitator led and evaluated a 6-hour WTR workshop in September 2013 with a group of 36 undergraduate students.

Based on analysis of reflections written by the students, participants found the WTR workshop engaged the mind, emotions, imagination, and body, to build community, provide a sense of possibility and empowerment, and transform perspectives and worldviews.

Several participants decided to take up more consistent meditation practices as a method to deepen their sense of connection with nature. and find peace in the struggle to address ecological concerns. However, participants also found the one-day workshop to be restrictive, and reported fears that feelings of inspiration and enthusiasm might soon wear off in daily living.

DESCRIPTION

SEEING WITH NEW EYES

Seeing with new eyes works to build a sense of personal power or perceptual shift towards a wider and more inclusive sense of self, thus enabling participants to respond more fruitfully to the pressing challenges of the times

E.g., Widening Circles

- Participants are asked to share on an issue they are passionate about from four perspectives, in the first person:
 - O Their own, that of a person with an opposing opinion, that of a non-human entity affected by the issues (e.g., animal, plant, ocean, etc.), that of a future person who will be affected

GOING FORTH

Going forth helps participants find ways to incorporate active, transformative hope in their daily lives

E.g., Potential Obstacles

 Participants share possible obstacles that might inhibit climate action or work towards a transformative hopefocused life style

LESSONS LEARNED & CONSIDERATIONS

- The WTR has been found to be an effective method in managing climate grief and other emotions associated with climate change in some groups
- Evidence supports meditation as a powerful tool in addressing climate grief
- One time workshops to address climate grief may be effective in the short-term, but continuous work may be needed for long-term healing and processing of climate grief

WORK THAT RECONNECTS



REFERENCES

1. Work That Reconnects Network. Work That Reconnects Network logo [image on the Internet]. [Publisher unknown]: Work That Reconnects Network; [date unknown] [cited 2021 Feb 15]. Available from: https://workthatreconnects.org/

2. The Work That Reconnects. [Internet]. [Publisher unknown]: Work That Reconnects Network; [date unknown] [cited 2021 Feb 5]. Available from:

https://workthatreconnects.org/spiral/

3. Hathaway M. Activating hope in the midst of crisis: Emotions, transformative learning, and "The Work That Reconnects". J Transform Educ. 2016; 15(4): 296–314.

STAND UP FOR CLIMATE CHANGE



LOCATION

Boulder, Colorado, USA

OBJECTIVE

To explore efficacy of humour in climate change communication and to build tools of communication for individuals and groups through humour

ORGANIZATION

Inside the Greenhouse

University of Colorado Boulder

INTERVENTION POPULATION

The Stand Up for Climate Change show was organized by and for students at the University of Colorado Boulder, with a majority of participants from the Environmental Sciences major.

DESCRIPTION

The 'Stand Up for Climate Change' comedy shows take place annually at the University of Boulder Colorado. The initiative is part of the larger 'Inside the Greenhouse (ITG)' project, aimed at confronting climate change through the creative modes of communication at the university.

Since 2016, participants in the ITG program have worked to translate climate change issues for the public through sketch comedy, improvisation, and stand-up mediums. The majority of performers are undergraduate students in the Environmental Sciences majors. Participants can perform individually (e.g., stand-up routine) or in small groups of 2-5 performers (e.g., sketch comedy, improv, stand-up).

In preparation for the shows, all participants are required to carefully consider and articulate who their intended primary audience is and their principle messaging to this audience. In the past, members have also engaged in discussions on the peer-reviewed climate change literature, completed performance-based exercises, and connected with visitors who share expertise on communication skills.

Previous performances were presented to audiences of approximately 150 people. The audience was mainly comprised of friends of performers and other students.

For the 2020 show, performances were filmed ahead of time and compiled into a video. The video can be found https://example.com/here.5

The project also includes an international video competition each year. The video competition is intended as a method to connect with a diverse audience. Calls for video entries are circulated through email servers, message boards, and social media outlets and limited to 3 minutes. Winning videos are shown during the in-person comedy show.

Winning videos from each year can be found here.6

STAND UP FOR CLIMATE CHANGE



EVALUATION

In previous shows, post-event surveys have been distributed to attendees immediately after each performance. Attendees were asked about the effect of comedy on 1) making them think, feel, and engage with climate change, 2) whether the use of comedy seemed to trivialize issues associated with climate change, 3) if they felt that comedy could be an useful contributor to the climate conversation, and 4) for any additional feedback.

Based on survey feedback from show participants and audience members, humour has been supported as an effective coping method to provide relief from distressing climate emotions.

Participant feedback also noted that comedy was an effective method for learning and new knowledge formation, but also recognized the risks of trivializing the wicked challenge of climate change.

One participant reported the experience "showed me how fun climate communication can be, which helps to reframe the whole conversation in a way that feels more manageable," while another mentioned that the show "made it easier to bring up the subject of climate change without being depressing."

LESSONS LEARNED & CONSIDERATIONS

- Humour may serve as an underused tool for addressing heavy emotions related to the climate crisis
- Using humour may be most effective in populations that already have a good understanding of climate change
 - References and jokes may not be understood by those who are unfamiliar with climate work
- Humour may also serve as a method for learning new climate change information for those already familiar with climate work

- 1.Inside the Greenhouse. Inside the Greenhouse logo [image on the Internet]. [Publisher unknown]: Inside the Greenhouse; [date unknown] [cited 2021 Feb 4]. Available from: https://insidethegreenhouse.org/
- 2. Stand Up For Climate Change Comedy Event. [Internet]. [Publisher unknown]: Inside the Greenhouse; [date unknown] [cited 2021 Feb 5]. Available from: https://insidethegreenhouse.org/event/stand-climate-change-comedy-event
- 3. Stand Up For Climate Change Comedy on April 22. [Internet]. [Publisher unknown]: Inside the Greenhouse; [date unknown] [cited 2021 Feb 5]. Available from:
 - https://insidethegreenhouse.org/event/stand-climate-change-april-22
- 4. Boykoff M, Osnes B. A laughing matter? Confronting climate change through humour. Political Geogr. 2019, 68: 154–163.
- 5. 2020 Stand Up for Climate Change Comedy Show. [Internet]. [Publisher unknown]: Inside the Greenhouse; [date unknown] [cited 2021 Feb 4]. Available from:
 - https://insidethegreenhouse.org/media/2020-stand-climatechange-comedy-show
- 6. Comedy for Climate Change. [Internet]. [Publisher unknown]: Inside the Greenhouse; [date unknown] [cited 2021 Feb 4]. Available from: https://insidethegreenhouse.org/project/comedy-climate-change

GOOD GRIEF NETWORK: 10-STEP APPROACH



LOCATION

The Good Grief Network (GGN) is an organization with internationally available online resources and available in-person resources in certain areas.

OBJECTIVE

To build personal resilience while strengthening community ties to help combat despair, inaction, eco-anxiety, and other heavy emotions in the face of daunting systemic predicaments

ORGANIZATIONS

Good Grief Network

INTERVENTION POPULATION

The GGN's 10-Step
Approach is designed
for anyone seeking to
recognize, feel and
process heavy emotions
related to the current
ecological and climate
crisis.

DESCRIPTION²⁴

The Good Grief Network (GGN) is a not-for-profit organization working to bring people together to process grief and other heavy emotions related to the current ecological and climate crisis. Based on the Alcoholics Anonymous group model, the organization uses a 10-Step approach in their facilitation of peer-to-peer support groups.

The aim of these groups is to help participants recognize, feel, and process heavy emotions, and to help convert emotions into meaningful action.

GGN's 10-Steps to Personal Resilience & Empowerment in a Chaotic Climate:

- 1. Accept the severity of the predicament
- 2. Practice being with uncertainty
- 3. Honour my morality and the mortality of all
- 4. Do inner work
- 5. Developed awareness of biases and perception
- 6. Practice gratitude, witness beauty, and create connections
- 7. Take breaks and rest
- 8. Grieve the harm I have caused
- 9. Show up
- 10. Reinvest into meaningful efforts

An in-depth description of each step can be found here.4

Group meetings occur weekly for 10-weeks, with one step being covered each session. Since initiation, the GGN has facilitated over 50 peer support groups both in-person and virtually.

Each group includes a maximum of 15 participants (inclusive of 3 facilitators) to preserve an intimate group experience. Every group session begins with an introduction, participant check-in, announcements, and grounding exercise. The group then moves into the 'step' for the week.

GOOD GRIEF NETWORK: 10-STEP APPROACH



EVALUATION

According to the GGN website:

- 94% of program participants reported feeling more empowered to take action in their lives
- 95% of program participants reported that the 10-Step Program helped them think in new and nuanced ways about systemic problems
- 96% of participants reported that the 10-Step Program helped them feel less alone and more connected to others

DESCRIPTION

Facilitators provide information on the step, and share why the step is important to them. The group then moves to open sharing time for participants to share their thoughts and experiences. Although space is made for each participant to share at least once, sharing is not a requirement. Sharing time is not meant to be a discussion so cross talk is minimized. At the end of the session, a closing is read and a group check-out is completed.

LESSONS LEARNED & CONSIDERATIONS

- It is important for facilitators to ensure that the participant who is sharing at the time is not interrupted by others (i.e., cross-talk)
- Facilitators for climate grief support groups may consider sharing their own emotions when facilitating discussions
- GGN's policy that limits groups to 15 individuals is likely to be a major contributor to the connectedness that 96% of participants felt after the workshop

- 1.Good Grief Network. Good Grief Network logo [image on the Internet]. [Publisher unknown]: Good Grief Network; [date unknown] [cited 2021 Feb 12]. Available from: https://www.goodgriefnetwork.org/
- 2. Good Grief Network. 10-Steps to Personal Resilience & Empowerment in a Chaotic Climate. [Internet]. [Publisher unknown]: Good Grief Network; [date unknown] [cited 2021 Feb 12]. Available from: https://www.goodgriefnetwork.org/good-grief-network-10-step-program/
- 3. Good Grief Network. 10-Step Program. [Internet]. [Publisher unknown]: Good Grief Network; [date unknown] [cited 2021 Feb 12]. Available from: https://www.goodgriefnetwork.org/good-grief-network-10-step-program/
- 4. Schmidt L, Lewis Reau A. Tooks for the Awakening. [Internet]. San Francisco, CA: Medium; [2020 Sept 28] [cited 2021 Feb 13]. Available from: https://goodgriefnetwork.medium.com/tools-for-the-awakening-1f69dbb932c0
- 5. Good Grief Network. About Good Grief Network. [Internet]. [Publisher unknown]: Good Grief Network; [date unknown] [cited 2021 Feb 12]. Available from: https://www.goodgriefnetwork.org/about/



LOCATION

London, England

OBJECTIVE

To support the student body of LSHTM in developing their own mental well-being practices and engaging in planetary health activism, and to help students recognize and overcome their eco-anxiety to become more productive in their response to the climate and ecological crises

ORGANIZATION

London School of Hygiene & Tropical Medicine (LSHTM)

INTERVENTION POPULATION

The workshop was implemented in a group of students at the LSHTM who registered for the workshop.

