Climate Action and Global Psychology

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GLOBAL PSYCHOLOGY ALLIANCE

Psychology for Global Challenges

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New Zealand Psychological Society

Rōpū Mātai Hinengaro o Aotearoa

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Foreword

Climate Action and Global Psychology has been published by the New Zealand Psychological Society (NZPsS) on behalf of the Global Psychology Alliance. The Society is proud to have been closely involved in the production of this landmark contribution to the scientific literature on the psychological aspects of climate change and action, both in terms of preventive actions and the responses from psychology.

We are excited to see voices of Indigenous Peoples in psychology represented, amplified and empowered in an international publication reflecting the cooperative and collaborative efforts of the member associations of the GPA. We believe that this will stand as an example and encourage others to seek out and give voice to colleagues from Indigenous communities around the world and those who work alongside people in those communities.

This is the Global Alliance's first substantial publication and makes an important statement of what can be achieved, independently and at relatively low cost. Hopefully, this is the first of many such GPA projects.

Haere mai! (welcome)

Ngā manaakitanga (in the spirit of cooperation)

- from the New Zealand Psychological Society.

Mehemea ka moemoeā ahau, ko ahau anake. Mehemea ka moemoeā tātou, ka taea e tātou.

If I dream, I dream alone. If we all dream together, we can succeed.

Te Kirihaehae Te Puea Hērangi (1883-1952), Māori leader, Princess Te Puea

Introduction to volume

Arthur Evans[1] and Francisco Miranda Rodrigues[2]

At the 2019 Inaugural International Summit on Psychology and Global Health , co-convened in Lisbon, Portugal by the American Psychological Association (APA) and the Portuguese Order of Psychologists (OPP), Dr. Arthur Evans, APA CEO, challenged organizational leaders to ask: "Why psychology?" and "Why now?" The aim of the Summit was to bring together psychologist leaders from every continent of the globe to take action on urgent issues, in particular climate change. What, then, can and should psychology be doing?

Psychology and its broad subdisciplines are about understanding people in all kinds of contexts. For instance, clinical psychology informs direct mental health services and care; developmental psychology teaches us about development and what psychological change looks like throughout the lifespan; cognitive psychology explores how we learn, remember, and solve problems; industrial-organizational psychology focuses on optimizing human performance in the workplace; and social psychology centers around processes and phenomena that affect our social selves, like bias, stigma, and discrimination. This list, which is by no means comprehensive, clearly illustrates how our field is relevant to almost all aspects of human experience.

To provide a little more detail on just one application of psychology, mental health underlies many of the challenges our society faces, yet it is often ignored or addressed as an afterthought. About 1 in 5 adults experience a mental health problem, which has been exacerbated by COVID-19 – WHO data shows that in the first year of the pandemic, global prevalence of anxiety and depression increased by 25%. Depending on where they live, between 20-80% of people with severe mental health disorders receive no treatment due to financing challenges, stigma, and other issues. We, as leaders in global psychology, must confront these challenges head on.

However, a continuing challenge is the fact that psychological science is often not sufficiently applied to real world problems. The societal challenges

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2 President of Ordem dos Psicólogos Portugueses (Portuguese Psychologists Association)

we face as individuals, communities, and larger governments and systems are broad – for example, climate change, equitable healthcare, homelessness, racism, child welfare, community violence, and technological advancement. For each of these issues and more, there are bodies of psychological science to help address them, but they are frequently not on the radar of policymakers. When it comes to the climate crisis, in particular, many leaders - not to mention psychologists themselves - struggle to understand the myriad contributions the science can make to adaptation and mitigation efforts.

When elevated to the level of public discourse, psychology can help. For example, most people believe that homelessness is an intractable problem that cannot be solved. But, for instance, when the city of Philadelphia in the United States applied psychological science to their approach, more than 800 chronically homeless people were given support, moved off the street, and placed into homes over a period of only a few years.

The Lisbon Summit, in particular, urged organized psychology to take action on climate, and there is much we can do. It is psychological science that documents the most effective ways of communicating with the public. Psychologists understand human behavior - with particular relevance to - encouraging climate-friendly behaviors - better than other fields. Psychology specifically studies and applies both prevention and treatment protocols associated with the mental health challenges stemming from climate change and climate-related events. Furthermore, it is psychological science - often with the leadership of our professional organizations - that actively enhances individual and community resilience in the face of natural disaster through population-based programs and assists in addressing the mental health consequences of climate-related migration and populations displacements. Furthermore, although less recognized, psychological science details the most effective means of facilitating rapid transitions to new forms of energy, transportation, and agriculture in a human-centered way. The Global Psychology Alliance gave voice to the role of psychological science in alleviating the climate crisis at the United Nations COP26 Summit in 2021, sharing data from its nearly 70 global partner associations with high-level leaders.

Psychology associations like those represented at the inaugural Summit in Lisbon in 2019, and upcoming at the Bogotá Summit in 2022, can employ

the expertise of their members to take meaningful actions on a large scale that will help to foster sustainable change. To provide a few examples from APA, through initiatives like 2019 President Dr. Rosie Phillip Davis' on deep poverty, psychology can help low-income individuals and communities who are disproportionately impacted by the climate crisis. During her Presidency in 2020, Dr. Sandra Shullman applied psychological science to the advancement of global learning leadership efforts across organizations. This led to the expansion of the Global Psychology ALliance to include emerging leaders from across the world. During her 2021 presidency, Dr. Jennifer Kelly focused on helping reduce mental health disparities which are exacerbated as temperatures rise. All of these topics are directly relevant to the 2022 International Summit in Psychology and Global Health: Leadership for Emerging Challenges Bogotá. The Alliance - and its commitment to convening at high-level summits - demonstrates the power of organizations leading together to address humanity's most urgent issues. .

Why psychology? Why now? Psychology is needed now more than ever. To be successful, we must ensure that our values remain embedded in our strategies and solutions. As emphasized in both the original 2019 International Summit Resolution on Psychology and Global Health and the recently agreed upon 2022 Summit Resolution , psychological science is fundamental to alleviating the climate crisis. Psychology's contributions to adaptation and mitigation must further focus on increasing equity, diversity, and inclusion as a critical piece of our work to address climate change and our work as psychologists more broadly. We need psychology to help inspire a movement to make our world better. Spearheaded by the leaders gathered in Bogotá, we can create this movement, building momentum to accomplish our Global Psychology Alliance Agenda: 2025.

Arthur Evans Jnr., PhD., CEO of the American Psychological Association.

From Evidence to Action: Psychology's Call to Help Society

The idea of psychologists mobilizing on behalf of their professional organizations to take global action on the climate crisis evolved through conversations between the leadership of the Order of Portuguese Psychologists (Ordem dos Psicólogos Portugueses; OPP) and the American Psychological Association (APA). Indeed, the need for climate action by psychology gained clarity and urgency of the course of several meetings between Dr. Amanda

Clinton, Senior Director for the APA Office of International Affairs, and OPP leadership inclusive of Dr. Sofia Ramalho, Dr. Teresa Espassandim, and myself. In fact, the aforementioned team met over the course of 2017 and 2018 – making time to talk at professional conferences in Amsterdam, Washington, DC, Oviedo, Spain, and San Francisco – in order to carefully consider means of operationalizing our memorandum of understanding. This emphasized a meaningful approach to developing a shared global vision based on both science and action. These initial discussions were critical to building trust between our organizations so that, at the close of the APA Convention in 2018 during which the OPP Delegation actively participated, the idea of organizing an event that was truly inclusive of the world's psychologists and advanced psychology's contributions to solving the climate crisis.

OPP became acutely aware of the need to apply psychological science to societal challenges as a relatively young association thanks to Dr. Telmo Mourinho Baptista, who preceded me as OPP President, who also served as the first as President of Federación Iberoamericana de Asociaciones de Psicología (FIAP), and, later, held the position of President of European Federation of Psychologists Associations (EFPA). In addition, Dr. Mourinho Baptista advocated for inclusion of mental health and well-being in the United Nations (UN) Sustainable Development Goals, structuring a narrative on behalf of psychologists at the UN about the key contributions of the field and the potential of psychology to contribute to resolving these challenges.

As the previous paragraphs demonstrate, the significant event that ultimately became the 2019 International Summit on Psychology and Global Health: A Leader for the Climate ("Summit") was possible thanks to the vision and energy of many psychologists. The structure was initially connected as a result of many meetings, the establishment of trusting working relationships, and the previous advances in policy and programs by key OPP leadership. The 2 ½ day working meeting, which included an inspiring talk by the honorable Marcelo Rebelo de Sousa, President of the Portuguese Republic, and recognized leaders in the field, was held in Lisbon in November, 2019. Additionally, nearly 50 chief executives, presidents, or their designees from national, regional and international organizations of psychology from all continents on the globe participated, representing more than 1,000,000 psychologists all over the world.

Declared an extraordinary success by participants and observers, the Lisbon Summit stands out in terms of both agreements for continued collaboration and the production and definition of a road map for future collaborative efforts by psychology worldwide. First, thanks to the consulting support from "This Is…" International Consultants, participating organizations assumed internal and external commitments to working on climate. Second, a Proclamation and a Resolution were developed and signed, publicly documenting the desire to continue to work together and the specific priorities that were defined as Summit outcomes.

In addition to active participation by so many leaders in the field, the Summit was unique because it aimed not to be a one-time meeting that had no long-term influence. This initiative was not founded to be extinguished in a momentary flash, but to multiply and continue to elevate psychology's role within our respective communities but, more importantly, on behalf of our shared communities across earth. This gave rise to an international network, the Global Psychology Alliance (GPA), permanently articulated and which played a very important role in international cooperation in psychology help to populations worldwide, during the most complex periods of the COVID-19 pandemic crisis. It's a flexible network, focused on action and sharing, sustainable due to its mobilization and involvement, as well as efficiency.

Psychological science and applications have much to offer the world: communication on climate change; environmental behavior changes and resilience to climate change impacts; training of climate activists and other environmental professionals; clinical support to people affected by extreme weather events; helping others to manage chronic stress related to a changing environment; or advocacy work with policymakers about the psychology of climate-related behaviors and the psychological impacts of climate change.

Psychology's evidence-based indications offer unique pathways for providing important specific insights on the issue of climate. For example, it is often the case that what seems to be common intuition results in more of a problem than a solution. For instance, rebound effects can erode a significant proportion of the anticipated energy and emission savings actions with contrary aims. Furthermore, such actions appear to have a very limited influence on aggregate energy use and emissions (Sorrell et al., 2020).

As noted with the example of energy efficiency research and human behavior, psychological science tells us a lot about how to be more effective in our efforts to lessen the impacts of the climate crisis. Psychology also helps increase awareness associated with the potential risks and (potentially life-threatening) consequences of climate change. Indeed, it has helped us recognize factors associated with the likelihood of behavioral change and the willingness of citizens to take action to address rising temperatures, as well as to better understand how beliefs that climate change is unstoppable reduces proactive policy and behavior change in relation to the climate crisis. Consequently, communicators and policy leaders should carefully frame climate change as a difficult, yet solvable, problem to circumvent fatalistic beliefs and help humanity progress positively in regards to this issue (Mayer & Smith, 2018).

In conclusion, I would like to highlight a statement I made in my presentation at the Lisbon Summit: "The application of psychology to society's greatest challenges is the responsibility of psychologists, but not only of psychologists. It is also a mandate for policymakers, who must be informed of the promise of psychological science for solving complex social problems." Psychologists understand that psychology is central to fighting poverty and social exclusion, addressing the climate emergency, advancing sustainability of health systems, or for increasing social cohesion, to name a few. Psychologist leaders further believe that we must come together and mobilize our strengths, skills, and resources as organizations and as psychologists to contribute to these challenges.

All human beings face problems, and everyone has specific needs. That said, every one of us also requires help, support and cooperation from others to survive and thrive, as well as to create positive change on key issues like equity and well-being. Humanity shares the desire to live fully and leave a legacy for the next generations. Despite all of our differences, day-to-day concerns, and the inevitable obstacles encountered along the way, it is critically important to shift our focus from short-term issues to long-term sustainability for society.

In 2022, all of us are working in the space of climate change reality. If all of humanity is facing a shared crisis, psychologists of every sub-specialty area can and must contribute to improving people's lives as part of our responsibility to improving lives. Indeed, as I write this in June of 2022 noting that war

has broken out in Europe, the needs and challenges for all of humanity are more complex and more urgent than in the recent past. Psychology, then, has greater relevance than ever, and psychologists are critically important to address these ever-evolving needs. This book, Climate Action and Global Psychology, is part of psychology's promise to come together and work actively to find and apply solutions to the world's greatest challenges.

Dr. Francisco Miranda Rodrigues, President, Ordem dos Psicólogos Portugueses.

Preface - Editors' overview of contents and acknowledgements

Terri Morrissey[1], Brian Dixon[2] and Amanda Clinton [3]

The Purpose of this Book

Climate Action and Global Psychology offers a unique, multi-national perspective on organised psychology's nascent collaborative efforts to address the world's climate crisis. This ebook serves as proceedings from the 2019 inaugural International Summit on Psychology & Global Health: A Leader in Climate Action ("Lisbon Summit"), which was co-convened by the American Psychological Association (APA) and the Order of Portuguese Psychologists (OPP) in Lisbon, Portugal, as well as a progress indicator for the field and a call to urgently address climate change at all levels.

The Lisbon Summit marked a historical moment for psychology because it served as a catalyst for over 70 psychological associations around the world to form the Global Psychology Alliance ("Alliance"). Since the roots for collaboration were planted in Lisbon, the chapters included in *Climate Action and Global Psychology* reference both the impact of the Lisbon Summit and the evolution and formation of the Alliance.