DESCRIPTION²⁵

In June 2020, the Center on Climate Change & Planetary Health (CCCPH) at the London School of Hygiene & Tropical Medicine (LSHTM) hosted their annual Planetary Health Week. As part of the event, LSHTM students Nina Finley and Viola Gräf facilitated the school's first eco-anxiety workshop. The workshop, titled "Eco-Anxiety: From Worry to Action," was framed around the work of Dr. Courtney Howard, a Canadian emergency room physician and President of the Canadian Association of Physicians for the Environment.

Dr. Howard's work highlights the importance of developing insight into the emotional reactions related to climate change, so that one may become centered and productive in their response. Based on this, the workshop was divided into two parts. The first half helped participants develop insight into their own emotions regarding the climate crisis, and the second half focused on becoming centered and productive in one's response.

To achieve this, Finley and Gräf introduced a series of activities as an 'emotional toolkit' that participants could use to explore eco-anxiety generally and within themselves. Through personal correspondence, Finley and Gräf described five activities included in the workshop:

FIRST HALF: CENTERED BREATHING

Participants were guided in a meditation that included grounding elements (i.e., body scan and breathing focus). The aim was to bring awareness to the spatial surrounding, shifting from the proximal room, to the city, continent, and planet.



EVALUATION

A feedback survey was provided after the workshop. Based on survey responses, many participants found the definitions of the terms 'eco-anxiety,' 'eco-grief,' and 'solastalgia,' to be helpful when trying to express their own feelings related to climate change.

However, a large portion of respondents also reported wanting more time to discuss their feelings about climate change with one another, noting that the one-hour session may have been too short.

Of the activities facilitated during the workshop, 'Centered Breathing,' 'Free Writing,' and 'Small Wins' were identified as the most helpful activities for coping with feelings of ecoanxiety.

The author was provided access to the feedback survey by V.
Gräf and N. Finley

DESCRIPTION

FIRST HALF: FREE WRITING

Participants were introduced to a number of terms related to negative emotions related to climate change, including:

<u>Eco-anxiety</u> - a chronic fear of environmental doom
<u>Eco-grief</u> - grief felt in relation to experienced or anticipated
ecological losses due to acute or chronic environmental change
<u>Solastalgia</u> - a homesickness you have when you're still at home,
and your home environment is changing in distressing ways

After defining the terms, participants were given two minutes to write freely about their emotions. Prompts given included:

- Which of these terms do you identify with most: ecoanxiety, eco-grief, or solastalgia?
- What does it mean to you?

FIRST HALF: SMALL WINS

Participants were invited to take two minutes to write down three small 'wins' from their day. Prompts given included:

- What went well?
- What are you grateful for?

SECOND HALF: COLLECTIVE ACTION

Participants were provided with a list of roles and their definitions from the <u>Social Change Ecosystem framework</u>. They were asked to find the role they most identified with. Facilitators then introduced and highlighted the role of collective action in bringing systemic change for climate action. Participants were asked to reflect on the role they previously chose and how their strengths could be incorporated into collective action.







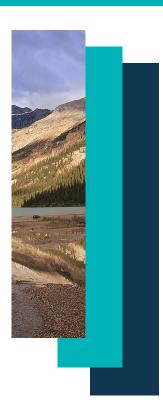
SECOND HALF: LETTER TO SELF

Participants were given two minutes to write a letter to their future self. Prompts included:

- What are the takeaways you want to remember?
- Write to the stranger you will be in a month

LESSONS LEARNED & CONSIDERATIONS

- Small Wins and expressing gratitude within one's daily life is a powerful activity for addressing climate grief
 - Gratitude activities are found in many other ecoanxiety and climate grief interventions such as Joanna Macy's "Work That Reconnects" (see pq. 13)
- Defining terms associated with climate grief such as eco-anxiety, eco-grief, and solastalgia may help participants better express their feelings related to climate grief
 - By describing the various ways in which one can experience climate grief, participants may connect more deeply with their feelings associated with the climate crisis
- Asking participants to think about their specialized role in larger, collective climate action may be highly effective in reducing feelings of eco-anxiety



- 1. London School of Hygiene & Tropical Medicine. London School of Hygiene & Tropical Medicine logo [image on the internet]. London, UK: London School of Hygiene & Tropical Medicine; [date unknown] [cited 2021 Feb 3]. Available from: https://www.lshtm.ac.uk/
- 2. Finley N, Aranchia Prado K, von Borries R, Wabnitz K. Caring for the planet at a public health school: Four women converge in London. [Internet]. San Francisco, CA: Medium; [2020 Jul 16] [cited 2021 Feb 27]. Available from: https://phalliance.medium.com/caring-for-the-planet-at-a-public-health-school-four-women-converge-in-london-c9ff39da46be
- 3. Eco-anxiety workshop: from worry to action. [Internet]. London, UK: London School of Hygiene & Tropical Medicine; [date unknown] [cited 2021 Feb 27]. Available from: https://www.lshtm.ac.uk/newsevents/events/eco-anxiety-workshop-worry-action
- 4. Mapping our roles in a social change ecosystem. [Internet]. [Publisher unknown]: Building Movement Project; [date unknown] [cited 2021 Feb 27]. Available from: https://buildingmovement.org/our-work/movement-building/social-change-ecosystem-map/

FEELING NATURE WORKSHOPS

Love & Loss DESCRIPTION

LOCATION

London, England

OBJECTIVE

To provide an introduction to grief for activists and environmental campaigners, and to provide space and opportunity for participants to process feelings of climate grief and anxiety

ORGANIZATION

Love and Loss

Extinction Rebellion

INTERVENTION **POPULATION**

Feeling Nature is a workshop aimed at introducing the landscape of grief to activists and environmental campaigners.

The Feeling Nature workshops were developed by Love and Loss co-founders, Sarah and Tony Pletts. In conversation with S. Pletts, the workshop is described as an opportunity for participants to explore their relationships with nature, their bodies, their feelings, and with their community. Workshop activities allow participants to feel and address the complex emotions of climate grief by giving space to express gratitude, honour feelings, and explore connection with nature through the senses.

Workshops are framed around 'Grief Tending,' a practice that allows participants the opportunity to provide attention to grief and the feelings that may arise. Grief tending is not an attempt to 'fix' feelings of grief, but serves as a space for collective support and processing of grief. Workshops or sessions build up to one central ritual to address grief. Previous activities used as the central activity include the 'Truth Mandala' or 'Bowl of Tears' from Joanna Macy's 'Work that Reconnects' (see pg. 13).

The central activity is meant to take approximately a third of the overall workshop time. The remainder of the workshop is dedicated to building a supportive and safe environment before the central activity, as well as integration of the central experience afterwards. Building a supportive and safe environment is an important step to ensure participants feel safe to participate in the central activity. Activities to build a safe environment include setting clear boundaries, use of verbal-based activities such as talking in a round or pairs, and other practical exercises such as writing, drawing, guided visualizations, movement, touching objects, going outside into nature, or self-touch.

Love and Loss held Feeling Nature workshops which Extinction Rebellion, an international climate activism group publicized in their newsletters. Workshops were held from May 2019 to February 2020 in London, UK. Many of the participants were involved in Extinction Rebellion. The 3hour workshops were facilitated by Sarah and Tony Pletts.

FEELING NATURE WORKSHOPS



EVALUATION 3

Participant
testimonials from the
Love and Loss website
note the workshop
provided a safe space
to express hard
emotions, and served
as an opportunity to
feel together or part of
a 'larger whole' with
those with similar
feelings.

LESSONS LEARNED & CONSIDERATIONS

- To effectively address climate grief, a safe and supportive atmosphere much be created before participants can fully participate in grief processing activities
- Building a safe and supportive atmosphere can be done in a number of methods that are not exclusively grief related
- Care should be taken to be 'trauma informed' and ensure that all activities are optional

- 1.Love & Loss. Love & Loss logo [image on the internet]. [Publisher unknown]: Love & Loss; [date unknown] [cited 2021 Feb 19]. Available from: http://www.loveandloss.co.uk/loss/
- 2. Grief Tending Events: Grief tending rituals and events: Feeling Nature. [Internet]. [Publisher unknown]: Love & Loss; [date unknown] [cited 2021 Feb 19]. Available from: http://www.loveandloss.co.uk/loss/grief-tending-events/
- 3. Climate change anxiety workshop: Feeling Nature. [Internet]. [Publisher unknown]: Love & Loss; [date unknown] [cited 2021 Feb 19]. Available from: http://www.loveandloss.co.uk/loss/grief-tending-events/climate-change-anxiety-workshop/
- 4. KR London Regenerative Culture: Grief Workshops. [Internet]. [Publisher unknown]: Extinction Rebellion; [date unknown] [cited 2021 Feb 27]. Available from: https://extinctionrebellion.uk/event/xr-london-regenerative-culture-grief-workshops/
- 5. Extinction Rebellion: Feeling Nature Grief Tending Workshop.
 [Internet]. [Publisher unknown]: Extinction Rebellion; [date unknown]
 [cited 2021 Feb 27]. Available from:
 https://extinctionrebellion.uk/event/extinction-rebellion-feeling-nature-grief-tending-workshop/

CLIMATE CAFÉS



LOCATION

Climate Cafés may be facilitated online and in-person, internationally.

OBJECTIVE

To create a simple, hospitable, empathetic space where fears and uncertainties about the climate crisis can be safely expressed

ORGANIZATION

Various organizations

INTERVENTION POPULATION

Climate Cafés are designed for anyone experiencing fears and uncertainties about the climate crisis.

DESCRIPTION¹⁴

Climate Cafés work to provide a space for participants to speak to their emotions related to the climate crisis in a supportive environment. Climate Cafés follow the Death Café model, an initiative aimed at providing participants a space to speak and discuss the subject of death in a safe atmosphere. Organizations such as the Climate Psychology Alliance (CPA) and Low Carbon Oxford North hold Climate Cafés periodically for the general public.

The Cafés are 'advice-free' zones and are not meant to educate on or discuss solutions to the climate crisis. Instead, Climate Cafés work to create a supportive atmosphere for participants to explore and speak to the effects that climate change is having within their personal and family lives, as well as within larger society. The sessions are facilitated to ensure space is provided for all participants who would like to speak. Climate Cafés may also be adapted for specific populations. For instance, the CPA held a Climate Café series for parents to discuss their climate feelings in relation to their children's future.

Sessions are generally structured to include time for introduction, group check-in, discussion on potential action steps, and concluding remarks. It is recommended that Climate Cafés run for a length of approximately 90 minutes. A detailed overview of a Climate Café can be found in "Addressing and Coping with Climate Grief: A Toolkit for Group and Individual Use."

The CPA also provides periodic training workshops for those looking to implement and facilitate a Climate Café within their community.

CLIMATE CAFÉS



EVALUATION

To the knowledge of the author, no evaluation has been conducted at time of reporting regarding the efficacy of Climate Cafés in reducing eco-anxiety and climate grief.

LESSONS LEARNED & CONSIDERATIONS

- It is important that facilitators of climate grief support groups manage time to ensure everyone who would like to share is able to do so
- To reduce certain behaviours such as 'advice-giving' during discussion time, group guidelines can be stated each meeting during introduction time
- Support groups for climate grief can be facilitated by anyone who is interested and passionate about helping others process their climate grief
- Support groups for climate grief can also be targeted at specific populations as those with similar characteristics (e.g., having a child) are more likely to experience similar thoughts and feelings

- 1. What is Death Cafe? [Internet]. [Publisher unknown]: Death Cafe; [date unknown] [cited 2021 Feb 15]. Available from: https://deathcafe.com/what/
- 2. Climate Cafe International. [Internet]. [Publisher unknown]: Climate & Mind; [date unknown] [cited 2021 Feb 15]. Available from: https://www.climateandmind.org/climate-cafe
- 3. Outreach. [Internet]. [Publisher unknown]: Climate Psychology Alliance; [2019 Oct 3] [cited 2021 Feb 15]. Available from: https://www.climatepsychologyalliance.org/support/outreach
- 4. Patrick J. Want to talk about Climate Change? Join one of our friendly Climate Cafes. [Internet[. [Publisher unknown]: Low Carbon Oxford North; [2020 Mar 17] [cited 2021 Feb 15]. Available from: https://lcon.org.uk/2020/03/17/want-to-talk-about-climate-cafe-on-23-february-for-a-friendly-chat-and-cake-2/

ECO-ANXIOUS STORIES



LOCATION

Eco-Anxious Stories is an online platform.

OBJECTIVE

To create an online space dedicated to normalizing and transforming eco-anxiety into meaningful action by sharing stories and resources related to eco-anxiety and the fear associated with the climate crisis

ORGANIZATIONS

Eco-Anxious Stories

INTERVENTION POPULATION

The Eco-Anxious Stories platform is designed for anyone feeling eco-anxiety looking to find support in the stories and experiences of others.

DESCRIPTION²⁴

Eco-Anxious Stories is an online platform offering ecoanxiety resources. Resources aim to help channel feelings of eco-anxiety into courageous and compassionate responses to the climate crisis. The platform was founded by communication strategist, Rachel Malena-Chan, and business manager and leadership coach, Kevin Gatley.

Eco-Anxious Stories emphasizes that eco-anxiety is an expression of love for the future, your family, and yourself, and such feelings of love should be expanded on. In order to achieve this, the organization notes that anxiety, guilt, shame, and powerlessness related to the climate crisis must first be addressed.

By providing various resources on eco-anxiety, users may begin to unpack their own feelings on the climate crisis and move towards expressions of love and meaningful action. Examples of resources available on the website include original poetry, stories, blog posts, webinars, and podcasts. The complete library of all their resources can be found here-new-mean-resources can be found here-new-mean-resources can

The platform is also open for submissions of eco-anxious stories and other content. Those interested in submitting their story may do so in a variety of methods such as through visual art, photography, dance, music, or comedy. Users submitting content to Eco-Anxious Stories are asked to consider three questions:

- Where does eco-anxiety show up in your life?
- What gives you the courage to face a challenge like the climate crisis?
- What does a meaningful response to this crisis look like and feel like?

These questions prompt submitters to employ a strengthsbased perspective when reflecting on their eco-anxiety, and highlights the need for courage and meaningful action when addressing the climate crisis.

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ECO-ANXIOUS STORIES



EVALUATION

To the knowledge of the author, no evaluation has been conducted at time of reporting on the efficacy of Eco-Anxious Stories on reducing eco-anxiety and climate grief in those accessing the resource or in those who have submitted a story or resource.

LESSONS LEARNED & CONSIDERATIONS

- It is important that the concept of eco-anxiety is normalized, allowing for a greater number of individuals to begin to acknowledge and process their feelings of eco-anxiety
- Eco-anxiety may be reframed as a deep love and connection to the world and should be embraced
- There are a variety of methods that one can use to acknowledge, process, and express their eco-anxiety such as the writing of stories or poems, or creating art through photography, dance, or painting

- 1. Eco-Anxious Stories. Eco-Anxious Stories logo [image on the internet]. [Publisher unknown]: Eco-Anxious Stories; [date unknown] [cited 2021 Feb 21]. Available from: https://www.ecoanxious.ca/
- 2. About Us. [Internet]. [Publisher unknown]: Eco-Anxious Stories; [date unknown] [cited 2021 Feb 21]. Available from: https://www.ecoanxious.ca/about/
- 3. All Libraries. [Internet]. [Publisher unknown]: Eco-Anxious Stories; [date unknown] [cited 2021 Feb 21]. Available from: https://www.ecoanxious.ca/library/
- 4. Sharing our Eco-Anxious Stories. [Internet]. [Publisher unknown]: Eco-Anxious Stories; [date unknown] [cited 2021 Feb 22]. Available from: https://www.ecoanxious.ca/library/sharing-our-eco-anxious-stories/

EMOTIONAL RESILIENCE TOOLKIT

Emotional Resilience Toolkit for Climate Work

LOCATION

The Emotional
Resilience Toolkit is a
freely available online
resource.

OBJECTIVE

To provide emotional support, resources, and tools for eco-anxiety, grief, and the range of feelings that accompany climate work

ORGANIZATION

Climate Therapy Alliance (Pacific Northwest Chapter)

INTERVENTION POPULATION

The Emotional
Resilience Toolkit is an open-source resource available to those who are interested in receiving or providing support for those experiencing eco-anxiety, grief, and other emotions related to the climate crisis.

DESCRIPTION

The Emotional Resilience Toolkit provides instruction for 11 different practices to help address eco-anxiety and climate grief. The toolkit was compiled by a group of psychotherapists specializing in climate psychology in the Pacific Northwest and was distributed in 2019.

Activities listed within the toolkit are designed to build emotional resilience, promote self-care, and make room for self-expression of eco-anxiety and climate grief. Activities are categorized by purpose, time required, and age group (i.e., children, youth, adults). All activities are designed to be facilitated within 5-15 minutes with no special training needed. An example activity is detailed below:

HUMOUR & PLAY PRACTICES

The facilitator reads out:

"Research shows that physical shaking is one of the fastest and most effective ways to relieve stress and anxiety. Can you recall the way a wet dog dries off with a progressive shimmy-shake that starts with the head and travels to the tail, water drops spraying in a dynamic water halo? We can use this image to 'shake off' some of our own stress. There is no 'right way' to do the movement - the important part is just the shaking itself."

The facilitator demonstrates the movement while narrating:

"Stand with your feet shoulder distance apart to create a solid base. Begin gently shaking just your head - side to side, up and down. Take about 20 seconds with each area of the body. Now let your head rest, but keep the shaking going in your shoulders. After 20 seconds, let the shaking travel into your arms and hands, as if you were flicking water off your fingers. Let the shaking move to your torso and hips, with as much mobility as possible through the ribcage and pelvis. The final segment is to let the shaking travel down each leg one at a time. Alternate lifting each foot off the floor and flicking "water" from the toes. If balance is a concern, a chair back can be used for stability when on one foot, or both feet can remain on the floor, with alternating heel taps."

The 'dog remedy' is repeated approximately 6 times with increasing speed, until the final one is one quick, shimmering flow.

EMOTIONAL RESILIENCE TOOLKIT

Emotional Resilience Toolkit for Climate Work

EVALUATION

To the knowledge of the author, no evaluation has been conducted at time of reporting on the efficacy of the Emotional Resilience Toolkit for Climate Work on reducing eco-anxiety and climate grief in those accessing the resource.

Assessments on individual activities may have been conducted within other work.

LESSONS LEARNED & CONSIDERATIONS

- Many activities that address climate grief can be used or adapted for different age groups and populations
- The majority of activities listed in the toolkit are focused on self-inquiry, highlighting the need for selfreflection when acknowledging and processing emotions related to climate grief
- Self-care and ensuring one is able to continue working on processing their emotions is also important when addressing climate grief

REFERENCES

1. Climate Therapy Alliance (Pacific Northwest Chapter). Emotional Resilience Toolkit for Climate Work. [Internet]. [Publisher unknown]: Climate Therapy Alliance (Pacific Northwest Chapter); 2019 [cited 2021 Feb 4]. Available from:

https://staticl.squarespace.com/static/5c50ca089f87700f60alb56d/ t/5d96d9c4a6b84676db50ffc2/1570167236794/Emotional+Resilience +Toolkit+for+Climate+Work+(v1.5)+04Oct19.pdf

ECODHARMA RETREATS





LOCATION

Ward, Colorado, USA

Abella de la Conca, Provincia de Lleida, Spain

OBJECTIVE

To bring Buddhism and Dharma back into the natural world and to foster clarity and compassion to better address the ecological and climate crisis, and related social justice issues

ORGANIZATIONS

Ecodharma Centre

Rocky Mountain Ecodharma Retreat Center (RMERC)

INTERVENTION POPULATION

Ecodharma retreats through the Ecodharma Centre and the Rocky Mountain Ecodharma are available to the general public.

DESCRIPTION

The Ecodharma Centre and Rocky Mountain Ecodharma Retreat Center (RMERC) are not-for-profit, low-cost retreat centers offering Ecodharma retreats.

The Ecodharma Centre is located in the Catalan Pyrenees in northeastern Spain, while the RMERC is located on 180 acres of private river, meadow, and woodlands within the state of Colorado.

Ecodharma is a creative exploration that brings insights of the Buddhist tradition together with an emerging ecological paradigm to support the realization of life-affirming individuals, societies, and cultures. Using the Ecodharma framework, both centres work to develop clarity, compassion, and courage to face the current ecological and climate crisis.

As part of it's website, the RMERC notes:

"Since the natural world, including its innumerable species and processes as well as the most vulnerable human members of our planetary ecosystem, is unable to protect itself from our formidable systems and technologies, the ultimate question is how we can realize our non-duality with it, to love it and be loved by it, and in that way come to embrace responsibility for the wellbeing of the whole biosphere. Our intention is that in working for the healing of the earth, we are empowered, healed, and awakened."

The centers emphasize the need for both individual and collective transformation through meditation practice and spending time in nature. Common activities offered through both centers include meditation and spirituality retreats, hiking excursions, and workshops in nature. Activities can range from a few days to weeks.