Comprised of leaders from national, regional and international psychological associations from every continent of the world, the Alliance prioritizes the application of psychological science to critical global issues through shared initiatives. Furthermore, the Alliance emphasizes equitable and inclusive organizational partnerships based on distributed leadership models with the goal of increasing the role of psychologists and the contributions of psychology to key issues facing humanity. An aim of the collaborative leadership efforts of the Alliance is to facilitate efforts that will impact policy, education/training, and programmes addressing the climate crisis, in addition to elevating psychological science.

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As organized psychology sought to advance its ability to highlight human factors associated with climate change after the Lisbon Summit, the editors of this book - all of whom participated in the 2019 Lisbon meeting - identified the need for a broadly focused publication on psychology and climate change with a global perspective. More specifically, a paucity of information pertains to shared international organisational leadership initiatives in the field be it in the policy, education/training, and programmes, or research. Indeed, a *PsycInfo* search using keywords "psychology," "climate change" and "international" yielded a total of only three books that addressed environmental climate issues (vs. workplace climate, etc.). A review of the table of contents of even these select volumes confirms the dearth of perspectives on team-oriented global leadership in efforts related to psychology and climate.

The chapters included in this ebook establish an international baseline for organisational psychology's efforts prior to the Lisbon Summit, address progress since the Lisbon Summit - many via joint endeavors of the Alliance, and establish an agenda for psychologist leaders for the future.

Coverage and Approach

The content covered in this ebook is organised into three sections: Global Leadership and Organizational Efforts; Regional Prevention and Response Initiatives; and Leadership and Change. The first section, titled Global Leadership and Organisational Efforts, discusses leadership perspectives and models designed to advance association action on climate and psychology. Contributors to this section include Dr. Arthur Evans, Chief Executive Officer of the American Psychological Association, and Dr. Francisco Rodrigues, President of the Ordem dos Psicólogos Portugueses. It was thanks to the visionary leadership of Dr. Evans and Dr. Rodrigues that the Lisbon Summit became reality. Dr. Janet Swim, a mainstage speaker at the LIsbon Summit and leader in climate psychology, outlines fundamental considerations in her chapter. Finally, Brian Dixon, Amanda Clinton, Terri Morrissey and Richard Plenty outline the organisational leadership path from the Lisbon Summit to the Alliance and to the highly anticipated 2022 International Summit on Psychology and Global Health: Leadership for Emerging Challenges in Bogotá, Colombia.

The second section, titled Regional Prevention and Response Initiatives,

addresses aspects of the climate crisis from the viewpoint of psychologists working on the issue either nationally or trans-nationally on behalf of their associations. Although not all of the authors of chapters in this section were in attendance at the Lisbon Summit, the majority of their organisations were represented. The chapters in this second section provide a representative selection of association experiences post-Lisbon in terms of achievements and long-term plans to work further to address climate change. One particularly useful aspect of these chapters is their description of public education programmes, mitigation efforts, adaptation processes, responses to effects of extreme events, and policy engagement. Chapter authors document both national and regional issues and, in particular, they highlight challenges associated with the scarcity of resources available to provide for effective responses, high levels of poverty and inequality - particularly in indigenous, immigrant and ethnic minority communities, barriers to educational opportunities, and political influence.

The third section, Psychology and Change, focuses on the nature of change and the challenge of trying to bring about major shifts in human behaviours and mindsets. It looks at the work of systems thinking with a view to exploring how this could be applied to the large-scale changes required in dealing with climate change. The volume concludes with closing comments from 2020 APA President, Dr. Sandra Shullman and a summary from the editors.

This volume is a combination of theoretical and empirical work, varying according to section and topic. Leadership models related to major global crises like climate tend to be more theoretical, while chapters on projects in specific countries are more empirically oriented. The efforts of global psychology and its constituent professional organisations must address the need to understand the imminent threats posed for Indigenous peoples by climate change and seek ways to ensure psychology empowers and supports the actions of their people.

Intended Audience

This ebook, while written primarily for an audience of health professionals, is apt for anyone with an interest in human aspects of climate change. As indicated in the title, *Climate Action and Global Psychology*, focuses on contributions from psychological science across the world. Since human

factors are key to mitigation and adaptation processes associated with climate change and since large-scale change requires scaling-up efforts, an organisational approach - or one that aims to work within and across many groups at various levels - is best indicated. As previously noted, very few books of this nature are currently available. This volume is the first to take an international member association approach in the field of psychology, making it highly distinguishable from other contributions.

Acknowledgements

The editors wish to thank all of those who have contributed directly or indirectly to the production of this book and make specific note of the following groups and individuals:

Dr Richard Plenty contributed time and expertise in proof-reading sections and editing others, as well as offering helpful advice and encouragement. Our thanks also to Dr Gabriel Twose, Senior International Affairs Officer in the APA's Office of International Affairs for advice on structure and in reviewing and editing.

The New Zealand Psychological Society, as one of the organisations represented at the Lisbon Summit and an active participant in the Global Psychology Alliance, agreed in late 2021 to be the publisher of this volume. We are particularly grateful for the superb work done by NZPsS professional development coordinator, Heike Albrecht and behind-the-scenes arrangements by NZPsS Executive Director, Veronica Pitt. These two people made the work of the editors in transforming the manuscripts into a publication so much easier than it might have otherwise been. While the NZPsS and the editors have borne the major costs of production, we appreciate the assistance received in the form of a grant from the APA. Koha (donations) from other GPA member associations would be very welcome.

We are grateful for the cover graphic, designed by Aldana A. Ossman and chosen from a number of submissions from Emerging Leaders, for the 2023 GPA Summit in Bogota, Colombia..

The traditional Māori design that is reproduced in the Foreword and on the final page of the book was contributed by the New Zealand Psychological Society, owner of the commissioned original graphic art.

Brian Dixon, Terri Morrissey and Amanda Clinton (Editors)

Global Leadership in Psychology and Climate

Amanda Clinton[1], Brian Dixon[2], Terri Morrissey[3] and Richard Plenty [4]

A Step Toward the Redesign of Global Leadership in Psychology

Taken together, the three words comprising the phrase "global psychology leadership" may naturally be understood to suggest the idea of inclusion of psychologists from every country of the world coming together to jointly influence and guide others based on psychological science with the aim of improving lives. (It is psychology!). Historically, however, psychological scientists and health psychologists have paid attention to a small segment of the world's people, both in terms of research and applications. Psychologist researchers have predominantly studied subjects from western, educated, industrialized, rich and democratic (WEIRD) societies and done so to the exclusion of other perspectives (Henrich & Wang, 2020). As a result, "human nature," as understood by psychology, has been defined by the narrow swathe of WEIRD humanity comprising approximately 12% of the population (Henrich, Heine, & Norenzayan, 2010) not only at the empirical level, but in relation to voices included at the organizational and individual leadership tables.

The time for psychologist leaders across the world to deepen learning, engage in reflection, and redesign ways of working to create meaningful change is now. As the world reckons with challenges such as increasing inequity, extended armed conflict, the COVID-19 pandemic, and myriad natural disasters associated with rising temperatures, organized psychology must reconcile its past to effectively collaborate for the future. Under the guise of the study of the human experience, psychological science has long contributed to maintaining hierarchies based on categorization of difference (Winston, 2020). This will not be the path of the future. It is time to rethink

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our ways of working, not as an effort to avoid repeating the past, but in order to enable ourselves to see our present. As Segall (1999) eloquently stated:

> …it is not the repetitive past we ought to fear (for the past never repeats itself) but, rather, the legacy of the past in our present. For it is from a present that we construct pasts and upon which we create futures. The educational value in studying history is…the understanding such a study might provide as to which particular pasts and ways of storying the past we have chosen to call our own, and how those choices have positioned us to act (or not act) in the world. (p. 366)

Leaders of psychology across the world have long worked hard to address the way in which human beings understand their experience within broader historical contexts in addition to more individually-oriented personal spheres. Organized psychology, however, only recently began engaging in regular conversations amongst leaders with the aim of taking action on shared initiatives using evidence-based approaches that maintain flexibility to be adapted for cultural relevance. The 2019 inaugural International Summit on Psychology and Global Health: A Leader in Climate Action ("Lisbon Summit") represents this kind of effort.

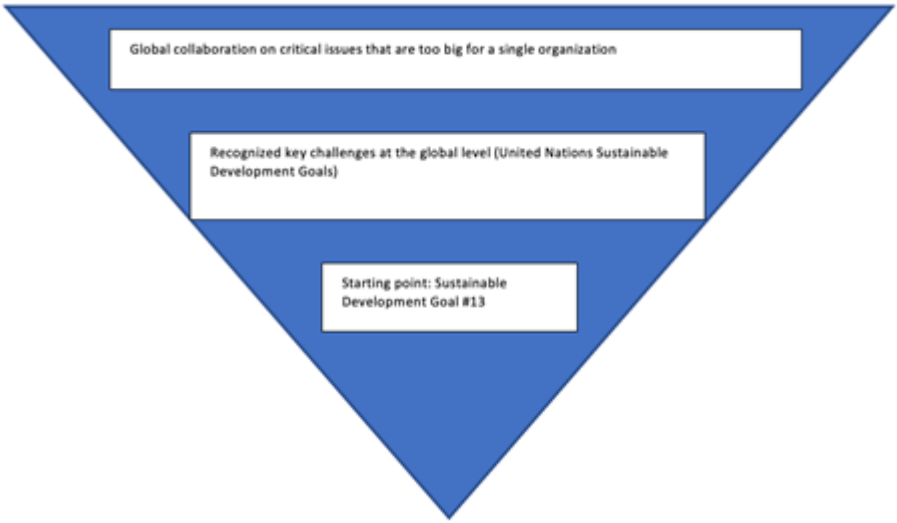
The Road to the Lisbon Summit

The Lisbon Summit intentionally brought together approximately 50 chief executive officers (CEOs) and presidents of psychological associations from around the world, as well as their designees, with the objective of creating a working plan for "the entire world of psychology," rather than "the WEIRD world of psychology." This three day gathering, which was co-convened thanks to the visionary leadership of the American Psychological Association (APA), notably the Chief Executive Officer, Dr. Arthur Evans, and leadership of the Portuguese Order of Psychologists (OPP), notably the President, Dr. Francisco Rodrigues. The agenda included 2 ½ days of working sessions (facilitated by Terri Morrissey and Richard Plenty) and a morning of main stage presentations by recognized experts in the science of psychology and governmental leaders, such as His Honorable Marcelo Rebelo de Sousa, President of Portugal.

Of particular importance is the framework utilized for planning the Lisbon Summit. The meeting was planned with careful intent - paying particular

attention to inclusivity and equity - while simultaneously considering the future of training, practice, and research in psychology at distinct levels. A convenient visual image for the approach might be an inverted triangle, where at the broadest level (the widest part of the inverted triangle), the Lisbon Summit emphasized global collaboration on issues that are too complex for any one association to effectively impact on its own. The oldest, largest or wealthiest national psychological association cannot, for example, meaningfully influence the impacts of the climate crisis nor consequences of the COVID-19 pandemic independently. These multi-layered challenges involve so many unknowns and interrelated factors to be effectively addressed using standard approaches or singular perspectives.

At the second level, which represents increasing specificity of focus and



narrower aims for the Lisbon Summit and global leaders of psychology, well-defined and recognized global challenges needed to be identified. The United Nations Sustainable Development Goals (SDGs) specify targets and indicators for the impact of poverty, limited access to education, food insecurity, health inequities, social justice, the climate crisis, and inadequate infrastructure in communities amongst others.

While psychological science is relevant to the 17 SDGs, the objective of

the Lisbon Summit was to utilize evidence as a basis for collaborative action amongst psychological associations from across the world. For this reason, the third – and highly concrete tier – was incorporated into the overall framework. Subsequent to discussion with invited leaders of psychological associations, the decision was made for the inaugural International Summit on Psychology and Global Health to first engage in efforts to apply psychology to the climate crisis. Addition of the subtitle "A Leader in Climate Action" provided a clear call to the world of psychology to consider potential contributions from the field to impacts of rising temperatures and significant weather events on human well-being.

The Lisbon Summit and the formation of the Global Psychology Alliance (GPA) that followed the Lisbon meeting together serve as a foundation for much of the work included in "Climate Action and Global Psychology." In particular, the inaugural gathering served as a first step in terms of organized psychology's efforts to shift its ways of working toward more action-oriented and inclusive approaches for improving human lives.

Inclusive Leadership

In addition to the framework applied to goals and outcomes, the Lisbon Summit work groups and interactive processes focused on collective, horizontal (versus vertical) and servant leadership models. An emphasis was placed on equity and inclusion, team-oriented relationship-building and empowerment of all attendees, with particular attention to the Global South. As described by Michael West (2021), collective leadership focuses on both dialogue and active participation from all participants.

This approach provides space to lead for everyone in the group, ultimately further encouraging and elevating these skills for individuals while also increasing the sense of responsibility each person perceives toward the larger group. In essence, the psychologist leaders who contribute to the Alliance form a self-managed and self-directed network of the kind that is recognized as enhancing innovation and creativity (Paskewich, 2014). Online meetings and technological advances such as access to shared project development and editing tools, such as Google docs, serve as one meaningful tool in "flattening pyramids" in organizations. Servant leadership approaches, notably a focus on development of leadership for fledgling associations in countries where psychology is young, were also employed beginning with the Lisbon Summit

and extending beyond.

As noted earlier, psychology has historically been dominated by western approaches. Data indicate that leadership approaches result in as much as a 70% difference in terms of the degree to which individuals feel included (Bourke & Titus, 2020). When professionals feel integrated into a larger team, they typically contribute more ideas, work harder to achieve outcomes and engage more productively with colleagues. These actions lead to better organizational impact. Since the challenges the Alliance promises to address – climate, global health and equity, for example - are significant, innovative ideas that are adaptable to many contexts are necessary to achieve impact.

The Lisbon Summit

The intent of the inaugural Summit was to define a pathway for shared action. Prior to developing draft plans during the working sessions, leaders worked online to complete two documents: a proclamation and a resolution.