ECODHARMA RETREATS





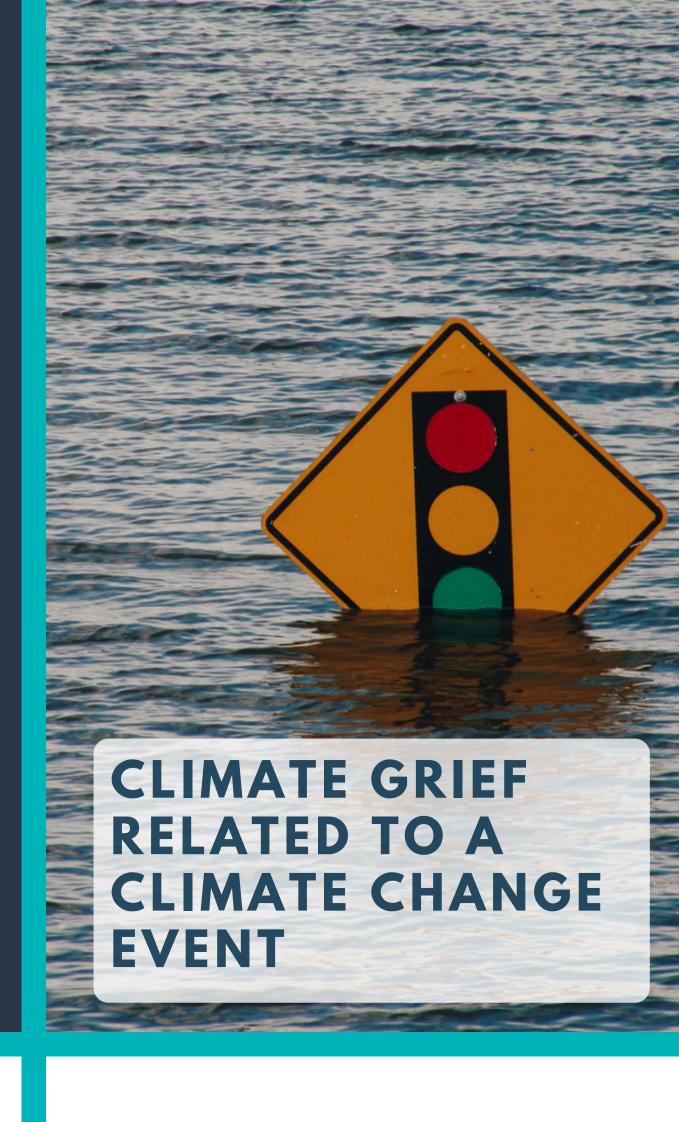
EVALUATION

To the knowledge of the author, no evaluations have been conducted at time of reporting on the efficacy of the Ecodharma centres on reducing eco-anxiety and climate grief.

LESSONS LEARNED & CONSIDERATIONS

- Connecting with nature and adopting Ecodharma practices may acknowledge and process feelings of climate grief
- In particular, acknowledging one's connection with nature and taking responsibility for the biosphere will work towards healing of the planet
- Meditation and other spiritual practices may serve as an effective method to help start such processes of healing and re-connection with nature

- 1. Rocky Mountain Ecodharma Retreat Centre. Rocky Mountain Ecodharma Retreat Centre logo [image on the internet]. [Publisher unknown]: Rocky Mountain Ecodharma Retreat Centre; [date unknown] [cited 2021 Jan 16]. Available from: https://rmerc.org/
- 2. Ecodharma Centre. Ecodharma Centre logo [image on the internet]. [Publisher unknown]: Ecodharma Centre; [date unknown] [cited 2021 Jan 19]. Available from: http://www.ecodharma.com/
- 3. About RMERC. [Internet]. [Publisher unknown]: Rocky Mountain Ecodharma Retreat Centre; [date unknown] [cited 2021 Jan 16]. Available from: https://rmerc.org/about/
- 4. Nature Based Practice. [Internet]. [Publisher unknown]: Ecodharma Centre; [date unknown] [cited 2021 Jan 19]. Available from: http://www.ecodharma.com/nature-based-practice



PERCEPTIONS OF RESILIENCE



LOCATION

Boulder, Colorado, USA

OBJECTIVE

To explore ideas of resilience and to test methods that might yield meaningful conversations on building community resilience

ORGANIZATIONS

Resilient Boulder

Growing Up Boulder

POPULATION AFFECTED BY DISASTER

Residents of Boulder (Population of approximately 100,000 at time of flooding)

INTERVENTION POPULATION

The intervention was implemented within:

- 101 children and youth from Boulder, Colorado
- 22 University of Colorado undergraduate Environmental Design Program students
- 50 participants from the University of Colorado and the Boulder Community

BACKGROUND

Boulder is one of the many municipalities found within Boulder County, Colorado. The city is located at the base of the foothills of the Rocky Mountains, and is the most populous municipality within the county.

On September 9, 2013, a slow-moving cold front (i.e., a transition zone of warm air to cold air) stalled over the Front Range mountains of Colorado. Exacerbated by increasing global temperatures,² heavy rainfall (≥18 inches) fell on the Front Range region from September 11 − 15, resulting in flooding and widespread damage. Flood waters spread across 23 counties, covering nearly 200 miles of area.³ As a result, Boulder County was designated a Federal Disaster Area.⁴

Within the city of Boulder, all 15 major creeks and 23 irrigation ditches were flooded, overwhelming the city storm drainage and sanitary sewer systems.⁵ Reports of street flooding began occurring in the evening of September 11th with a flash-flood warning being initiated at 9:20PM. At 10:01PM, flood sirens were activated near Boulder Creek, urging those near the waterway to immediately seek higher ground. Resulting from the flood:⁵

- 14% of households were affected in Boulder
- City property damage totaled approximately \$300 million
- 15% of the city's paved paths, 34% of city parks, and 100% of the city's open space trails were destroyed

DESCRIPTION°

In 2014, the city of Boulder was selected to participate in the Rockefeller Foundation's 100 Resilient Cities Initiative. The initiative is aimed at supporting and collaborating with cities that have experienced a natural disaster to explore and develop strategies for addressing disaster-related challenges. As a result, the Growing Up Boulder (GUB) program developed the 'Perceptions to Resilience' program to understand youth and community perceptions of disaster-related challenges. Programming included:

PERCEPTIONS OF RESILIENCE



EVALUATION

To the knowledge of the author, no evaluation has been conducted at time of reporting regarding the efficacy of Growing Up Boulder's Perceptions of Resilience program to build community resilience.

However, other Growing Up Boulder programs have been found to be effective for increasing sense of community involvement.6 It is probable that the Perceptions of Resilience program had similar effects on participants, thus contributing to sense of community ownership, social cohesion, and overall community resilience

DESCRIPTION⁶

MURAL CREATION

Local school children participated in a GUB program to help conceptualize and design a resilience mural for the city. Students were asked to name colours that were 'happy' and 'sad,' places within the city that made them feel safe, places they go when they feel unsafe or uncertain, things that make them feel good, and things that make them feel that life is hard. Participants were also allowed to express their answers in drawing form. The final mural highlighted aspects of the community that supported or inhibited resilience.

COMMUNITY RESILIENCE RECOMMENDATIONS

GUB partnered with three elementary and one high school class to further explore student's perceptions of identified assets and vulnerabilities in their community. Students were also asked to think of recommendations for how to increase resilience within the city. Ideas that emerged from the student groups included using access to nature and green spaces as a source for restoration and resilience. Children and youth also shared their ideas and recommendations with local leaders to support increasing resilience of Boulder's young people.

RESILIENCE POETRY

High school students participated in a poetry project with creating work about personal and community resilience. The program was co-designed by renowned Latino poet, Tim Z. Hernandez, and included digital interactions with other poets and facilitation of a workshop between high school and undergraduate students. Many students spoke about surviving the flood along with other challenges such as coping with poor family health, and the challenges of immigration/immigration status.

PERCEPTIONS OF RESILIENCE





LESSONS LEARNED & CONSIDERATIONS

- It is important to engage children and youth with resilience activities to build resilience for future communities and generations
- Engagement of local government is important for community members to feel heard
- Use of an expressive and creative outlet, such as poetry, can be an effective way to explore and reflect on topics such as resiliency, loss, and climate grief

- 1. Growing up Boulder. Growing Up Boulder logo [image on the internet]. [Publisher unknown]: Growing Up Boulder; [date unknown] [cited 2021 Jan 7]. Available from: http://www.growingupboulder.org/
- 2. Brennan C. Boulder scientist ties severity of Colorado's 2013 flood to climate change. Daily Camera [Internet]. 2015 Jun 22 [cited Jan 4 2021]; Local News. Available from:
 - https://www.dailycamera.com/2015/06/22/boulder-scientist-tiesseverity-of-colorados-2013-flood-to-climate-change/
- 3. Garrison R. Colorado flood: Rebuild like to take more than a year. 9 News [Internet]. 2013 Sept 16 [cited Jan 4 2021]; Local News. Available from: https://archive.is/20130917013401/http:/www.9news.com/news/article/355407/339/Rebuild-likely-to-take-more-than-a-year
- 4. September 2013 Flood. [Internet]. Boulder, CO: City of Boulder Colorado; [date unknown] [cited 2021 Jan 4]. Available from: https://bouldercolorado.gov/flood/september-2013-flood
- 5. Pettem S. Boulder's Floods and Flood Management: Past & Present. Boulder, CO: City of Boulder; 2016, 124 p. Available from: https://www.static.bouldercolorado.gov/docs/Boulder Flood History 2 016-1-201606030930.pdf? ga=2.25464829.1382074588.1615067169-2106043029.1609731690
- 6.Mintzer M, Derr T, Huber M, Derr C. Perceptions of Resilience Final Report; 2016, 12 p. Available from: http://www.growingupboulder.org/uploads/1/3/3/5/13350974/gub_resilience_report_2016_final.pdf
- 7. Derr V. Assessing participatory processes for child-friendly cities. [Internet]. 2016 Mar 16 [cited Jan 4 2021]. Available from: https://www.childinthecity.org/2016/03/16/assessing-participatory-processes-for-child-friendly-cities/

COMMUNITY MENTAL HEALTH SUPPORT

LOCATION

Jamestown, Colorado, USA

OBJECTIVE

To provide immediate and long-term resiliency and mental health support in response to flooding disaster

ORGANIZATIONS

Shambhala Meditation Center

Federal Emergency Management Agency

United Way (Foothills)

POPULATION AFFECTED BY DISASTER

Residents of Jamestown, Colorado (Approximately 270 at time of flooding)

INTERVENTION POPULATION

Residents of Jamestown, Colorado (Approximately 270 at time of flooding)

BACKGROUND

Jamestown is a small Statutory Town in Boulder County, Colorado, USA. It is located along James Creek within the Front Range of the Colorado Rockies, 12 miles northwest of Boulder City. Due to its geographic location, Jamestown and several other areas in Boulder County, Colorado have the highest risk of flash flooding within the state.¹

In 2003, high winds caused a 20-foot-tall tree to down a 31,200-volt power line, resulting in a fire that burned 3,500 acres and destroyed 12 homes within one day.² With the fire having destroyed a large portion of trees in the Fourmile Canyon Creek drainage basin, the area became more susceptible to rapid runoff, which later contributed to the storm and flood damage.³

During the storm, half of the town's roads were washed away, and all underground infrastructure of Jamestown's drinking-water treatment plant was destroyed, along with 50% of the water distribution lines. Due to the destruction of roads, a number of Jamestown residents needed to be evacuated by the helicopter, including a group of schoolaged children.⁴ It was estimated that Jamestown suffered a \$20 million loss in public infrastructure.⁵

DESCRIPTION

CREATION OF A COMMUNITY HUB FOLLOWING DISASTER

Calryn Aston, a Jamestown resident and senior teacher at the Shambhala Meditation Center in Boulder, Colorado worked to create a community hub for town residents. By making Shambhala Meditation Center available to the community as a place of gathering, Jamestown residents were provided with both inner and outer nourishment. The meditation center's community room was filled with free groceries, and available bags and boxes for transport. Food donations were arranged by Mike Glass, the manager for a local Whole Foods Market.