The Proclamation. Given the significance of the challenges confronting humanity in the 21st century, participating organizations produced a public announcement in the form of a proclamation (Appendix 1). This document highlighted commitments from attending psychological association leaders to work together in the interest of positive impact for humanity.

The Resolution. While the Summit Proclamation declared shared good will and genuine interest in global collaboration between psychologists, a detailed resolution (Appendix 2) was also agreed upon and signed by participants. This document outlined the problem of climate change and specific roles and responsibilities for psychologists and the professional societies to which they belong. These included advocacy, research, communications, and educational efforts focusing on aspects of the climate crisis to which psychology can contribute. The Summit Resolution was signed in a formal ceremony by attendees at the Lisbon Summit.

From Lisbon to the Global Psychology Alliance and Beyond

At the close of the inaugural International Summit on Psychology and Global Health: A Leader in Climate Action in the afternoon of November 16th, 2019, leaders of psychology associations from around the world had outlined a work plan for future working meetings and joint efforts associated

with the climate crisis. As this same team was re-convening in early 2020, word of a potential global pandemic began to reach news outlets. By March, COVID-19 had dramatically shifted the landscape for the majority of the world's population. Psychologist leaders in attendance at Summit decided to take shared action on psychological consequences associated with lockdown, uncertainty, social change, and workplace changes resulting from the pandemic.

The effectiveness of these collaborations led to formation of a more permanent entity, the Global Psychology Alliance (GPA), which continues to expand endeavors to contribute to key global problems based on psychological science and shared action. The Alliance focuses on science-based action, and does so by employing leadership based on equity and inclusivity, where participants share knowledge and efforts as a team and are responsive and responsible to one another.

The time for change in psychology is now. Joining together for the Lisbon Summit and committing to continuing to work together as national, regional and international member organizations representing psychologists represents a historical accomplishment for the field. This must be a first step – not a single example – of how psychologists can model trust, value skill, acknowledge and appreciate distinct knowledge and experience, and apply science relevant to identification of potential solutions to critical global issues that affect all of our communities. In the words of Jane Goodall, "What you do makes a difference, and you have to decide what kind of difference you want to make." The Lisbon Summit and the Global Psychology Alliance demonstrated the power of unity in the creation of change. Psychology must embrace our shared space in the interest of achieving our mission to improve the human experience.

Immediate Follow Up to Lisbon

The plans and commitments of the associations whose representatives attended Lisbon are summarised at the end of this publication (Appendix 3). These were an impressive start to a coordinated approach to climate action on behalf of the global psychology community.

The challenge was how best to follow these up once all participants returned home and the euphoria associated with what had been a very successful

Summit dissipated.

In late November 2019, the Summit facilitators, Terri Morrissey and Richard Plenty produced a report summarising the event and outcomes (Morrissey & Plenty Lisbon Summit on Climate Change Facilitator Report 21 November 2019). Here is what they said regarding post-summit arrangements/plans:

'*There was a very good spirit of collaboration and co-operation throughout the summit and what seemed to be a genuine commitment to follow up. At the end of the Summit it was agreed that the organisers (APA and OPP) would*

- *summarise the material and outcomes and circulate to all within a week*
- *convene a wider interim working group to come up with options on the way forward*
- *set up a communication follow up meeting for all parties in January 2020*

Our own sense is that rapid progress in this area is likely to be driven initially by:

- *all associations keeping to their commitments and delivering their plans*
- *those associations who already have a track record, expertise and resources having the generosity of spirit to collaborate and share their experience with others. Having a 'social network' platform in place could facilitate this greatly*
- *finding a way of prioritising, managing, resourcing, funding and communicating the key international topics. This could initially be developed by the leaders of each interest area acting as 'change' champions' and shared with the APA/OPP team*
- *in due course, developing an overall international framework for steering the effort '*

The authors of the report stated their personal commitment to "provide ongoing support for this work". In fact, there were a number of participants keen to drive things forward.

Before concluding the Summit, several representatives agreed to form a 'working party' to organise the follow-up over ensuing months and establish means of maintaining contact, monitoring progress, and supporting and

assisting member Associations to pursue the aims of the Summit. Led by Dr Amanda Clinton, that group met online several times in early 2020 and through that and email exchanges, put in place a resource and reference library and established a network for ongoing communication amongst the associations. I

Online (zoom) meetings were organised across three time zone groupings, with all associations having the opportunity to attend in the most convenient (or least inconvenient) time slot for them.

In parallel with this initiative, a Steering Group was convened in January 2020 to guide and coordinate the follow- up process. It had an initial meeting on January 30th. Its overall aim was to find ways of ensuring that the profession had a global voice in areas where it had a unique contribution to make and that psychology's insights from research and practice on human systems, attitudes and behaviours were swiftly and fully brought to bear on this potentially existential global challenge, in particular that:

- psychological and behavioural considerations are factored properly into international agreements and treaties
- messages on climate change are delivered to the right audiences in ways that build support
- societies deal with the anxiety and mental health issues increasingly associated with climate change – before, during and after crises
- influential organisational and political leaders can best be persuaded to take climate change into account in policy formulation
- interventions on climate change work as intended and do not just end up creating social disharmony, polarisation and division

Example of Summit Steering Committee Meeting Agenda
30 January 2020 3pm-4pm EST

Invited participants:

Sarb Bajwa, BPS
Karen Cohen, CPA
Michael Ezenwa, NPA
Frances Mirabelli, APS
Richard Plenty, This Is Consulting
Francisco Rodrigues, OPP
Amanda Clinton, APA
Brian Dixon, NZPsS
Arthur Evans, APA
Terri Morrissey, This Is Consulting
Sofia Ramalho, OPP
Bernardo Useche, COLPSIC

Items:

I. Define role and responsibilities of steering committee
   a. Convener? Staff support? Keeper of meeting minutes?
   b. Frequency of steering committee calls?
   c. un-setting steering committee?

II. Review Summit reports
   a. "This Is" Consulting – Terri Morrissey and Richard Plenty*
   b. Minutes – Amanda Clinton*

III. Discuss progress since Summit
   a. Association-level efforts*
   b. Efforts by area for urgent action*

IV. Prepare agenda for participant calls
   a. Needs that arise from the tables
   b. 2020 Summit follow-up plan (calls, structure, etc.)

V. Convene Summit participants at ICP in Prague?

VI. Invite additional associations to join Proclamation and Resolution?

The Steering Group recognised that fulfilling these goals required building a global professional community, ensuring that those with less experience can swiftly get up to speed and learn from those who already have deep expertise. This is because the credibility of any interventions at a global level wasis likely to be strongly influenced by the quality of psychological inputs at national level and informed interventions in national jurisdictions.

The group also recognised that a key first task was to decide how best to prioritise, resource, and manage the work associated with the six working

groups formed at Lisbon. The Steering Committee felt that developing a social network platform and community to facilitate exchange of ideas was a sensible starting point. It also believed that research/science and influencing public policy were key, as internationally agreed science and research could provide the solid foundation needed to impact key decision makers.

Regional Working Groups were set up in February 2020 to support the Steering Committee in deciding how best to move this forward. Results of their discussions indicated that most associations were in practice focusing their work in three areas: education, communication, and policy. Immediate recommendations were made on how best to share information to ensure everyone was up to speed through use of shared resources on the LIST SERV. Other recommendations on media campaigns and influencing public policy were proposed, all in the context of leading up to the upcoming UN Climate Change Conference COP26 in Glasgow.

The results were impressive. By the end of February, a number of organisations not present at the Summit had joined the network and the resource library became the repository for information from the Lisbon Summit, climate psychology literature and records of the association commitments and their work to implement plans.

Longer Term Follow up to Lisbon

Unfortunately, this momentum proved impossible to sustain, due to an unanticipated global development. By March 2020, nations around the world were feeling the effects of the COVID-19 pandemic and the attention of the network turned to addressing the impact of the coronavirus on populations and the need for psychology to concentrate its resources on the immediate crisis. The urgent needs of people became paramount.

Not only was the communications network affected by the pandemic, so too was the capacity of associations to pursue plans made at the summit on climate change and motivate their members' attention to it. While some, were able to meet a number of their commitments (eg like the New Zealand Psychological Society hosting an international conference session on responding to global issues - albeit adapted to incorporate the pandemic response as a 'global threat'), most were forced to cancel plans for events during 2020 (and also 2021).

Most associations came to see the value of the newly-titled 'Global Psychology Alliance'[5] (GPA) as an international "clearinghouse" for COVID-related communications and resource sharing, while a few continued to work in the background on the climate change agenda.

The formal framework for followup to the work on Climate Change was suspended. Both the Steering Group and Regional Groups halted in the March timeframe as COVID struck.

In September 2020, the Alliance resumed work in the Climate Change area through the formation of a climate change subgroup, co-convened by Terri Morrissey and Brian Dixon.

This group started by making efforts to re-engage Alliance Members around the theme of climate change. It carried out a survey in October and November to ascertain current views on the topic and what is considered important. 39 organisations responded, 63% of the current membership. The findings included:

- There is a continued interest in the topic and recognition of its importance
- The current focus is on supporting those affected by climate change rather than trying to influence attitudes, behaviours and policy that might prevent it
- There is limited expert knowledge of the topic. Only 18% felt that they were well informed on issues relating to climate change
- There are opportunities for psychologists to contribute to consultation and training on climate change prevention
- There are limited funds available to support the work, with just 18% claiming they had access to funding opportunities.

Morrissey and Plenty produced a second report in November 2020 ('One Year On …What progress has been made? What next?') in which they considered the efforts of associations in that year with regard to the Lisbon Summit objectives and agreements. After summarising activity post Lison, they made a number of observations relevant to the next steps.

In particular, they pointed out that whilst progress on climate change follow

5 Global Psychology Alliance: https://www.apa.org/international/networks/global-psychology-alliance

up had been slower than expected, the GPA had gained valuable experience over the year on how best to work internationally, virtually, together and at pace as a result of having to deal with the COVID pandemic. This provided a potentially more robust platform for addressing the longer term challenge of climate change than had been in place at the Lisbon Summit.

Experience over the year had clearly shown the importance of the international perspective and the associated need for continued collaboration between Alliance members. At the same time, a number of challenges associated with this approach - endeavouring to address global climate change through co-operative national and international actions - had become clearer including:

- Political and cultural diversity can lead to differences in perceptions of the issues. There are myriad ways in which climate change can be understood and addressed and 'one size does not (always) fit all' when it comes to preferred local action
- The level of resources available to the various associations - and the work already in progress on the issue - varies enormously
- Developing a coordinated science-based approach with varying levels of expertise is also a challenge. There are areas of the world where psychology does not have an influential voice, but which are impacted nevertheless by climate change.
- The wide variety of climate change effects being experienced (or anticipated) across nations and regions (and even between communities) and the range of responses that will be necessary, not just from psychology, but from leaders at all levels to avoid, ameliorate or adapt to the changes. Some of the most urgent need for support and empowerment is that of the world's Indigenous peoples, many of whom live in settlements situated in places subject to imminent or increased risk (such as coastal areas or near bodies of water or in poorer areas of our cities) and whose access to resources and technology are usually limited.
- The interrelatedness of the climate emergency and social issues, and the implication that psychology cannot address climate change effects without also considering the challenges posed by poverty, equity and a lack of resources and political influence. Psychologists engaged in climate action require an awareness of the responsibility they have to advocate for

Just Transitions.

The experience gained through how ALLIANCE members learned to work together through COVID was invaluable. The spirit of collaboration, co-operation, learning and support that had developed had been remarkable. In particular, the informal and egalitarian nature of the Alliance had facilitated the sharing of ideas and concepts and the rapid dissemination of outputs that help build shared understanding. This had been greatly assisted by those associations who already had a track record, expertise and resources having had the generosity of spirit to collaborate and share their experience with others. It is important to build on this success.

They saw he next steps as follows:

- **Ensure all Alliance Members are on the same page** with the work that has been done to date on climate change. A number of new members have joined since the Lisbon Summit and some members who were at Lisbon have been focused on COVID-related issues. This report aims to do that.
- **Support national associations to continue work on their plans**. A first step would be to revisit the 'six-month' national plans developed at Lisbon, identify any overall themes, and assess what has been learnt from their experience. A second step would be to put in place a simple system for encouraging associations to develop plans for 2021 and to put a process in place for sharing and learning from each other on an ongoing basis
- **Strengthen the frameworks and processes** that support the networked organisation and identify any need for supporting resources as appropriate. For example, does the Alliance need to seek funding for shared resources to enable this to happen?
- **Further develop the capabilities of Alliance Members** by providing opportunities for learning/ expert input from climate change specialists, including the APA working group. One way of doing this would be to build a community of internationally-recognised climate change experts who would support the Alliance
- **Link activities to an overall objective** (e.g. contributing to the Glasgow COP 2021 could be an aspirational goal) and evaluating what is needed

to be able to do that effectively

From mid 2021, the GPA's attention turned back to the climate and psychology focus, with more discussion on organising projects related to this. From this, arose the GPA delegation to the UN Climate Change Conference of the Parties (COP26[6]) in Glasgow (31 October to 12 November 2021), with associated publicity and statements[7], and the two-day online conference held a week later in November 2021 with the theme *Psychology in Action: Leading for the Climate*[8].

That conference featured members of the Global Psychology Alliance and other invited guests whose presentations and commentaries spanned a broad range of climate and psychology-related issues with a focus on evidence-based psychological contributions to climate change policy and programmes.

The GPA's attendance at COP26 brought to a successful conclusion the first stage of GPA's aspiration to ensure international psychology and psychological science is involved more closely in tackling major global issues. Whilst there were very few formal contributions from psychologists in the COP26 agenda, there was a good understanding in principle of the relevance of psychology from politicians, diplomats, NGOs and business leaders who interacted with GPA delegates at the conference. The issue now is to ensure that the contribution that is made in future is coordinated, targeted and seen to make a difference.

The challenges involved in this next stage of GPA development were articulated clearly by the APA Past President Sandy Shullman in a speech at the Psychology in Action conference. If the GPA is to be effective in the longer run, the network must continue to evolve. It will need to be more systematic, coordinated and disciplined in the way it operates, whilst not losing the spirit of collaboration and cooperation that brought it early success. It will also need to continue to raise the standard of its professional expertise.

6 COP26 - https://ukcop26.org/

7 Psychological Contributions to Addressing the Climate Crisis. Statement by APA and GPA for COP26: https://www.apa.org/international/resources/psychological-contributions-climate-change-crisis.pdf

8 GPA conference. Psychology in Action: Leading for the Climate (18-19 November 2021). https://www.apa.org/international/resources/leading-for-climate

The publication: Climate Action and Global Psychology

The other major venture undertaken by members of the Global Alliance is this publication, on which the editors have been working since August 2021. The focus of this has been mainly to document the work of Member Associations that were represented at the Lisbon Summit and the issues experienced in applying psychology to the climate crisis in their countries and continents. The aim of this project has not been to provide an exhaustive or comprehensive coverage of climate psychology around the world but to produce a sample of experiences of those whose plans were set at the summit in November 2019 and to document progress with those plans.

Conclusion

The GPA has achieved some significant work during 2020-2021, and in the middle of a global pandemic. Its next steps will be to host a second Summit in Bogota, Columbia, in June 2022, where issues of global significance to psychology will be addressed.

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Climate Change and Psychology: Past, Present, and a Better Future

Janet K. Swim[1]

This paper is an updated version of the talk given in Lisbon, November 15, 2019.

Just over a decade ago, I began my foray into American Psychological Association (APA) governance by serving on their council of governance representing social psychology. In one of the first sessions I attended, we voted to approve a resolution acknowledging the validity of evolutionary science. Having been freshly baptized into climate science by watching Al Gore's movie "The Inconvenient Truth" and spurred to think about my realm of social influence from a training led by Sandy Shulman, I thought to myself, "Why don't we pass a resolution acknowledging the validity of climate science." I approached people like Steve Breckler, the past director of APA's Board of Scientific Affairs, and Howard Kurtzman, a staff representative to the Board, to find out how to get resolutions to council. They told me that I would have to, first, convince psychologists that psychology was relevant to the topic: We don't just vote to affirm research outside of our field because we agree with it. With this feedback and encouragement, Lynn Cooper, my fellow representative for social psychology on council, and I wrote a resolution to form a task force on the "Interface between Psychology and Climate Change." In 2007, the task force was approved by APA Council and funded by the Board of Directors.

With support from APA's staff, eight of us met virtually and wrote the task force report in 2008 and 2009[2]. The goal of our task force was to inspire and aid psychologists' engagement with climate change. The report was

1 Ph.D.,The Pennsylvania State University

2 At the present juncture with time with our collective immersion into virtual meetings, it is curious to note that we were lauded for having our monthly meetings be virtual. We had met in person once and decided that we preferred to not travel for many reasons including not contributing to carbon dioxide emissions from our travel

foreshadowed by a booklet in APA's series on "Societies Grand Challenges" led by Alan Kazdin (Kazdin, 2009; Society's Grand Challenges, 2008). The upswing in interest in psychology and climate change before our task force is illustrated in Figure 1. This figure summarizes peer-reviewed scholarly articles that mentioned either "climate change" or "global warming" anywhere in the document from APA's PsychInfo database. The first year that an article was published was 1993. Our task force report was published in 2011 in a special issue in the *American Psychologist* (Swim et al., 2011). In 2011, the APA adopted the *Resolution on Affirming Psychologists' Role in Addressing Global Climate Change*.

Amazingly, for a few years after approval and publishing of the task force report, there was a flurry of international attention to know what psychology had to say about climate change. Perhaps most unexpected and a meeting where I learned the most was an invitation to speak in South Africa at their governmental meeting of "Countries of the Southern Hemisphere" in 2009. Also illustrative of interest outside of psychology were speaking engagements at the Behavioral Economics and Nature Network meeting at the Royal Swedish Academy of science in 2010 and the 20th meeting of the Production and Ecology and Resource Conservation symposia at Wageningen University in the Netherlands in 2011. This and press attention revealed that, while we were trying to illustrate to psychologists the vital role they could play in addressing climate change, the world was eager to know what we had to share.

We have learned a lot since the publication of this original report. Four times more articles were published a decade after the publication report than all previous years, illustrating these advances (see Figure 1). There have also been several special issues devoted to climate change in psychology journals: *American Journal of Community Psychology* (Riemer & Reich, 2011), *American Behavioral Scientist* (Dunlap, 2013)[3], the *European Journal of Social Psychology* (Fielding et al., 2014), *Group Process and Intergroup Relations* (Pearson & Schuldt, 2018), and two in *Current Opinions in Psychology* (Ferguson & Schmitt, 2021; van der Linden & Weber, 2021). There is also an upcoming

3 This journal aims and focus are broader than psychology, targeting social and behavioral scientists. I mention it for two reasons. It is one of the earliest special issues reviewing research of interest to psychologists studying climate change. The lead editor is a Sociologists and was one of the leads for American Sociological Association published a task force report on climate change that includes and informs topics of interest to psychologists (Dunlap & Brulle, 2015).

special issue in *Translational Psychology Science* supporting graduate students and post-doctoralresearch in this area. Another marker of progress is APA's review of research on climate change and mental health (Clayton et al., 2017, 2021). Further, international and interdisciplinary valuing of the research is demonstrated by psychologists from multiple countries being invited to contribute to the United Nations International Governmental Panel on Climate Change (IPCC). Continuing to grow APA's commitment to addressing climate change, in 2020, a second climate change task force was convened to develop recommended actions for APA in research, teaching, practice, and climate change communication. (American Psychological Association Task Force on Climate Change, 2022)

Figure 1: Number of climate change/Global warming articles noted in PsychInfo from

1992 to 2021

Overview of research

I cannot review all the research that has occurred. Instead, I pick a few illustrative relative well-developed areas. These areas have an advantage of building off (on?) a history of research in environmental risk perception, pro-environmental behaviors, and environmental stressors.

Beliefs and Perceptions of climate change. Beliefs and perceptions of climate change are core to a psychological understanding of climate change. Risk perceptions suggest perceived urgency to address climate change solutions. In contrast to impressions of other people's beliefs and perceptions

(Leviston et al., 2013; Mildenberger & Tingley, 2017), most believe that climate change is occurring, serious and human-caused (Akerlof et al., 2010; Capstick et al., 2015; Fagan & Huang, 2020; Krosnick & MacInnis, 2020). However, survey data also reveal some problematic nature of perceptions. While acknowledging future threats, most believe they are safe from climate change. Other problems, such as the economy or COVID, are more top of the mind (Gallop, 2021). For some, addressing climate change will be seen as antithetical to boosting the economy (Geiger & Swim, 2021). Increasing uncertainty of diametrically opposed climate change beliefs (Krosnick & MacInnis, 2020) and ideologically aligned disagreement about what responses should be taken (Funk, 2021) are indicators of polarization of opinions about climate change and solutions.

Variation in beliefs results from different sources and interpretations of information. Sources of information include direct experiences mostly with extreme weather events and what people hear or read in mass media and from other people (Clayton et al., 2015). This information is filtered through various cognitive and motivational lenses such as trust in the sources, desire to maintain the status quo, and social identities (Hornsey & Fielding, 2017). These filters result in predictable correlates of these beliefs. The strongest correlates are people's political affiliations and ideology: Left-leaning individuals believe more strongly in human-caused climate change and report greater willingness to support solutions (Hornsey et al., 2016; Krosnick & MacInnis, 2020). Weaker, though still notable correlates, reveal that younger people, women, those with higher income and education, and racial minorities are more likely to endorse such beliefs (Hornsey et al., 2016).

Behaviors. Fundamental to achieving climate change responsible behaviors is understanding a range of behaviors to consider (see Figure 2). One class of behaviors is personal and household behaviors (aka private sphere behaviors). These behaviors include those that mitigate (i.e., lesson or remove) human contribution to climate change and behaviors that help people adapt to (i.e., respond to and prepare for) current and anticipated impacts of climate change. Another class of behaviors is one that facilitates system change. These behaviours include collective action to demand change, civic participation to support climate change policies and practices, and talking (i.e., interpersonal communication) within one's social networks to change social norms, support each other, and coordinate responses.

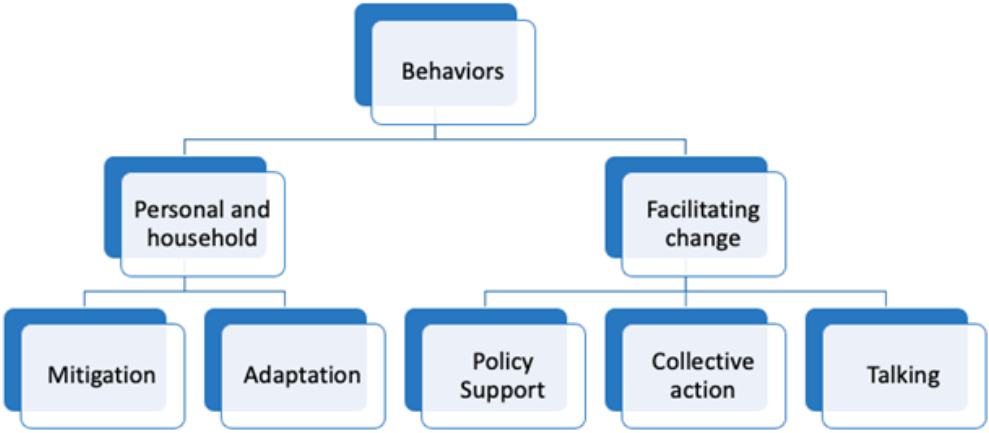

Figure 2: Classification of climate change-relevant behaviors.

Much of the research on climate change behaviors has focused on personal and household actions, and among these, most of the research is on mitigation behaviors. The importance of studying individual mitigation behaviors is illustrated by emissions associated with behaviors. A common way to report human contributions to climate change is via emissions by economic sectors. As shown on the left side of Figure 3, in the United States, electricity generation and transportation are the highest contributors, and residential contribution is only about 5%. One might conclude that individuals and households contribute little to climate change. This portrayal is problematic because it can justify ignoring household behaviors and deflate motivation to change. In contrast, looking at emissions by users (the right side of Figure 3), U.S. households contribute nearly 30% of emissions (Vandenbergh & Gilligan, 2017). This change in allotment of responsibility is because it leaves household energy use and personal transportation out of electricity generation and transportation into residential energy use. Calculated this way, U.S. household emissions are greater than those produced by all of Latin America

combined.

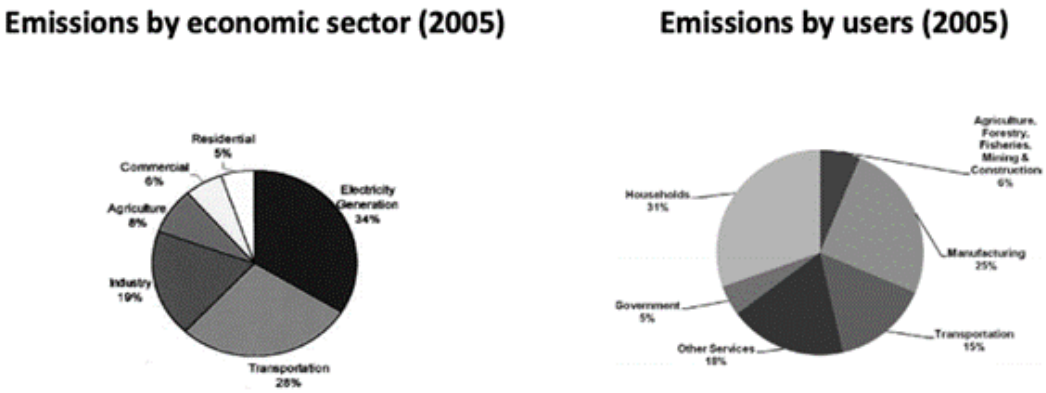

Figure 3: U.S. contribution to climate change. (Vandenbergh & Gilligan, 2017)

Household mitigation behaviors can be further specified (see Figure 4). Totaling up these 17 behaviors would reduce U.S. emissions by 17%. This figure also illustrates the importance of combining both impact of behaviors and the likelihood that people change them (i.e., plasticity). The two behaviors to target in interventions that would have the most impact are weatherizing one's home and switching to fuel-efficient vehicles (see Figure 4; Dietz et al., 2009). Notably, trip chaining and carpooling would reduce emissions more than weatherizing one's home, but the probability of change here is lower, reducing its likely ability to achieve emissions reductions.

Knowing emissions is also potentially informative for behavioral interventions. For example, when asked the best way to save energy in one's home, people routinely indicate turning off their lights (Attari et al., 2016). Turning off lights reduces emissions. However, changing to LED lightbulbs is more impactful because of the percent reduction in emissions from incandescent to LED lightbulbs and the lack of need to repeat the behavior. Changing lightbulbs also illustrates the importance of combining emissions with the likelihood of change. Each incandescent lightbulb uses little energy, but because of the widespread adoption of a change to LED change, in 2017, the amount of CO2 emissions reduced by this change was equal to shutting down 162 coal-fired power plants (IHSMarket, 2017).