COMMUNITY MENTAL HEALTH SUPPORT

EVALUATION⁵

To the knowledge of the author, no evaluation has been conducted at time of reporting regarding the efficacy of Jamestown interventions in addressing climate grief. However, Aston shared her thoughts on the atmosphere of the community hub:

"There was a lot of listening with a great sense of care and presence. There was room to express both what hurt and what could be appreciated. I find that in mindfully attending to themselves and others, people naturally recover their own insights and strength. And when a group is connected in this way, a lot can happen."

-Carlyn Aston as quoted in 'Emotional Resiliency in the Era of Climate Change'

DESCRIPTION⁵

In addition, tables and chairs were set up in the community room for residents to gather and connect with one another. Counselors from the Federal Emergency Management Agency (FEMA) were present and made available to respond to community needs.

LONG-TERM COMMUNITY SUPPORT AND MEDITATION GATHERINGS

Following the flooding emergency, weekly meditation meetings were provided in Jamestown, as well as larger periodic Contemplative Writing gatherings where experiences are shared through meditation, intentional dialogue, and writing.

LESSONS LEARNED & CONSIDERATIONS

- It is important to provide opportunities for social connection following a disaster or emergency event, to help those affected cope with the situation
- Effects of a climate change event can be long lasting, so it is also important to provide long-term support for those affected
- Long-term community support groups may be an effective and low-cost solution to facilitate community and individual healing

REFERENCES

- 1. Boulder Flood Info. [Internet]. Boulder: City of Boulder Colorado; [date unknown] [cited 2021 Jan 4]. Available from: https://bouldercolorado.gov/flood
- 2. Graham R, Finney M, McHugh C, Cohen J, Calkin D, Stratton R, Bradshaw L, Nikolov, N. Fourmile Canyon Fire Findings. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station; 2012, 110 p. Available from: https://www.fs.fed.us/rm/pubs/rmrs_gtr289.pdf
- 3. Kroh K. After the Flood: how Climate Change Changed One Colorado Community Forever. [Internet]. [Publisher unknown]: ThinkProgress; [2013 Oct 10] [cited 2021 Jan 4]. Available from: https://thinkprogress.org/after-the-flood-how-climate-change-changed-one-colorado-community-forever-e183df603289/
- 4. Pettem S. Boulder's Floods and Flood Management: Past & Present. Boulder, CO: City of Boulder; 2016, 124 p. Available from: https://www.static.bouldercolorado.gov/docs/Boulder Flood History 2016-1-201606030930.pdf? ga=2.25464829.1382074588.1615067169-
- 2106043029.1609731690
 5. Davenport L. Emotional Resiliency in the Era of Climate Change: A Clinician's Guide. London: Jessica Kingsley Publishers; 2017.

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ADDITIONAL BOULDER COUNTY RESOURCES



BACKGROUND

Following the 2013 flooding events in Boulder County, numerous mental health support programs were implemented for county residents to recover after the flooding emergency. Many of these programs served multiple regions within the county.

RESOURCES & INTERVENTIONS

MENTAL HEALTH SUPPORT CENTRES

Mental Health Partners (MHP) opened a drop-in centre in Lyons, Colorado in December 2013 for residents coping with emotional distress related to the flooding event. Lyons was specifically chosen for this drop-in help centre due to the severity at which the town was impacted, as well as its proximity to surrounding mountain communities impacted by the flood.

At the time of the flood, MHP already operated two mental health drop-in centers in Boulder County, located in the municipalities of Boulder and Longmont. Like the newly opened Lyons center, both Boulder and Longmont centers offered flood support services after the emergency. Each drop-in centre was staffed with a case manager and clinician. The case manager aided residents in finding resources such as housing or rental assistance, food, and clothing, while the clinician provided emotional support for residents.

MENTAL HEALTH SUPPORT VOUCHER SYSTEM ²

Residents who were impacted by the flood in Boulder County were provided with vouchers for free psychotherapy by the Foothills United Way. Pre-printed vouchers were given out to qualified residents to seek treatment from the therapist of their choice. Vouchers were filled out for reimbursement; therapists were paid a customary fee of \$200 per appointment. Residents experiencing fear, anger, insomnia, anxiety, and other mental health symptoms cited the mental health services as tremendously useful.

ADDITIONAL BOULDER COUNTY RESOURCES



COMMUNITY DEVELOPMENT BLOCK GRANT DISASTER RECOVERY PROGRAM 3-4

The United States Department of Housing and Urban Development (HUD) manages and distributes the Community Development Block Grant Disaster Recovery Program (CDBG-DR), a grant program aimed to support cities, counties, and states that have experienced a presidentially declared disaster. Funding allows for support and recovery of communities by providing vital seed money to begin the process of rebuilding. In particular, the CDBG-DR grants seek to provide assistance for low-resource communities that may not otherwise have available funds for recovery.

The CDBG-DR grant was awarded to Boulder County to provide financial assistance for eligible homeowners whose homes were impacted by the flood. Funding was available for home repairs, septic and well systems, rebuilding of individual roads and bridges, as well as temporary rent assistance. Funding allowed for many residents who were displaced to return to their homes, and alleviated the financial burden for many who would not have been able to afford repairs otherwise. Providing financial support post-climate change disaster is important in working to decrease the number of stressors, and prevent compiling of stress in an already-highly stressed population. However, due to the high cost of recovery for the Boulder County area, applications for funding from the CDBG-DR were no longer accepted from July 2016 onwards.

The Boulder County Department of Housing and Human Services (BCDHHS) created a <u>video</u>⁵ detailing a Lyons resident's experience of receiving a CDBG-DR. Funding was used to help cover the costs of rehabilitating and elevating the resident's home. BCDHHS also played a major role in helping the resident navigate the various support systems available to them.

ADDITIONAL BOULDER COUNTY RESOURCES



REFERENCES

1.Mental health Partners Opens New Drop-in Center in Lyons to Help People Cope with the Flood. [Internet]. Boulder, CO: Community Foundation Boulder County; [2013 Dec 10] [cited 2021 Jan 5]. Available from: https://www.commfound.org/content/mental-health-partners-opens-new-drop-center-lyons-help-people-cope-flood

2. Davenport L. Emotional Resiliency in the Era of Climate Change: A Clinician's Guide. London: Jessica Kingsley Publishers; 2017.

3. Community Development Block Grant Disaster Recovery Program. [Internet]. Washington, DC: US Department of Housing and Urban Development; [date unknown] [cited 2021 Jan 5]. Available from: https://www.hudexchange.info/programs/cdbg-dr/

4. Community Development Block Grant – Disaster Recovery (CDBG-DR). [Internet]. Boulder, CO: Boulder County; [date unknown] [cited 2021 Jan 12]. Available from: https://www.bouldercounty.org/disasters/flood/2013-flood/recovery/community-development-block-grant-disaster-recovery/

5.BCDHHS. Boulder County: Flood Recovery in Lyons - Priscilla Cohan [Internet]. [Place unknown]: [publisher unknown]; 2015 Feb 11 [cited 2020 Dec 10]. Streaming video: 3:01 min. Available from: https://www.youtube.com/watch? v=B3D2CRvCse4&ab channel=BCDHHS

BUILDING COMMUNITY RESPONSE & RESILIENCE

LOCATION

Liverpool, Merseyside, England

OBJECTIVE

Increasing social and community resilience by organizing community activities (e.g., the Flood Action Groups) and strengthening networks across local, city wide and national agencies, and organizations

ORGANIZATIONS

Department of Food and Rural Affairs (DEFRA)

Liverpool City Council (LCC)

National Flood Forum (NFF)

Valley Community Theatre Company

POPULATION AFFECTED BY DISASTER

Residents of Liverpool (Approximately 450,000 during flooding)

INTERVENTION POPULATION

Residents of Belle Vale (Approximately 15,000 residents at time of project)

BACKGROUND

Liverpool is a maritime metropolitan city within the United Kingdom. It is located on a number of floodplains and is vulnerable to tidal, river, and rain-related flood events. Furthermore, due to its older sewer and drainage infrastructure and high rate of rising sea-levels, flooding risk is heightened for the city. 1-2

The Woodlands Estate is an area within the Belle Vale ward of Liverpool. It is located on the outskirts of the city, nearby the Netherley Brook river. Residents of the area are within the top 15% of most deprived areas in England, and experience high rates of poverty. Moreover, the Woodlands Estate area is characterized by a high proportion of elderly people, lone parent households, and households with members experiencing long-term health challenges or disability. As a result, those living in the Woodlands Estate may be impacted more severely by the social, economic, and health consequences of a flooding event. The interventions were undertaken in the Woodlands Estates in 2013, following city flooding that had occurred in areas of the city in the previous year.

DESCRIPTION 3-4

Funding from the Department of Food and Rural Affairs (DEFRA) allowed the Liverpool City Council (LCC) to develop and implement the Liverpool Pathfinders project to build resiliency against flooding in the Woodland Estates. The Pathfinders project involved initiatives to improve social, economic, institutional, and infrastructure resilience, as well as initiatives to improve community capital. Relevant interventions from the Pathfinders project to this report include:

CREATION OF A RESILIENCE HUB

The Resilience Hub is located in a garage near floodprone properties within the Woodlands Estate area. It serves as a method of emergency preparedness for the local community. In the instance of a flooding event, local residents are able to access the hub for flood equipment

BUILDING COMMUNITY RESPONSE & RESILIENCE

EVALUATION³

Following all interventions, residents were found to have increased awareness of flooding risk and were more likely to engage in flood preparedness practices, which may help ease concern and worry about future flooding events.

The community water-level monitoring and creations of a resilience hub were also found to be effective in decreasing anxieties about future floods and increasing resilience among residents.

DESCRIPTION³⁴

and other flooding information to increase their safety and allow for better coping. The hub also acts as a point of contact for local residents and registered providers (i.e., Ambulance, fire, and rescue services) in times of extreme weather and other emergency situations.

FLOOD ACTION GROUP

A Flood Action Group (FLAG) was created within the Woodland Estates community. Composed of concerned community members, the group creates space for individuals to work collaboratively with one another and with local government to implement strategies to protect against flooding. The group was formed using the framework and resources provided by the National Flood Forum (NFF), a flood-preparedness organization in the UK.⁵ The group meets at the Woodlands Residents' Association's community centre.