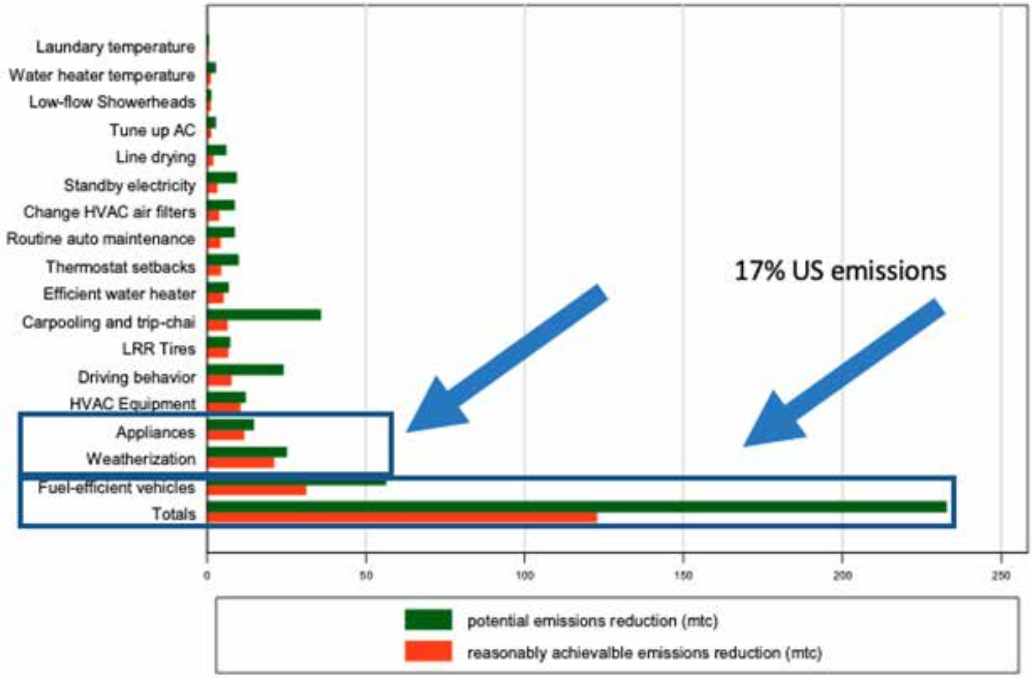

Figure 4: Potential and reasonably achievable emissions reductions (Dietz et al., 2009).

There are many methods and models for encouraging and modeling pro-environmental behavioral change, which is translatable to climate change behaviors. Most models reduce to a) increasing motivation and b) increasing the ability to engage in the behavior of interest. Motivation can be general, such as concern about the effect of environmental problems on the biosphere (Swim & Becker, 2012), potentially tapping into core social motives (Brick et al., 2021) and behavioral specific, such as feeling hopeful while contemplating doing a particular behavior (Geiger et al., 2019; Geiger, Swim, Gasper, et al., 2021). Ability to change can be improved by overcoming practical barriers such as financial and behavioral costs of doing behaviors and concerns about health and safety (Truelove & Gillis, 2018), enhancing perceptions of collective efficacy, which can translate into improved perceptions of self-efficacy (Jugert et al., 2016), and community change, such as more bike lanes (Kraus & Koch, 2021). Considering interventions, social influence

is powerful, especially when actions are public, as illustrated by the strong effect of block leader programs, public commitments, and role modeling (Abrahamse & Steg, 2013). Another consideration is the best time to intervene to change habits, which arguably constitute many behaviors, is during "moments of change," such as moving to a new location (Verplanken & Roy, 2016). These times provide opportunities to set situations that better align pro-environmental values with behaviors.

Health impacts and coping. Climate change impacts go beyond geophysical effects of extreme weather events to include threats to physical and mental health from the trauma experienced from extreme events, threats from food and water security, and existential threats about one's future or one's children's futures, and the threat to the existence of all life. These present as threats to community health and mental health (see Figure 5) and have also been documented in overlapping research in medical journals.

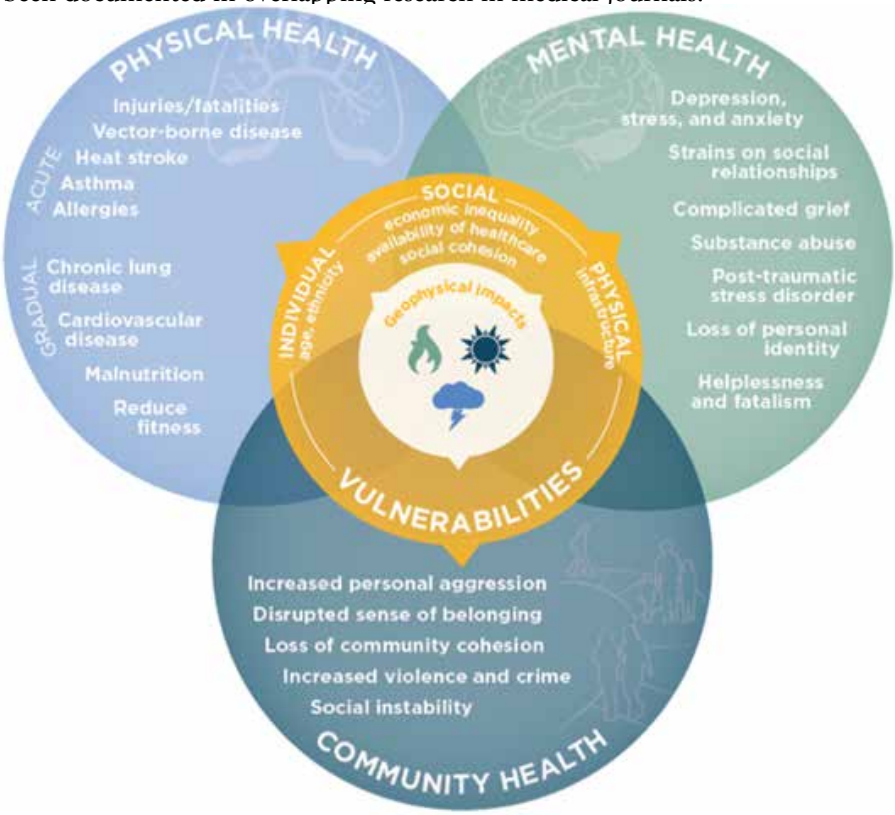

Figure 5: Climate change impacts on human health and well-being (Clayton et al.,2021).

Critically, these effects are not equally distributed across countries and communities within countries. Those with the weakest social influence, least economic capital, and the youngest and oldest people are most vulnerable to climate change impacts. Impacts can be felt particularly strongly by those with stronger connections to the land, such as indigenous populations (Billiot et al., 2019). Understanding the range of impacts and the social, personal, and economic resources individuals have available can be essential to helping individuals cope with climate change.

Creating a better future

Despite this progress, several areas need more attention (see Figure 6).

Figure 6: Future Directions for Psychologists

Expand research. There is growing attention to behaviors other than mitigation behaviors noted in Figure 4, but more is needed. Research on adaptation is critical because of our collective inability to avoid impacts of climate change, particularly if mitigation efforts are delayed or thwarted. Several studies have tested correlates of household mitigation and adaptation behaviors (Valkengoed & Steg, 2019). The APA report on climate change and mental health includes a range of other ways to improve psychological and community resilience (Clayton et al., 2017). Moreover, the Australian Psychological Society has compiled valuable resources grounded in psychological research to help people identify and cope with climate change distress and burnout and advise about how to talk to children about climate change (*Climate Change | APS*, 2021). Still, the studies are limited by the types of impacts studied and the range of responses assessed (e.g., primarily effects of flooding, hurricanes, and wildfires and associated coping responses) (Valkengoed & Steg, 2019).

Psychologists have expertise that could build on this research. For example, there is much potential for research on climate migration: Psychologists can apply research on acculturative stress to understand migration decisions and their impact on the stress experienced in one's new home (English et al., 2019). They can use their knowledge about psychological resilience to help build adaptive capacity for climate migrants (Khanian et al., 2019). They can apply their expertise on intergroup relationships and targets perspective on prejudice to understand the treatment of climate refugees and how they cope with such treatment (Pearson et al., 2021; Stanley et al., 2021).

There is also great potential for expanding research on behaviors that facilitate change. These topics are necessary because of situational limitations on our actions and the potential to apply related well-researched topics. Research on climate change collective action can be found in social psychology journals (Tam et al., 2021). Yet, the research could expand by drawing even more on findings from other areas of collective action. The latter often focuses on demographic groups' social identities, but there are other group identities of relevance (e.g., political affiliation, being a vegan or animal rights advocate; Bamberg et al., 2015; Bashir et al., 2013). The ability of numeric minorities and stereotypes about activists and the success of engagement can also be extended to climate change action (Bashir et al., 2013; Bolderdijk & Jans, 2021; Geiger & Swim, 2016; Swim et al., 2019).

There is a need to move from perceptions of climate change to perceptions of solutions. These perceptions include prioritization of mitigation policies, adaptation policies, and when support for one type of policy might spill over to influence perceptions of other approaches (Carrico et al., 2015; Raimi, 2021; Swim & Geiger, 2021).

There is also a need for research explicitly addressing psychological factors that influence business and organizational behaviors because of the size of their impacts, and it can potentially represent an alternative to waiting for government action (Prado-Lorenzo & Garcia-Sanchez, 2010; Reid & Toffel, 2009; Unsworth et al., 2021; Vandenbergh & Gilligan, 2017).

There is a critical need to attend to social justice. Examining the articles that emerged in the search results presented in Figure 1, it was reassuring that 134 of the articles also mentioned the word justice. Yet much more attention is needed (Pearson et al., 2021). For example, there will be increasing numbers of climate migrants whose acculturation processes and stressors may overlap with but also be distinct from other reasons for migrating. Another consideration is how and at what stage in diffusion of innovations will economic status affect purchasing expensive technology like solar panels (Wolske, 2020). Also, once implemented, some policies may have different impacts on different social groups, with some policies potentially resulting in disadvantages for certain ethnic groups (White & Sintov, 2020).

Participation by more psychologists. To accomplish research expansion, more psychologists need to be involved, and the psychologists must represent people from more fields of psychology. I examined the articles in *PsychInfo* noted in Figure 1 to approximate which psychology areas are most and least represented. Perhaps not surprisingly, environmental psychology journals had the most publications (Table 1). Education journals had a close second area, followed by businesses and organizational, risk assessment, and physical and public health journals.

The absence of certain journals points to areas of growth. While education is a prime research area, the *Journal of Education Psychology* and the *Journal of Higher Education* had no publications that included the words climate change or global warming. Similarly, while business and organizational journals are attending to climate change, no articles were from *Journal of Applied Psychology*, which targets Industrial-Organizational psychologists.

Moreover, given the many possible places for publishing clinical research, none of the publications from some of the highest impact journals targeting clinical and consulting psychologists were identified in the search (i.e., *Journal of Abnormal Psychology, Journal of Counseling Psychology, Journal of Consulting and Clinical Psychology*, *Psychological trauma*) and none of the journals that would seem to have topics directly related to mental impacts identified in other publications (i.e., International Journal of Stress Management; Psychological Trauma: Theory, Research, Practice, and Policy).

Research area	**Number publications by area**	**Journals**
Environmental	239	Journal of Environmental Psychology (N = 144); Ecopsychology (N = 54); Environment and Behavior (N = 43)
Education	236	Environmental Education (N = 87); International Journal of Environmental and Science Education(N = 25); The Journal of Environmental Education (N = 24); Journal of Research in Science Teaching (N = 15); Journal of Science Education and Technology (N = 13); Science Education (N = 9); Computers & Education (N = 8); Social Work Education (N = 8)
Business and organizations	156	Business Strategy and the Environment (N = 67); Journal of Business Ethics (N = 48); Journal of Economic Behavior & Organization (N = 25) British Journal of Management (N = 8); European Management Journal (N = 8); Academy of Management Journal (N = 7); Group Decision and Negotiation (N = 7)

Risk	154	Risk Analysis (N = 96); Journal of Risk Research (N = 58)
Physical and Public Health	115	Social Science & Medicine (N = 32); Asia-Pacific Journal of Public Health (N = 26); Public Health (N= 23); International Journal of Public Health (N = 11); American Journal of Public Health (N = 9); The Australian Journal of Rural Health (N = 8)
Social	69	European Journal of Social Psychology (N = 13); Journal of Applied Social Psychology (N = 11); Asian Journal of Social Psychology (N = 10); Behavior and Social Issues (N = 9); Journal of Social Issues (N = 8); Judgment and Decision Making (N = 13)
Psychological and Psychiatric health	54	Traumatology (N = 13); Journal of Affective Disorders (N = 10); Australasian Journal of Disaster and Trauma Studies (N = 7); Australian and New Zealand Journal of Psychiatry (N = 7); International Journal of Applied Psychoanalytic Studies (N = 9); Child and Adolescent Mental Health (N = 8)

Table Note: This represents about a third of the articles noted in Figure 1. Other publications are from journals in other social science disciplines other than psychology (e.g., sociology, anthropology, tourism), general review journals (e.g., American Psychologist). Other journals do not as obviously overlap with different areas and have less than 15 publications[4].

4 There are limitations to conclusions one can draw from this search. The database does not include all places where psychologists are publishing. For example, it does not include Global and Environmental Change or Energy and Policy. The search could miss articles that are related to climate change but the authors do not specifically mention climate change. For example, researchers may study PTSD and natural disasters or immigration as a result of threats to farming practices but they may not mention climate change. Finally, the search may have a US

Better data: Better evidence. Our ability to contribute to the broader field of climate science will require that we collect better data and better evidence of our findings. A key to better data is research with non-WEIRD (White, Educated, Industrialized, Rich, and Democratic) samples. The research on perceptions of climate change, even those outside of the United States, is dominated by WEIRD samples (Akerlof et al., 2010; Capstick et al., 2015; Fagan & Huang, 2020; Krosnick & MacInnis, 2020). As another example, Tam and colleagues (2021) found that 92% of the 118 climate change studies in social psychology journals they identified used samples or data from WEIRD countries, and only 8% collected data from more than one country. Moreover, of the 80 articles where first author affiliations were identifiable, the authors were from highly developed countries, and 80% were from western countries. This call for non-WEIRD samples is not unique to this topic (Henrich et al., 2010). Still, it is particularly critical given the global nature of the problem and non-WEIRD populations simultaneously being the least responsible for climate change and the most vulnerable to climate change impacts.

Better evidence would consider geographic distribution of impacts and pair the impacts with climate change scenarios – temporal predictions of climate change impacts that vary based upon the extent to which human contribution to climate change is mitigated (Cianconi et al., 2020). This research can potentially differentiate natural variation in impacts from variation attributable to or exacerbated by climate change. The findings could also better project impacts, attend to local variation in impacts, and better target types of resilience needed by location.

There are a few exemplary studies that illustrate this type of evidence. An example is research that projects death rates over time in older individuals based upon geographic location and whether climate change proceeds with no change or we hold climate change to 2 degrees warming (Ahmadalipour et al., 2019). Figure 7 illustrates a portion of these results. While mortality risk appears relatively low now, if we do nothing, there is a high probability of risk of death in upper-middle countries in Africa. If we maintain temperatures,

bias if PsychInfo underrepresents journals published in other countries. None-the-less, even with these caveats, a review of the publications provides a picture of the disciplines that are doing the most, the areas that are emerging and could do more, and areas where expertise is needed but not well represented

risk still increases, but by a lesser amount. Clearly, death is not the only outcome one could project. There will be many individual, family, and community impacts because of these deaths. Connecting projected climate change impacts directly to mental health impacts indicates exponential increases in reported mental health issues with projected increases in temperatures and precipitation in the U.S. from 2010 to 2099 (Obradovich et al., 2018). This modeling also reveals that poorer people and women are more likely than men x to be negatively affected by these changes.

More interdisciplinary connections. A decade ago, Alan Kazdin, former president of APA, persuasively wrote that psychology was a hub discipline critical for addressing many wicked problems faced across the globe, including climate change (Kazdin, 2009). Yet a hub without spokes will not turn. Despite other disciplines' attention to psychology and acknowledgment of the importance of psychology, many do not fully understand how psychology can contribute to not just behavioral change but system-level change, individual and community resilience, and the psychological impacts of climate change. Psychologists' full array of contributions needs to be communicated to others. Psychologists also need to attend to other disciplines. Psychologists can ensure their science information accuracy by working with climate scientists. They can work with those in social sciences and humanities. For example, psychologists could contribute to research on subjective resilience (individual and community perceptions of their ability to cope with climate change) researched in other fields (Clare et al., 2017; Jones, 2019; Jones & Tanner, 2017). As another example, they can also help develop and understand the impacts of climate art on audiences (Roosen et al., 2017; Sommer et al., 2019).

Integrate with other global problems. Lastly, it is essential to avoid myopically focusing on climate change. Climate change is not the only planetary threat (Stockholm Resilience Centre, 2021). Climate change contributes to, exacerbates, and is accentuated by other threats. For example, carbon dioxide in the atmosphere warming the planet also increases ocean acidification. There are major threats to biodiversity, some of which are caused by climate change, while others are caused by land-use change. Land-use change has other effects, such as diminishing water quality, changing market forces and rural identity (Wu, 2008). Land use change that increases contact with nature can also result in social and health benefits and greater connection

to nature (Kuo, 2015; Lengieza & Swim, 2021). Moreover, when faced with widening economic disparity and made even more salient with COVID (Yonzan et al., 2021), perceived threats from economic and social impacts of climate change policies could influence support for and even resistance to climate change policies (Geiger, Swim, & Benson, 2021; Swim & Geiger, 2021).

Our collective future

Psychology has come a long way in our understanding of and contribution to addressing the climate crises we are facing and anticipating. Knowing what has already been done and what is lacking is beneficial. The resulting expansion of our research can result in translating our strengths to new areas, working with others across psychology, other disciplines, and countries, and training our students to take on the challenges that are in front of us.

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REGIONAL AND NATIONAL APPROACHES

This section presents national approaches and plans from respective psychological associations and looks to the future implications for national policies

Psychology and Climate Change: Perspectives and Initiatives of the Canadian Psychological Association

K.R. Cohen[1] and Lindsay McCunn[2]

In May of 2019, the Canadian Psychological Association (CPA) was pleased to accept the invitation issued by the American Psychological Association (APA) and the Ordem dos Psicólogos Portugueses (OPP) to attend a November 2019 international summit on psychology's influence on sustainable development goals. The CPA and its leadership welcomed this invitation and, in particular, its focus on the contributions that psychological science and practice can make to public policy around the world.

The 2019 summit presented a novel opportunity; one in which leaders from a broad range of national psychological associations could come together with an outward focus. Instead of a more traditional meeting, where psychology leaders meet to share information on issues specific to the discipline and profession, here was an opportunity to focus on what psychology could contribute to the issues and problems that face others: governments, decision-makers, and the public at large. The CPA applauds our colleagues at the APA and the OPP for their leadership and outward-focused vision in calling for the Summit.

The CPA defines psychology as the study of how people think, feel, and behave (Canadian Psychological Association [CPA], 2021). The ways in which people think, feel and behave are relevant to all policies, programs, legislation, and regulations. Psychology has a tremendous amount to offer in the service of evidence-informed public policy and the 2019 summit offered us the opportunity to focus our networking and information-sharing outward and contribute to the public good. Since its incorporation in 1950, the first of the CPA's objectives was to improve the health and welfare of all Canadians. Our mission and vision, revised in 2020, retains that focus - it is one that serves

1 *Ph.D., C.Psych., CEO, Canadian Psychological Association*
2 PhD, Professor of Psychology at Vancouver Island University, Chair of the Environmental Psychology Section of the Canadian Psychological Association

the discipline and profession in the service of society (CPA, 2021):

- **Vision**: A society where understanding of diverse human needs, behaviours and aspirations drive legislation, policies and programs for individuals, organizations and communities
- **Mission**: Advancing research, knowledge and the application of psychology in the service of society through advocacy, support and collaboration

The policy focus for the November event was psychological associations' efforts to mitigate and prepare for the impacts of climate change. This focus was particularly opportune for the CPA since Canada's 2020 federal budget consultations, convened in 2019, invited stakeholders to focus their recommendations on the environment. CPA routinely responds to the annual call from the federal government to make federal spending recommendations and the 2020 budget year was no exception. The CPA organized our presentation at the November 2019 International Psychology Summit around our 2020 federal budget submission (CPA, 2020).

The guidelines for how delegates were asked to structure their presentations were also visionary. All presentations had to follow a PechaKucha (PechaKucha 20x20, 2021) format: 20 slides, each with one image that displays for only 20 seconds. The full presentation length was 6 minutes and 40 seconds. This presentation was among the shortest presentations that the senior author has given in her role as CEO of the CPA and likely one that demanded the most preparation. While less may be more, making less count is a challenge indeed for a profession used to having many minutes and pages to explain the complexity of how people think, feel, and behave!

In our presentation to the summit, we described the context and challenges of climate change in Canada. Our challenges include increasing precipitation and decreasing snow and ice cover, that Canada's land mass has warmed at a rate that is twice the global average with the greatest warming in the north and west of the country, and the need to reduce greenhouse gas emissions by 40% to 70% below 2010 levels by mid-century (Government of Canada [GOC], 2015). Key to climate change discussions in Canada are pipelines - we produce more oil than fits into our current pipeline network so discussing the pros (job and revenue creation) and cons (toxic runoff from extracting oil, impact on Indigenous lands and marine life) of pipeline expansion have been

critical. In June of 2021, following a revocation of a U.S. presidential permit, TC Energy Corporation, in partnership with the Government of Alberta, announced the termination of its controversial Keystone XL Pipeline Project (TC Energy, 2021).

A 2016 report of Canada's first ministers released a framework on clean growth and climate change (GOC, 2017). It called for a federal, provincial and territorial collaboration with Indigenous peoples' to reduce emission, build resilience to a changing climate, and enable clean economic growth. The report detailed more than 50 policy actions. Particularly relevant to psychology, was the noted time lag between implementation of new environmental policy and initiatives and subsequent changes in behaviour. There was an important recognition that how individuals and societies treat the environment is a function of behaviour and that improving how people treat the environment will require sustained behaviour change.

The findings of the Auditor General of Canada's 2018 report noted that most Canadian governments are not on track to meet their climate change commitments to reduce greenhouse gas emission and adapt to climate change (Office of the Auditor General of Canada, 2018). In 2019, one of the main financial risks identified by the Bank of Canada was climate and the need to better understand the risks that climate change poses to the economy (Molico, M., 2019). A 2019 Canadian report of an expert panel on sustainable finance (GOC, 2019) found that Canada can be a leader in the global transition to a low emissions future but doing so will require alliances among government business and civil society and that "sustainable finance must become, simply, finance" (GOC, 2019, p. IV). According to the report, "…climate change opportunity and risk management need to become business-as-usual…" considerations in all financial decisions and undertakings. (GOC, 2019, p. IV).

A 2019 report of the Canadian Council of Academies (Council of Canadian Academies, 2019) put human health and wellness in the top 6 of 12 identified climate risks, noting that climate change amplifies mental health risk factors, and that three are pre-existing gaps in access to mental health services. Stress disorders are also secondary to anticipated or experienced, climate events.

Innovation, Science and Economic Development Canada has stated:

"Canadians count on science to produce the evidence needed to keep their air clean, their food safe and their water fresh. That's why the Government of Canada is keeping science at the heart of federal decision making" (GOC, 2021, Section 2. Supporting evidence-based decision making).

It is a fundamental value of psychology and the CPA that treatment (and, indeed, all decision-making, inclusive of public policy), be evidence-based. The CPA's 2020 budget call to Canada's federal government was to invest in environmental psychological research. Specifically, we asked for an inter-relationship among climate change, health, people's behaviour, and the economy.

In our presentation to the psychology summit, we addressed how psychology can help our societies respond to climate change by asserting that:

- Human behaviour contributes to, and can mitigate, climate change
- Human behaviour and change are key factors affecting societies' economic outcomes
- Responding to climate change will require understanding and promoting effective behavioural change for individuals, communities, and workplaces.

Important questions when unpacking human behaviour in relation to the environment include whether Canadians understand climate change risks (e.g., flooding and storms, heat and smog, impacts on farming, forest fires, impacts on permafrost), and whether they understand the barriers to pro-environmental behaviour.

In 2011, Dr. Robert Gifford (Gifford, 2011), a leading environmental psychology scholar, identified seven barriers to accepting and changing in response to climate change:

1. A lack of personal and short-term impact of bad choices
2. Views and values that clash with climate change mitigation
3. Comparisons with others
4. Pro-environmental behaviour requiring more personal time and resources
5. Discredence
6. Perceived risks of change (i.e., questioning whether plug-in electric vehicles will work, or whether more bicyclists will result in more injuries)

7. Limited behaviour (i.e., some pro-environmental choices can result in other anti-environment choices)

Since then, more have been added to that list (Psynopsis, 2021):

1. Avoiding the science of climate change by relying on media reports that minimize it
2. Focusing on issues of personal rather than environmental relevance
3. Confusing "cannot" with "will not" when it comes to changing behaviour
4. Inaction because of eco-anxiety
5. Admitting the problem but denying that it is a problem here and now
6. Believing that "someone else will do it so I don't have to"
7. Justifying climate averse behaviour because it is required (e.g., by a job)
8. Believing that one is doing more than most people are
9. Justifying one's investment decisions
10. Not feeling attached to where one lives and feeling a lack of need to care for it

Given the immediate relevance of human behaviour to climate change, CPA's call to the federal government in 2020 was to create a research chair in human behaviour and climate change. We promoted the assistance of the discipline in helping government to identify how best to:

- Incentivize climate-related behaviour change in people, programs, and organizations
- Communicate information so that climate messages are heard and acted upon
- Build and change built environments to facilitate good environmental practices among individuals, families, and communities

We underscored how the outcomes of psychological research can help create conditions for behaviour change so that individuals, workplaces, and communities can make more pro-environmental choices, such as minimizing the use of motor vehicles, increasing the use of biodegradable products, increasing recycling, and increasing the use of public transit.

Along with and following the 2019 international psychology summit, the CPA signed onto the Proclamation on Collaboration (International Summit

on Psychology, 2019) adopted at the summit with its focus on the application of psychological science to critical global issues and, in particular, Goal 13 of the United Nations Sustainable Development Goals: taking urgent action to combat client change and its impacts.

Since the 2019 November summit, CPA has continued in its climate change efforts and advocacy. In January of 2021, under the leadership of Dr. Lindsay McCunn at the University of Victoria, CPA's section on environmental psychology has authored a policy paper, approved by the CPA's Board of Directors entitled *Addressing Climate Change in Canada: The Importance of Psychological Science* (CPA, 2021). The paper provides key findings and arguments found in the body of environmental psychology literature about the influences of human behaviour on the environment, the impact of the natural environment on mental health and wellbeing, and the effects of the built environment on mental health and wellbeing.

Based on this and other empirical literature, its recommendations center on how governments can best communicate to the public about human behaviour and the environment by emphasizing present day problems with supportive and empowering messaging and a fostering of a global identity. It also recommends developing climate change policy that is informed by psychology and the science of behaviour change. Being familiar with the principles and practices of environmental psychology may help decision-makers best promote and implement energy-efficient built settings, protected natural environments, and policies concerning risk management and emergency preparedness. Finally, the paper calls on federal, provincial, and territorial governments to invest in natural and social science research that addresses relationships between health, wellbeing, human behaviour, and climate change. In particular, topics to do with social norms, eco-conscious attitudes, cross-cultural studies, coping, climate change education, and community involvement are noted for governments to consider as they choose where to place their focus.