Activities undertaken by the FLAG include:

- Pursuing flooding and flood risk issues with relevant agencies through multi-agency meetings and ongoing dialogue, such as:
 - O Advocacy support with other concerned community members to the Liverpool City Council (LCC) that resulted in the installation of CCTV cameras for all surface-water drains, allowing for consistent monitoring and timely blockage removal when appropriate
 - O Advocacy support with other concerned community members that resulted in the installation of a height gauge in Netherley Brook, allowing residents of the community to monitor the water levels of the brook
- Training of FLAG members to operate certain flooding equipment in the Resilience Hub

BUILDING COMMUNITY RESPONSE & RESILIENCE



DESCRIPTION 3-4

FLOOD RISK MANAGEMENT EDUCATION AND AWARENESS

Increased awareness and preparedness for emergencies has been found to decrease anxiety and fear prior to a potential emergency event. It may also work to decrease negative mental health effects after the occurrence of an emergency event, thus building individual and community resilience to climate change disasters. In an effort to increase awareness and preparedness for flooding events, the Valley Community Theatre Company worked with local schools to educate students and their families. The theatre company incorporated a flood film into an interactive show given at the local schools. The play was written by local writers and performed by drama students at a nearby university. The play highlighted simple and practical actions that households could use to increase their resilience to flooding events.

LESSONS LEARNED & CONSIDERATIONS

- Allowance of citizen science and climate risk monitoring activities is important in preparing communities for future emergencies and provides residents with ownership over their safety and preparedness
- Community members are vital stakeholders when implementing climate and other emergency preparedness strategies to build resilience within a community

BUILDING COMMUNITY RESPONSE & RESILIENCE



- 1. Areas of Potential Higher Risk. [Internet]. [Publisher unknown]: Merseyside Perpared; [date unknown] [cited 2021 Jan 19]. Available from: https://www.merseysideprepared.org.uk/main-sections/in-my-area/liverpool
- 2. Flood Management. [Internet]. Liverpool, UK: Liverpool City Council; [date unknown] [cited 2021 Jan 19]. Available from: https://www.liverpool.nsw.gov.au/environment/water-and-waterways/flood-management
- 3. Brooks K, Coke A, Orr P, Sadauskis R, Simcock N, Papadopoulou L, Stirling A, Twigger-Ross C, Walker G. Case studies of community resilience to climate change. York, UK: Joseph Rowntree Foundation; 2015; 48 p. Available from: https://www.jrf.org.uk/report/community-resilience-climate-studies
- 4. Climate Just. Liverpool's Flood Resilience Community Pathfinder. [Publisher unknown]; [Date Unknown] [cited 2021 Jan 19]. Available from: https://www.climatejust.org.uk/case-studies/liverpools-flood-resilience-community-pathfinder
- 5. Community Engagement Hub. [Internet]. Bewdley, UK: National Flood Forum; [date unknown] [cited 2021 Jan 19]. Available from: https://nationalfloodforum.org.uk/working-together/community-engagement-hub/

LOCATION

High River, Alberta, Canada

OBJECTIVE

To aid the emotional recovery of young people in local schools affected by the High River flooding emergency and advance the establishment of an integrated continuum of mental health services for the children, youth, and families of High River

ORGANIZATIONS

Alberta Health Services

Hearts & Minds

POPULATION AFFECTED BY DISASTER

High River Population (Approximately 12,000 at time of event)

INTERVENTION POPULATION

Students in the Foothills School Division and Christ the Redeemer Catholic Schools

BACKGROUND

High River, Alberta is a small town located near the city of Calgary. On June 19, 2013, southern Alberta experienced heavy rainfall that resulted in major flooding within the region.

In High River, waters rose above vehicles and resulted in over 150 residents requiring rescue from their rooftops.¹ The entire town of 13,000 was evacuated the next day with approximately 70% of homes having moderate to severe damage.¹ Although other surrounding communities impacted by the flood were able to begin recovery and clean-up, High River residents were unable to return for a week after the initial flooding.

There was severe damage to town infrastructure with 79² out of 83 town buildings experiencing significant damage. As a result, numerous small businesses were forced to shut down. Additionally, many luxury homes in the Beechwood estates neighbourhood were damaged by the flood. The provincial government purchased 94 homes within the neighbourhood for demolishment so the area could be restored back to its natural state as a floodplain.³

DESCRIPTION

CREATION OF HEARTS AND MINDS 4-8

In January 2014, the Hearts and Minds program was created in response to the High River flooding event. Funded by Alberta Health Services, the program aimed to help children and youth affected by the floods. Programming was implemented in the Foothills School Division and Christ the Redeemer Catholic Schools. Consisting of program coordinator, Fawna Bews, family therapists, and four wellness coaches, the program worked closely with school and community counsellors to provide support for students.

Hearts and Minds followed an "Any door is the right door" principle, which meant any child, youth, or family member with an emerging or existing mental health concern would be considered as 'entering the right door' with the program,

EVALUATION6-8

The Hearts and Minds program was able to deliver universal mental health services to 90% of students in High River, and 20% of students received targeted mental health services.

As reported by teachers and Hearts and Minds staff, delivery in the program resulted in calmer school environments and behavioural improvements in numerous students.

DESCRIPTION

regardless of their location or ministry. Using school locations as central hubs, Hearts and Minds collaborated with various mental health services to deliver a range of mental health programs and services to children, youth, and their families. Screening and clinical assessments of student mental well-being were conducted, and counselling or referral interventions were implemented if necessary. Community workshops were also presented to those receiving targeted mental health support. For instance, the 'Community Workshop on Mindfulness' introduced the topic of mindfulness and taught various mindfulness skills to an audience of children and their parents.

Additionally, the program facilitated various universal-based mental health capacity-building activities for children, youth, and family members during and after school. Examples of universal activities for children and youth included social emotional skill building through positive play, school-wide drumming circles, and creation of a drop-in mentoring room. Indirect activities aimed at building capacity within educators were also undertaken, such as increased classroom support, as well as implementation of professional development workshops for teaching staff.

LESSONS LEARNED & CONSIDERATIONS

- Mental health programs adopting a community-wide approach are likely to be an effective approach to addressing climate grief
- Activities to build mental health capacity can be conducted in a variety of methods that are not explicitly associated with mental health topics (e.g., building social cohesion among students, improving relationships with supportive adults, etc.)
- A centralized approach to addressing mental health effects of climate change-related events, such as creation of a 'school hub,' may be an effective and convenient method to provide initial mental health support for youth and their families

OBJECTIVE

To aid the emotional recovery of young people in local schools of High River that had been affected by the flooding emergency

ORGANIZATIONS

Canadian Red Cross

Royal Roads University

Antyx Art Group

Hearts & Minds

POPULATION AFFECTED BY DISASTER

High River Population (Approximately 12,000 at time of event)

INTERVENTION POPULATION

Students in the Hearts and Minds program

EVALUATION 12

After the video project activity, youth highlighted the importance of having open spaces to express themselves in the ways they were most comfortable with. They also found provision of youth-friendly spaces, processes, and opportunities to be important in their recovery during the intervention.

DESCRIPTION

YOUTH RECOVERY THROUGH VIDEO PROJECTS 9-12

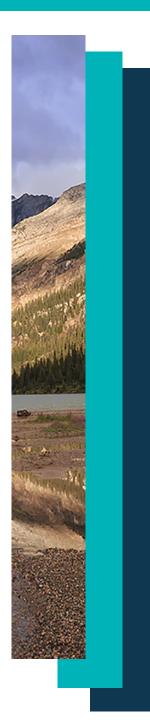
In collaboration with the Canadian Red Cross, the Youth Creating Disaster Recovery (YCDR) research group at Royal Roads Univeristy, the Antyx Art group, and Hearts and Minds, a video development activity was implemented for youth affected by the 2013 floods. The project intervention was offered to high school students in High River, but was also implemented in other Albertan locations such as Calgary, Canmore, and Morley.

High school students created videos to express their emotions related to their experience of the 2013 floods, as well as exploring themes of recovery and resilience. For instance, one of the videos described emotions associated with the flooding event, including works such as "Afraid, Powerless, Angry and Scared." Following these emotions, a teenage narrator encourages viewers to "Always look at the positive side in a bad situation. Even if it may not show right away, keep in mind that something good always comes out of it." Students used puppets and stop-motion techniques for video creation.

The videos were shared with the mayor and the city council, and at a number of community events including a community movie night. Videos created by students in High River are available through the YCDR website.¹¹

LESSONS LEARNED & CONSIDERATIONS

- Offering art-based interventions to express emotions may be an effective method to express feelings and reflections associated with a climate change related disaster
- The way in which youth are affected by climate change related disasters differs from that of adults, thus particular considerations should be made when addressing disasters in younger populations



- 1. After Action Report June 2013 Flood. [Internet]. High River, AB: Town of High River; 2014; 18 p. Available from: https://swana.org/docs/default-source/resources-documents/disaster-resource-documents/hrf afteractionreport.pdf?sfvrsn=33d35da4_2
- 2. Eckley M, Benson C. Emergency Planning: Lessons from High River's 2013 Flood. [PowerPoint Slides]. Government of Alberta. [cited 2021 Feb 3]. Available from: https://www.alberta.ca/assets/documents/ma-emergency-planning-lessons-from-high-river-2013-flood.pdf
- 3. Logan S. These High River estate homes can be yours for a song. But there's a catch. Calgary Herald [Internet]. 2017 Feb 1 [cited 2021 Feb 3]; Local News. Available from: https://calgaryherald.com/news/local-news/these-high-river-estate-homes-can-be-yours-for-a-song-but-theres-a-catch
- 4. Campbell C. Some caring hearts and minds. Okotoks Today [Internet]. 2014 May 22 [cited 2021 Feb 4]. Available from: https://www.okotokstoday.ca/local-news/some-caring-hearts-and-minds-1528463
- 5. Manke B. High River RBC Donates \$25,000 to Hearts and Minds. [Internet]. High River, AB: High River Online; [2014 June 30] [cited 2021 Feb 4]. Available from: https://www.highriveronline.com/local/high-river-rbc-donates-25000-to-hearts-and-minds
- 6. Bews F. Responding to the Recovery of Hearts and Minds in High River Schools January to June 2014 Initial Year End Report. Hearts and Minds; 2014.
- 7. Mental Health Capcity Building in Schools Interim Report September 1, 2015 March 1, 2016. Hearts and Minds; 2016.
- 8. Mental Health Capacity Building in Schools Initiative Final Flood Project Report. Hearts and Minds; 2016.
- 9. Youth Creating Disaster Recovery The Story. [Internet]. [Publisher unknown]: Youth Creating Disaster Recovery & Resilience; [date unknown] [cited 2021 Feb 10]. Available from: http://www.ycdr.org/our-research
- 10. Coulter D. Youth create videos to help Alberta flood recovery. [Internet]. Ottawa, ON: Canadian Red Cross. [2014 Oct 21] [cited 2021 Feb 10]. Available from: https://www.redcross.ca/blog/2014/10/youth-create-videos-to-help-alberta-flood-recovery
- 11. 2013 High River Floods. [Internet]. [Publisher unknown]: Youth Creating Disaster Recovery & Resilience; [date unknown] [cited 2021 Feb 10]. Available from: http://www.ycdr.org/2013-high-river-floods/
- 12. Fletcher S, Cox RS, Scannell L, Heykoop C, Tobin-Gurley J, Peek L. Youth creating disaster recovery and resilience: A multi-site arts-based youth engagement research project. CYE. 2016; 26(1):148–163.