CPA's climate change policy paper was published in a special issue of the association's quarterly newsmagazine, *Psynopsis*; guest edited by Dr. McCunn (Psynopsis, 2021). Psynopsis is CPA's lay magazine, intended to focus on topics of public and decision-maker concern and relevance, and address how the science and practice of psychology can contribute to consideration

and response to these topics. Psynopsis is an advocacy vehicle for the CPA; each issue is shared with government and other stakeholders with a portfolio and an interest in the topic under consideration. It is an opportunity for psychology to focus outward and bring the science and practice of psychology to bear on what is important to legislators, decision-makers, the public, and other stakeholders.

The special issue was devoted to climate change and covered such topics as acting on the climate change crisis, ecological grief, eco-anxiety, climate change in rural communities, and sustainable living among others. In fact, in her leading editorial for the issue, Dr. McCunn points out that the submissions seemed to represent two broad and important themes: one concerning eco-anxiety and another concerning sustainable living and climate action at the level of the individual and community. These themes communicate what Canadian psychologists are experiencing in their practices, as the risks associated with climate change become more a part of daily life for many people.

In addition, members of the environmental psychology section authored a Fact Sheet about climate anxiety (CPA, 2021). The purpose of CPA's Fact Sheets is to supply the public, industry, and sectors of government with brief summaries of topical issues from the perspective of psychologists. The Fact Sheet about climate anxiety discusses what contributes to anxiety related to climate change before, during, and after a climate-related event. It also offers information about who is most vulnerable when experiencing anxiety related to climate change and how psychologists can help. The Fact Sheet was approved by CPA's Board in 2020.

Over the course of 2021, the CPA has convened meetings with federal members of parliament to talk to them about the psychological science of climate change and share our policy paper. The CPA also engages in partnerships with other health professional association partners. One such partnership is Organizations for Health Action (HEAL) (HEAL, 2021), an alliance that Dr. Cohen co-chaired for several years. HEAL regularly meets with elected and appointed government officials. At one such meeting since 2019, HEAL met with a representative from Canada's Green Party (Green Party of Canada, 2021) where Dr. Cohen was able to highlight the range of psychological issues impacting (and impacted by) climate change. It has been

CPA's experience during meetings with government and other stakeholders that while the outcomes of the environment on human mental health, eco-anxiety and the psychological trauma of serious climate events like floods and fires are generally recognized, the importance of behaviour change science to environmental policy is often recognized less. Any policy that requires a change in behaviour for its success must consider the science of how people think, feel, and behave. Psychology knows something about that. CPA as an association, and by supporting the environmental psychologists among its members, hopes to continue to be able to impact Canada's climate change response.

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The Asia-Pacific Climate Crisis and Psychology's Responses

Brian Dixon[1], Dr Natasha Tassell-Matamua[2], Oliver B. Sta Ana[3] and Dr. Marc Eric S. Reyes[4]

Introduction

The New Zealand Psychological Society (NZPsS) was amongst the associations represented at the International Summit on Psychology and Global Health, held in late 2019 in Lisbon, Portugal[5]. At that event, the NZPsS delegate raised the issue of climate change in the wider Pacific and highlighted the disproportionate effects expected for Māori and Pacific Peoples. While situated in the South Pacific, Aotearoa New Zealand cannot claim to be truly "representative" of Pacific nations and the NZ Psychological Society does not purport to speak on behalf of Pacific peoples. Rather, we aim to ensure their voices and those of Māori (in Aotearoa) are heard, to support their efforts to find solutions to their problems and to empower them to act in ways that will protect their people, land and cultures to the greatest extent possible. South Pacific nations other than Aotearoa New Zealand and Australia were not present at the 'Lisbon summit' and few countries in the wider Pacific have psychological associations (or, in most cases, even psychologists). As a profession, psychology is not generally perceived as having much to offer Oceania's communities, particularly when compared with other professions such as medicine, teaching or engineering. However, Pacific people who are living in countries such as Aotearoa New Zealand are increasingly seeing the relevance of psychology for their people and the issues they face, and many are engaging in higher education and scholarship

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5 International Summit on Psychology and Global Health (2019), Lisbon. Also known as "the Lisbon Summit". https://www.apa.org/international/resources/global-summit

in the discipline. Although we are only at the start of our own 'journey' to amplify the voices of the Indigenous peoples of the Pacific in the area of climate change, we hope that our desire to bring Aotearoa's Māori and Pasifika psychologists to the global forums will be emulated by other associations so that future 'summits' will clearly hear and act upon the needs of Indigenous communities around the world as well as empowering their actions.

Commenting on climate issues and the response by psychology for the Asia-Pacific region is a challenging responsibility. The region is heterogenous - in its peoples, in its natural environments, and consequently in the issues it must address in the face of climate change. Collectively, psychology has at least started this process with the emergence of the Global Psychology Alliance[6] that binds our local efforts in a supportive network and provides us with the framework to organise regionally. At this stage, the Asia-Pacific network is merely a loose collection of associations exploring their roles and contributions. There remains uncertainty as to how we can extend our reach to authentically involve the Indigenous peoples of the Pacific and in areas of Asia where our profession is rarely visible, let alone seen as relevant. That process has to be approached carefully and respectfully, hearing the voices of people and empowering and resourcing their responses.

This chapter therefore intends to go some small way to addressing this need. Contextualising information about the Asia-Pacific region and challenges it will face as a consequence of climate change is provided, followed by a prioritising of Indigenous and localised contributions from two countries in Asia-Pacific; Aotearoa New Zealand in the South Pacific and the Philippines in the north-west. Associate Professor Natasha Tassell-Matamua offers a professional perspective on what Indigenous Māori ways of knowing might bring to psychology's understanding of climate issues and mitigation and adaptation responses.

The authors are fortunate to have received a contribution to this chapter from members of the Psychological Association of the Philippines, including its President, Dr. Marc Eric S. Reyes and the Chair and members of the Environmental Psychology Special Interest Group. This provides a perspective from the northern Pacific, bordering Asia and an insight into the extreme

6 Global Psychology Alliance (GPA) - https://www.apa.org/international/networks/global-psychology-alliance

effects of climate change, both observable now and anticipated in the future as well as documenting the efforts of psychologists in that country to address the problems.

The Asia Pacific Region: Contextualising Climate Change

Asia-Pacific comprises about one-third of the planet's surface and extends from Antarctica in the south to the continent of Asia in the north; from Micronesia in the west to the Americas in the east[7]. On the globe, the expanse seems mainly water; oceans scattered with mostly small islands. However, almost every piece of land is home to a nation in its own right, to peoples who live in varying degrees of relationship with nature; some wholly dependent on the surrounding environment for food, shelter, transportation, commerce and wellbeing, while others are reclaiming their connections to place as part of wider cultural identification and revitalisation movements. The natural environment has shaped the customs, language and systems of knowledge of the Indigenous[8] peoples across this region, who have been subjected to waves of colonial invaders, many asserting controls over them and their cultures and sources of wellbeing, and exploiting their resources. These peoples have experienced deprivation, injustices, and the devastating depredations of warfare, foreign nations competing for territorial, marine and economic dominance.

And now, an even more perilous threat, driven by industrial expansion, unprecedented consumerism, and the exploitation of nature - a climate changing relentlessly and at rapid pace, affecting the balance that has allowed hundreds of generations to survive over time. An estimated 971 million

7 Definitions of the term 'Asia-Pacific' vary widely. It is generally considered to be the area including the Western Pacific Ocean - East Asia, Southeast Asia, South Asia, Australia, and Oceania. In some contexts, it is considered to include parts of Russia and the Eastern Pacific, parts of South America, the US and Canada.

8 We acknowledge there is no consensually agreed definition of the term 'Indigenous' in the discipline of psychology, and that various scholars argue for Indigenous psychologies to be the domain of Indigenous peoples (as defined for example by the United Nations, 2021), while others take a broader approach and suggest all psychologies are Indigenous to the contexts in which they developed and in essence reflect socio-cultural contexts of any given time (Marsella, 2013). We acknowledge both uses, recognising localised perspectives are necessary for addressing climate change, while also acknowledging many of the climate issues the planet faces are a direct consequence of forces that have disenfranchised many Indigenous peoples across the Asia-Pacific region.

people live in areas with high or very high exposure to climate hazards (as defined by the United States Agency for International Development, USAID). The Asia-Pacific and South Asia regions collectively house twice as many people in high exposure climate zones as all other regions across the globe (see figure 1), and this alone, combined with weaker coping capacities (see figure 2), makes the Asia-Pacific region worthy of prioritised attention.

Figure 1: World population centres in high-risk climate zones (Source INFORM Global Risk Index 2019)

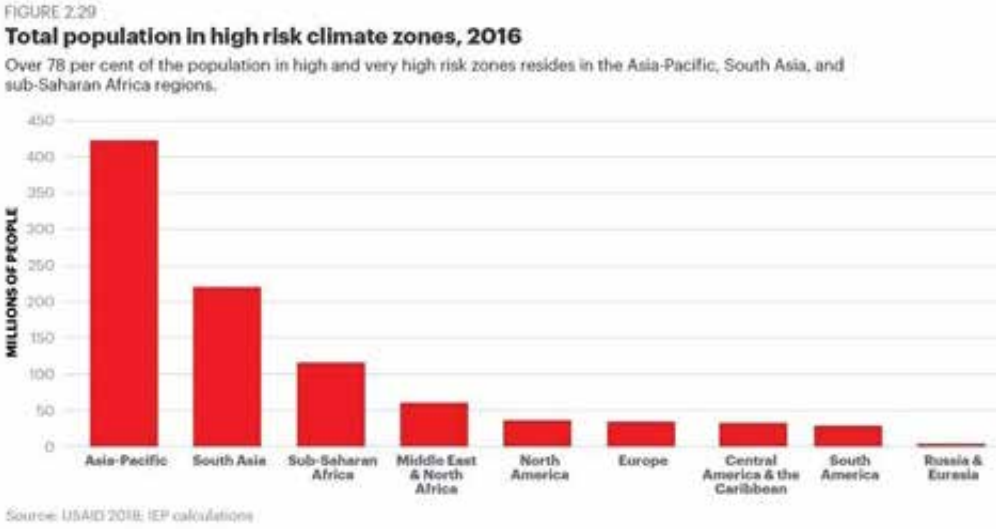
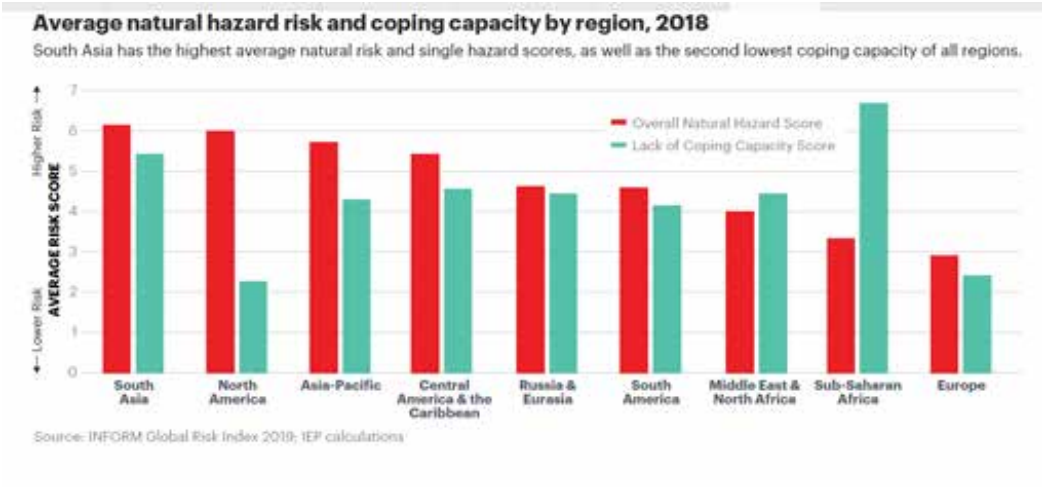


Figure 2: Natural hazard risk and coping capacity by regions (Source INFORM Global Risk Index 2019)



Many Asia-Pacific peoples face the prospect of seas rising so much during their own or their children's lifetimes that their lands will be uninhabitable, incapable of supporting vegetation, the warming oceans unable to support many of the native marine species, extreme weather events devastating their homes, villages, crops and infrastructure, services and support networks being overburdened. And this is just the beginning…

The political instability these climate crises will catalyse or further inflame cannot be overstated. The Asia-Pacific region is especially vulnerable to that risk as nations already compete for territory for strategic advantage, resources, and viable land for food-production and population expansion. Displacement of people from their homelands (whenua in Māori/fenua in the Pacific) has already occurred in many countries in the region through historical and contemporary socio-political ills including colonisation, making further displacement a recipe for increasing the social inequities that already exist, as well as inciting civil unrest/upheaval. The enforced movement of people from an ill-fated island nation or territory as a result of climate change, even when such movement is encouraged by ruling governments not yet suffering the same climate impacts, still creates dependency on societies to accept them.

It also creates a conundrum for Indigenous peoples in the midst of their own cultural revivals and associated return of historical land confiscations - how can they accommodate the needs of other minority groups, while also ensuring their own priorities as Indigenous peoples are politically attended to? Equally, how do 'the displaced' relocate to new lands, graciously acculturate into these new spaces, but without losing their own unique identities forged from the places they were born? It seems these 'climate refugees' are (most likely) destined to become members of an "underclass", economically and socially deprived and lacking political influence. As the Institute for Economics & Peace states in its 2019 report: "The effects of climate change pose a major challenge to peacefulness in the coming decade." (Institute for Economics & Peace, 2019)

It is hardly possible to imagine the extent the people of Oceania and Asia will be affected by climate change without being confronted by the enormity of this dystopian future. The overwhelming, almost visceral, urge is to despair, distract, desensitise, and convince ourselves it is not real, will not affect us, and is the unfortunate fate of those distant future generations to deal with. The alternative is to start with what we can do and build upon that, seeking support to avert or delay some of the worst effects and to "buy time" for the generations ahead. Our discipline requires we do no harm, and this should be extended beyond professional activities to everyday life, including to those matters of environmental import. But this requires a commitment to the strategies of mitigation of, adaptation to, and amelioration of the effects of climate change through collective (global), regional and local responses. The responses must be targeted at localised needs and adaptable to changing conditions. At all levels, collaboration and collective action is essential. And this, in itself, can inspire people to cooperate, assist and motivate others. The following sections detail the responses of psychology to date in Aotearoa New Zealand and The Philippines.