MINDFULNESS FOR MENTAL HEALTH CARE WORKERS

LOCATION

New Orleans, Louisiana, USA

OBJECTIVE

To decrease symptoms of PTSD, depression, and anxiety in mental health workers following the occurrence of a weather disaster (i.e., Hurricane Katrina)

ORGANIZATIONS

Researchers from the:

- University of Massachusetts
- Princeton University
- Harvard University
- Washington State University

POPULATION AFFECTED BY DISASTER

Residents of New Orleans (Approximately 500,000 people at time of Hurricane Katrina)

INTERVENTION POPULATION

Mental health workers in New Orleans post-Hurricane Katrina (20 study participants)

BACKGROUND

On August 29, 2005, Hurricane Katrina hit the coast of Louisiana, destroying large parts of New Orleans. At the time of landfall in Louisiana, Hurricane Katrina was of Category 3 strength and caused 53 breaches to various flood protection structures in the New Orleans area. As a result, 80% of the city became submerged underwater.¹

The day before Hurricane Katrina was expected to hit, a city-wide evacuation notice was ordered. The city's Superdome stadium was opened as shelter for those who were unable to leave the city. By the evening, 80% of the city's population had evacuated, approximately 10,000 people sought shelter in the stadium, and tens of thousands of others chose to wait out the storm at home. However, with the failure of multiple flooding levees, the majority of citizens who remained in their homes were forced to seek shelter in their attics and rooftops, resulting in nearly 34,000 people requiring rescue by the Coast Guard. Moreover, an estimated 1,833 people died in the hurricane and subsequent flooding, and millions of citizens were displaced due to widespread infrastructure destruction.

The mental health effects of Hurricane Katrina have been well documented within the literature. Specifically, evacuees were found to experience short-term acute stress disorder immediately after the hurricane. Adverse mental health outcomes were also found one year post-disaster, with those exposed being more likely to experience severe mental illness such as depression, anxiety, and PTSD.⁴

Climate research has noted an association between climate change and increased hurricane severity, particularly within the North Atlantic and western North Pacific oceans. Consequently, higher severity, coupled with rising sea levels is likely to increase the number of people exposed to hurricane and flooding disasters⁵ and the associated mental health effects.

MINDFULNESS FOR MENTAL HEALTH CARE WORKERS

EVALUATION 6

Following the intervention, participants reported reduced total PTSD symptoms, PTSDrelated re-experiencing and hyperarousal, and state anxietv.

Additionally, 93% of participants reported feeling "somewhat better" or "much better" than before the intervention. However, depression was not found to decrease after the intervention. This mav be because participant depression was related to ongoing stress of living in a disaster zone, and the short-term format of the IR intervention may not have been long enough to adequately address ongoing environmental stressors.

DESCRIPTION⁶

A meditation retreat in downtown New Orleans was offered to mental health workers ten weeks after Hurricane Katrina. In the first hour of the retreat, participants completed a self-reported baseline questionnaire, which was followed by a 4-hour meditation workshop. The workshop included instruction and guidance of meditation practices such as breathing, quided breath-focused imagery, mantra repetition, and letting go of thoughts, feelings, and sensations as they arose.

The 8-week Inner Resources (IR) home study program was provided to participants after the retreat. The IR program is designed to improve wellness and stress resiliency in mental health and other allied professionals. The program provides participants with education on different mindfulness and meditation techniques and ways in which meditation can be incorporated into one's daily life. Previous studies have shown the IR program to be effective in decreasing levels of stress hormones and improving overall life satisfaction.8 Study participants were provided with the IR Participant Manual and four audio recordings of guided meditations, and encouraged to complete at least 30 minutes of meditation a day, 6 days per week.

LESSONS LEARNED & CONSIDERATIONS

- Inner Resources and other meditation based practices may help mental health workers decrease or prevent adverse mental health outcomes related to a climate disaster
- There is potential for other meditation based practices to be delivered in a similar structure to the IR program to decrease mental health symptoms within other populations experiencing climate disasters and grief
- Depression may be strongly associated with the environment and surroundings of an individual who has experienced a climate change-related disaster, thus future interventions should seek methods to address ongoing environmental stressors

MINDFULNESS FOR MENTAL HEALTH CARE WORKERS



REFERENCES

1. Wave Heights - Hurricane Katrina 2005. [Internet]. [Publisher unknown]: Science On a Sphere; [date unknown] [cited 2021 Feb 12]. Available from: https://sos.noaa.gov/datasets/wave-heights-hurricane-katrina-2005/

2. Hurricane Katrina. [Internet]. [Publisher unknown]: History; [2009 Nov 9] [cited 2021 Feb 12]. Available from: https://www.history.com/topics/natural-disasters-and-environment/hurricane-katrina

3. Knabb R, Rhome J, Brown D. Tropical Cyclone Report Hurricane Katrina 23–30 August 2005. [Internet]. Miami, FL: National Hurricane Center, National Oceanic and Atmospheric Administration; 2005; 43 p. Available from: https://www.nhc.noaa.gov/data/tcr/AL122005 Katrina.pdf

4. One Year After Katrina, More Is Known About its Mental Health Effects; Storm's Widespread Effect on People of Color and Children and the Need for Culturally Competent Mental Health Services Are Evident. [Internet]. Washington, DC: American Psychological Association; [date unknown] [cited 2021 Feb 14]. Available from:

https://www.apa.org/news/press/releases/2006/08/katrina

5. Global Warming and Hurricanes: An Overview of Current Research Results. [Internet]. Princeton, NJ: Geophysical Fluid Dynamics Laboratory; [2020 Sept 23] [cited 2021 Feb 16]. Available from: https://www.gfdl.noaa.gov/global-warming-and-hurricanes/

6. Waelde L, Uddo M, Marquett R, Ropelato M, Frieghtman S, Pardo A, Salazar J. A pilot study of meditation for mental health workers following Hurricane Katrina. J Trauma Stress. 2008; 21(5): 497–500.

7. Inner Resources for Stress: Mindfulness for Self Care. [Internet]. Palo Alto, CA: CONCEPT, Palo Alto University; [date unknown] [cited 2021 Feb 19]. Available from: https://training.concept.paloaltou.edu/courses/Inner-Resources-for-Stress-Mindfulness-for-Self-Care

8. Waelde L, Meyer H, Thompson J, Thompson L, Gallagher–Thompson D. Randomized controlled trial of inner resources meditation for family dementia caregivers. J Clin Psychol. 2017; 3(12): 1629–1641.

3-DAY DISASTER PREPARENESS WORKSHOP

LOCATION

Port-au-Prince, Haiti

OBJECTIVE

To increase disaster preparedness and reduce symptoms of mental health disorders such as depression, anxiety, and PTSD

ORGANIZATIONS

Researchers from the University of Boulder Colorado

Soulaje Lespri Moun (SLM)

POPULATION AFFECTED BY DISASTER

Metropolitan
Port-au-Prince residents
(Approximately
2,600,000 at time of
study)

INTERVENTION POPULATION

Metropolitan Port-au-Prince residents (480 participants selected from three communities)

BACKGROUND

The country of Haiti is highly susceptible to climate change-related disasters. Due to its geographic location within a hurricane-belt, the country experiences many tropical storms and hurricanes. Tropical storms and hurricanes are characterized by heavy rainfall and wind speeds, often leading to widespread flooding and landslides within the country. Flooding and landslides are particularly common in Haiti due to the country's lack of tree cover. With approximately 98% of Haiti's forest having been removed by deforestation, rainfall is able to flow freely down mountains and hills.

Hurricane, flooding and landslide events have major consequences to society. Houses and buildings are often destroyed, resulting in a large number of displaced peoples. In 2004, Hurricane Ivan and Jeanne caused massive flooding damage that resulted in over 300,000 people being displaced from their homes. Moreover, 3,000 people were estimated to have been killed during the hurricane events.³ With climate projections predicting increasingly severe and extreme weather events in the future,⁴ it is expected that Haiti will experience an even higher number of hurricane, flooding, and landslide events in the future.

DESCRIPTION

A mental health integrated disaster preparedness intervention was developed by researchers from the University of Colorado Boulder and Haitian team members from the Soulaje Lespri Moun (SLM) organization. SLM is a collaborative grass-roots project that was initially created to provide mental health services and training to internally displaced peoples in Haiti following the 2010 earthquake. Partnership with SLM allowed the development of the intervention to include cultural and religious attributions for disasters and mental health reactions. The intervention utilizes an experiential approach, including facilitated discussion, space for sharing personal experiences and exchange of peer-support, establishment and

3-DAY DISASTER PREPARENESS WORKSHOP

EVALUATION 5

The intervention was found to increase preparedness, which was found to be associated with a decrease in mental health symptoms related to depression, PTSD, and anxiety.

Intervention participants engaged in an average of four more disaster preparedness behaviours than the control group, and were found to have increased perceived social cohesion and helpgiving intention with regard to both mental health and disaster mitigation.

DESCRIPTION

practice of coping skills targeting disaster-related distress, and hands-on training in disaster preparedness and response techniques for use by participants in their own lives and to support other community members.

DAY 1 OVERVIEW

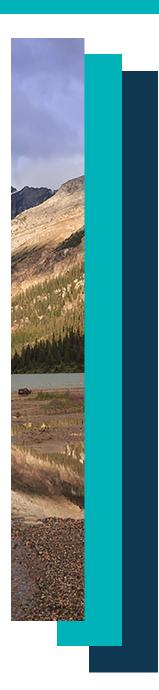
- Discussion of mental health and psychosocial reactions to disaster-related stress
- Teaching of associated coping strategies such as skills to reduce potential avoidance of disaster-related material
 - E.g., Self-calming through breathing, grounding, mindfulness, and muscle relaxation exercises

DAY 2 & 3 OVERVIEW

- Greater focus on disaster preparedness, including facilitated discussions regarding links between common attributions for disasters (natural causes, God's will) and preparedness motivation
- Facilitators introduce common scientific explanations for disasters such as earthquakes and floods and share recommended preparedness strategies
 - Explanations are done without discouraging preexisting cultural and religious beliefs which participants are encouraged to maintain alongside new information
- At the end of Day 2 and moving into Day 3, participants practice providing disaster and mental health related peer support to one another, including through a "mini disaster simulation" in which participants demonstrate skills learned throughout the 3 days

In a randomized control trial, groups of no more than 20 participants were given the 3-day intervention by trained Haitian mental health workers.

3-DAY DISASTER PREPARENESS WORKSHOP



LESSONS LEARNED & CONSIDERATIONS

- Disaster preparedness can decrease mental health symptoms related to experience of a climate-change disaster; future interventions to build community resilience should consider incorporating disaster preparedness content
- Interventions that teach coping strategies and peersupport skills for disaster events can increase feelings of social cohesion and serve as a resilience factor for climate grief and other mental health symptoms related to climate change

- 1. Haiti's vulnerability to natural disasters. [Internet]. Washington, DC: Disasters and Humanitarian Assistance, Pan American Health Organization; [date unknown] [cited [2021 Jan 15]. Available from:
- https://www.paho.org/english/dd/ped/reginfohaiti.htm
- 2. Haiti Floods due to Deforestation. [Internet]. New York, NY: CBS News; [2004 Sept 23] [cited 2021 Jan 17]. Available from: https://www.cbsnews.com/news/haiti-floods-due-to-deforestation/
- 5. The History of Natural Disasters in Haiti. [Internet]. Houston, TX: uFondwa USA; [2018 Feb 22] [cited 2021 Feb 16]. Available from: https://www.ufondwa.org/history-natural-disasters-haiti/
- 4. Global Warming and Hurricanes: An Overview of Current Research Results. [Internet]. Princeton, NJ: Geophysical Fluid Dynamics Laboratory; [2020 Sept 23] [cited 2021 Feb 16]. Available from: https://www.gfdl.noaa.gov/global-warming-and-hurricanes/
- 5. James L, Welton-Mitchell C, Noel J, James A. Integrating mental health and disaster preparedness in intervention: a randomized controlled trial with earthquake and flood-affected communities in Haiti. Psychol Med. 2020; 50(2): 342-352.

RURAL ADVERSITY MENTAL HEALTH PROGRAM



LOCATION

New South Wales, Australia

OBJECTIVE

To develop community resilience and help reduce mental health problems by:

- Increasing community capacity to respond to change
- Developing strong rural service networks and partnerships
- Raising awareness of pathways to care for rural people with or developing a mental health problem
- Decreasing stigma associated with mental illness
- Increasing understanding of mental health, and social and emotional well-being

ORGANIZATIONS

New South Wales (NSW) Government

Centre for Rural and Remove Mental Health (University of Newcastle)

BACKGROUND

From 1996 to mid-2010, parts of southern Australia experienced 'The Millennium Drought,' a prolonged period of dry conditions. Due to a combination of low rainfall and low river inflows, little to no water flowed into the region, resulting in widespread environmental, social, and economic consequences.² Natural weather variability, such as El Niño weather patterns were found to contribute to the drought event,³ however, it was concluded by the Bureau of Meteorology that anthropogenic climate change exacerbated the extent and severity of the drought.⁴

In addition to the significant environmental consequences of the drought, there were severe impacts to numerous social and economic systems. In particular, the agricultural sector was negatively affected due to widespread crop failures and livestock deaths. As a result, many farmers were left without their livelihood which has been associated with increased rates of mental health challenges within this population. According to the Australian Bureau of Statistics, 70,000 agricultural jobs were estimated to have been lost from 2002-2003.

In the fall of 2010, a La Niña weather pattern ended the drought conditions in Southeastern Australia with certain areas reporting record-breaking levels of rainfall. However, this did not occur in all drought-affected areas with certain locations in Western Australia experiencing intensified dry conditions in 2010.

DESCRIPTION³

In 2006, a report titled "NSW Farmers Mental Health Blueprint" was published by the New South Wales Farmers Association and 18 other organizations. The report highlighted the need for a program to promote mental health in farmers, improve service access and coordination, and link farming communities to effective mental health support in New South Wales, Australia.

RURAL ADVERSITY MENTAL HEALTH PROGRAM



INTERVENTION POPULATION

All rural and remote farming communities affected by the drought were supported by the Rural Adversity Mental Health Program during the millenium drought.

EVALUATION ¹

Within the first year of implementation in 2007, 50 MHFA workshops had been delivered to over 800 people and 1,900 people attended one of 17 "Tackling Tough Times" workshops, focused specifically on farmer mental health.

Participant feedback found the RAMHP programming to be well-received and effective in helping communities build capacity and resilience in the face of drought-related prolonged stress and hardship.

Participants also noted that they felt more prepared to adapt to other rural adversities, such as floods.

DESCRIPTION ⁷

In response to the report, the New South Wales government funded the Rural Adversity Mental Health Program (RAMHP) in 2007. The RAMHP was implemented in collaboration with the rural area health service, the University of Newcastle's Centre for Rural and Remote Mental Health, and local communities and agencies to build individual and community resilience in response to the drought.

The RAMHP employed several interventions to address rural mental health of farmers. For instance, mental health first aid (MHFA) training was provided for rural communities and front-line agencies working with farming households. MHFA courses were specifically targeted at certain populations such as Indigenous communities, teachers, general practice staff, youth workers, and rural service providers. Additionally, community and information forums on mental health were held in an effort to reduce drought-related mental health stigma and increase knowledge of mental health challenges. A charge-free mental health telephone support line was also implemented to provide crisis support and referral to rural mental health services.

The RAMHP also partnered with local organizations to facilitate events and activities for those within the farming communities. Examples of activities included the:

MEN'S HEALTH PIT-STOP PROGRAM

An intervention conducted at local events where people could receive quick health-related screenings and receive advice and information on health related topics such as diet, lifestyle, alcohol consumption, and mental health.

WOMEN'S PAMPER DAY

An intervention designed to support women impacted by the drought and other climate change-related adversity. Pamper

RURAL ADVERSITY MENTAL HEALTH PROGRAM





DESCRIPTION

days provided women with free massages, make-up advice from beauty therapists, drumming classes, mental and physical health advice, and other activities to promote wellbeing and increase social support and networking.

MATE HELPING MATE

John Harper, a local farmer and shearer, conducted presentations with other farmers surrounding his experience of depression. The presentations helped to de-stigmatize mental health challenges for many who attended. Presentations were primarily delivered to rural farming communities.

LESSONS LEARNED & CONSIDERATIONS

- Farmers and their families are a group with a high likelihood of experiencing grief and other mental health impacts related to climate change; it will be important for future climate grief work to consider the unique experiences of those working in the agricultural sector
- Facilitation of open conversations about mental health by someone with lived experience, and providing people with access to MHFA training are valuable opportunities that work towards destigmatizing mental health challenges in populations with low mental health literacy

MINDFULNESS FOR MENTAL HEALTH CARE WORKERS



REFERENCES

1. Rural Adversity Mental Health Program. Rural Adversity Mental Health Program logo [image from the internet]. [Publisher unknown]: Rural Adversity Mental Health Program; [date unknown] [cited 2021 Feb 17]. Available from: https://www.ramhp.com.au/

2. Millennium Drought. [Internet]. Adelaide, SA: Department of Agriculture, Water and the Environment; [date unknown] [cited 2021 Feb 2]. Available from: https://www.environment.sa.gov.au/topics/river-murray-new/current_dry.gonditions/millennium_drought

 $\underline{\mathsf{new/current-dry-conditions/millennium-drought}}$

3. Recent rainfall, drought and southern Australia's long-term rainfall decline. [Internet]. Melbourne, VIC: Bureau of Meterology, Australian Government; [date unknown] [cited 2021 Feb 2]. Available from: http://www.bom.gov.au/climate/updates/articles/a010-southern-rainfall-decline.html

4. Recent rainfall, drought and southern Australia's long-term rainfall decline. [Internet]. Melbourne, VIC: Bureau of Meterology, Australian Government; [date unknwon] [cited 2021 Feb 2]. Available from: http://www.bom.gov.au/climate/updates/articles/a010-southern-rainfall-decline.shtml

5. Heberger M. Australia's Millennium Drought: Impacts and Responses. In: Gleick PH, eds. The World's Water. Washington: Island Press; 2012. p. 97-125.

6. Lu L, Hedley D. The impact of the 2002 drought on the economy and agricultural employment. [Internet]. Canberra, ACT: Australian Government; [2004 Apr 23] [cited 2021 Feb 15]. Available from: https://treasury.gov.au/publication/economic-roundup-autumn-2004/the-impact-of-the-2002-drought-on-the-economy-and-agricultural-employment

7. Rural Adversity Mental Health Program. [Internet]. [Publisher unknown]: Rural Adversity Mental Health Program; [date unknown] [cited 2021 Feb 17]. Available from: https://www.ramhp.com.au/

8. Hart C, Berry H, Tonna A. Improving the mental health of rural New South Wales communities facing drought and other adversities. Aust J Rural Health. 2011; 19: 231–238.

9. Maddox S, Read D, Powell N, Caton T, Dalton H, Perkins D. Reorientation of the Rural Adversity Mental Health Program: the value of a program logic model. Rural Remote Health. 2019; 19(3): 5217.

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- 1. Parker CL, Wellbery CE, Mueller M. The changing climate: managing health impacts. Am Fam Physician. 2019; 100: 618–626.
- 2. Ghazali DA, Guericolas M, Thys F, Sarasin F, González PA, Casalino E. Climate change impacts on disaster and emergency medicine focusing on mitigation disruptive effects: an international perspective. In J Environ Res Public Health. 2018; 15(7): 1379.
- 3. Wheeler T, von Braun J. Climate change impacts on global food security. Science. 2013; 341(6145): 508–513.
- 4. Muttarak R. Too few nutrients and too many calories: climate change and the double burden of malnutrition in Asia. Asian Popul Stud. 2018; 15(1): 1-7.
- 5. Thompson R, Hornigold R, Page L, Waite T. Associations between high ambient temperatures and heat waves with mental health outcomes: a systematic review. Public Health. 2018; 161: 171–191.
- 6. Lõhmus M. Possible biological mechanisms linking mental health and heat a contemplative review. Int J Environ Res Public Health. 2018; 15(7): 1515.
- 7. Huang C, Phillips M, Zhang Y, Zhang J, Shi Q, Song Z, Ding Z, Pang S, Martorell R. Malnutrition in early life and adult mental health: evidence from a natural experiment. Soc Sci Med. 2013; 97.
- 8. Clayton S, Manning CM, Krygsman K, Speiser M. Mental health and our changing climate: impacts, implications, and guidance. Washington (DC): American Psychological Association, and ecoAmerica; 2017.
- 9. Cunsolo A, Ellis NR. Ecological grief as a mental health response to climate change-related loss. Nat Clim Change. 2018; 8: 275–281.
- 10. Castelloe M. Coming to terms with ecoanxiety [Internet]. 2018 [cited 2021 Jan 25]. Available from:https://www.psychologytoday.com/us/blog/the-me-in-we/201801/coming-terms-ecoanxiety
- 11. Albrecht G, Sartore G, Connor L, Higginbotham N, Freeman S, Kelly B, Stain H, Tonna A, Pollard G. Solastalgia: the distress caused by environmental change. Australas Psychiatry. 2007; 15 Suppl 1: S95-8.