Aotearoa New Zealand

Aotearoa New Zealand covers a vast administrative area in the Asia-Pacific region. A developed island nation with a population of roughly five million, the country ranks positively on a range of country-level indicators. Although widely recognised for its 'clean green' image, Aotearoa New Zealand, like other countries in the Asia-Pacific region, faces a range of climate related

issues requiring immediate attention, as the country currently debates how it will set and achieve emissions reduction targets and make a contribution to international mitigation efforts.

The dilemma facing the country is that the very sector it heavily relies on to sustain the economy, agriculture (through meat and dairy exports), is one of our highest carbon emitters. Dairy and meat products can have relatively high carbon footprints when processing and transport to overseas consumers are taken into account (the "food-miles" issue) and even more so when the potent greenhouse gases, methane and nitrous oxide, from stock are added to the equation[9]. Currently, the powerful lobbies of the agricultural sector and that industry's position as our top income earner have seen them largely excluded from most national emissions reduction strategies. Only recently have they been required to meet rather modest targets for carbon emissions and are being treated leniently on methane reduction expectations. In addition to agriculture emissions, other current environmental issues of significance for Aotearoa include water, air and soil quality, sustainable energy generation, coastal erosion and sea level encroachment, droughts, flooding and biodiversity loss.

With an Indigenous Māori population that comprises approximately 14% of the population, Aotearoa's socio-political history of enforced colonisation, despite having a treaty with the Indigenous Māori that was meant to provide guarantees of protection and self-determination, remains an ongoing issue contributing to a plethora of social justice concerns, including those related to climate change. The Indigenous Māori are expected to suffer the disproportionate effects of climate change, including those directly related to or consequences of the above-mentioned issues, primarily due to a reliance on natural resources and the environment in terms of cultural, social and economic wellbeing.

Equally, Aotearoa has the world's largest concentrated population of people from Pacific Islands, many of whom reside in the country's largest city, Auckland. The connection to land from time of birth to death as a birthright is a theme common to most Pacific nations throughout Micronesia, Melanesia and Polynesia. Already, extreme weather events, such as tropical cyclones,

9 Methane is liberated from ruminant animals (especially cows and cattle) exhaling gases from the digestion of grass in the stomach

destroy crops, homes, infrastructure and devastate communities' entire economies overnight. Climate change poses real threats of the loss of land in atoll nations; entire islands are at risk (Lagipoiva Chenelle Jackson, 2021). Pacific peoples having to migrate from their homelands to Aotearoa as a result of these climate-related changes, will generate increased pressures across a range of social, economic, political, and even environmental indicators.

NZ Psychological Society Climate Psychology Task Force

With this context in mind, we turn now to the work of psychology in Aotearoa New Zealand. In 2019, the New Zealand Psychological Society was delighted to attend the International Summit on Psychology and Global Health (op cit), where we presented a selection of our concerns and activities, participated in discussions, and reviewed our plans for the next year. Since the passing of enabling remits at the NZPsS AGM in 2014, we had established a climate psychology work group that later became the Climate Change Task Force (CPTF[10]). That group had, over several years, coordinated symposiums and forums at conferences, hosted international speakers, produced articles on climate and psychology, contributed to a major Royal Society report on climate and mental health, formed relationships with other organisations and made submissions on a Zero Carbon Act that in late 2019 was enacted by our Parliament. Work of the CPTF since that time has largely followed the path described at the 'Lisbon Summit' and additional achievements have occurred in response to evolving developments in Aotearoa New Zealand's response to the climate crisis. These are summarised in the side panel 'Climate Psychology Task Force activities over the past 24 months (since the Lisbon Summit).

Notable here is New Zealand's establishment of a Climate Change Commission, the work of which has become the major conduit of advice to government on climate change policy issues, the initial focus being on emissions targets and mitigation measures to achieve those. The CPTF has been contributing a 'psychological perspective' on those matters through the forum discussions and consultation opportunities during 2020 and 2021. Our more recent focus has been on the roles of psychology and psychologists in local government and community level behaviour change (Dixon, 2021).

10 NZPsS Climate Psychology Task force information https://www.psychology.org.nz/public/climate-change

Climate Psychology Task Force activities over the past 24 months (since the Lisbon Summit)

NZPsS submissions/Select Committee hearings on Zero Carbon Act & related legislation

Response to the Climate Change Commission report to Govt.

Helping establish Global Psychology Alliance/ climate group - projects & sharing of resources.

Work on establishing support for an Asia-Pacific climate psychology group.

Planning for a joint Aus/ NZ climate psychology conference in 2021/2022– deferred in March 2020.

Planning annual conference keynote addresses and symposia; (online 2020 and 2021).

Workshops for members, public meetings (e.g. Psychology Week).

Media interviews, podcasts, forums etc.

Articles for NZPsS publications - *Connections, Psychology Aotearoa*.

Liaison with other organisations.

Another high priority area of our work has been the ongoing participation in the Global Psychology Alliance, formed following the Lisbon Summit, particularly in the international collaborative work of the Climate Psychology work group and in the establishment of an Asia-Pacific network, with representation from the Australian Psychological Society, the NZ Psychological Society and the Psychological Association of the Philippines (plus interested parties from the Western U.S.A. and Interamerican Society of Psychology).

The NZ Psychological Society considers the work of the task force to be focused on Principle 4 of the *Code of Ethics for Psychologists Working in Aotearoa New Zealand*, which relates to social justice and responsibility to society (Code of Ethics, 2002). Its work is also clearly embedded in the Society's *Strategic Plan* with regard to the values of caring for People and Taiao (the planet) (NZ Psychological Society, 2021)

Each year the climate psychology task force revises its 'work programme' and submits that to the NZPsS executive for approval and inclusion in budget projections. The most current summary of the CPTF plans at the time of writing is shown in the panel 'Climate Psychology Task Force Plans for the next 12-24 months'.

The rationale for focussing our efforts on the elevation of Indigenous perspectives over the coming two years, including that of Māori and Pacific voices, has been briefly provided above, although we offer an extended explanation here.

Climate Psychology Task Force Plans for the next 12-24 months

Increasing attention to the needs of Māori and Pacific peoples re direct and indirect effects of climate change.

Hearing, supporting and amplifying indigenous voices and knowledges.

New Zealand Journal of Psychology special issue – climate psychology.

Increase CPTF role & visibility – in the profession, with our membership, in wider (interdisciplinary) collaborations and with the public.

Developing educational resources.

International collaboration – GPA, publications, joint Aus/NZ climate psych conference, Asia-Pacific network.

NZPsS outreach to business, local govt, politicians/policy makers on our potential contributions.

Promoting the urgent need for action from psychology and psychologists.

Response to the IPCC reports on social effects, mitigation & adaptation due Feb/Mar 2022.

Firstly, we recognise Indigenous peoples in our region are likely to suffer the most immediate, severe, and under-acknowledged effects of climate change. As an example, Jackson (2021) has described the climate crisis as "one of the greatest injustices", and the Pacific Islands are considered to be at the forefront of this. Jackson notes the far-reaching psychological effects - fear of what the future holds and what will happen next - and asserts that the Pacific must be recognised as the front line of the climate emergency. For Aotearoa, this means prioritising Pacific Island repatriation to this country, given the large Pacific population we already have. The effects of climate change on other Polynesian peoples should not go unmentioned. The Indigenous Māori, already struggling to have their voices heard over the need to protect the environment as a cultural right (and indeed, a human right), are set to lose tangible resources (e.g. sacred waterways through agricultural pollution, burial sites through rising sea levels) and the intangible treasures (e.g., practices, rituals) and subsequent wellbeing associated with them. Therefore, it is an ethical imperative that as a discipline psychology take action to minimise harm to these communities.

Secondly, psychology as a discipline has not always been/is not always responsive to the needs or wants of Indigenous peoples. From not acknowledging the worldviews of Indigenous peoples, which are often grounded in notions of spirituality and based on experiential, non-materialistic, non-reductionistic ontologies and epistemologies (Love, 2008), to mis-representing, mis-interpreting, or

blatantly ignoring culturally-specific information as relevant explanations for human behaviour (Waitoki, Dungeon, & Nikora, 2018). This needs to change - imminently - and this is one way our discipline can do this through authentically acknowledging Indigenous worldviews as a valuable resource for mitigating the physical as well as psychological impacts of the climate crisis.

Thirdly, and perhaps most importantly as it addresses the two previous points, we recognise the substantial contributions Indigenous peoples the world over, including Māori and Pacific peoples, make to environmental sustainability. It makes every sense therefore, to more closely examine why Indigenous peoples are effective guardians of the natural environment. While comprising only 5% of the global population, Indigenous peoples manage or hold tenure over a quarter of the world's land surface, and support 80% of global biodiversity (Raygorodetsky, 2018). Although continually threatened by corporate interests and subject to systemic marginalisation, Indigenous peoples have the capacity to sustain their local natural environments in arguably non-exploitative and sustainable ways, utilising Indigenous knowledges, practices and beliefs to ensure a natural equilibrium is maintained for generations to come. Worldviews emphasising a fundamental interconnectedness between humans and the wider ecosystem typically inform these knowledges, practices and beliefs (Royal, 2004). It is perhaps this sense of inter-relativity - the realisation we are a part of nature, rather than holding dominion over nature - that mobilises Indigenous peoples to value the environment for its inherent worth to past, present and future generations, rather than for its utility as an exploitative resource. This way of orienting toward the natural environment is sorely lacking and rarely reflected by dominant masses or dominant discourses in many parts of the world.

We would like to highlight, as an example, how Indigenous Māori understandings give meaning to the environment by taking an approach that is richly spiritual and grounded in the notion of *whakapapa*. While often referred to as genealogy, whakapapa has the literal meaning of 'layers of descent from one point to another', and is an important concept, informing the knowledge system that influences how Māori relate to the natural environment. Much like the taxonomy of Western science, whakapapa denotes a system of organization of all beings (human, non-human) through a common lineage that descends back to the creation of the universe, and ascends forth to those beings yet to come. All beings are physically and

spiritually connected, existing in a state of ongoing inter-relativity with each other. The significance of whakapapa as a central tenet of how Māori relate to the environment is that it signals that destruction of any part of the ecosystem will impact people - physically, socially, psychologically, and spiritually - ultimately undermining the integrity of the whole. This belief system inherently understands the value of life and provides a strong foundation from which to develop, foster and enact our obligations to care and sustain the environment.

Clearly, there is no silver-bullet psychological solution to the climate crisis in Aotearoa, nor across the globe. But what we offer here is another perspective. While as a discipline our focus is often on the wellbeing *implications* of climate change - that is, the ambulance at the bottom of the cliff after climate crises have made their mark - we suggest there is a bigger role for psychology to play in *mitigation*. If we are able to confront our disciplinary fear of the subjective, ethereal, intangible, non-reductionist stance that epitomises Indigenous worldviews, while also acknowledging the effectiveness of Indigenous approaches, we may stand a collective chance of grappling with climate change from a new position. This position is one that firmly influences behaviour change. But, behaviour change must first be preceded by a change in perspective - a bold change that authentically recognises and embodies the notion of interconnectivity of all beings. What happens to one, flows out to affect all. As a discipline we can be at the forefront of change initiatives and we propose Indigenous perspectives should be a vital part of those initiatives. It won't be an easy journey of course. Persuading big corporations, including our dairy and transport industries to think about the holistic picture rather than the business bottom-line will require unprecedented persistence and resistance from all those residing in Aotearoa. But, in spite of these challenges we remain firm in our belief that we can no longer ignore or neglect the Indigenous perspective. It is relevant and it is needed, urgently.

The Philippines

The Philippines is rated as the third most vulnerable country to climate change based on the 2017 Global Risks Report (World Economic Forum, 2017). Impacts of climate change are immense, including annual losses in Gross Domestic Product (GDP), changes in rainfall patterns and distribution,

droughts, threats to biodiversity and food security, sea-level rise, public health risks, and endangerment of vulnerable groups such as women and indigenous people (National Integrated Climate Change Database and Information Exchange System, 2021). Based on the reports from the Climate Change Commission of the Philippines, in 2018, rainfall changes in patterns and distributions affect the most vulnerable sector such as farmers, indigenous people, those living in the coastal areas, women, and children. The damaging effect on their living conditions affected their livelihood and well-being. Calamities and natural disasters warrant the most vulnerable to adapt to the ever-changing climate. As a response, the Philippine government has instituted safeguards, laws, and policies to protect and promote public welfare. However, even though climate policies are in place, a collective and sustainable effort is deemed needed. Policy implementers should consider the whole sector approach to ensure the active participation of stakeholders. Such conditions paved the way for the creation of an interest group on environmental psychology by the Psychological Association of the Philippines (PAP). The group's goal is to educate the public about the environment, adapt to the changing climate, and promote eco-friendly actions to mitigate the climate crisis.

Environmental Psychology Special Interest Group of the Psychological Association of the Philippines (EPSIGPAP)

Through the years, the PAP actively responds to the issues and challenges brought by climate change, particularly by offering psychological interventions during calamities and natural disasters. In December 2015, the Philippine Journal of Psychology of PAP published research about coping, resilience, therapeutic interventions, and disaster preparedness (see https://www.pap.ph/pjp). The articles published at that time highlight a collection of research efforts to analyse and study the impact of Typhoon Haiyan that battered the southern Philippines and affected the lives of Filipinos. The former enabled psychologists to see adaptation strategies with the environment and natural disasters. However, Filipino researchers on climate psychology have to build up literature that studies individual behaviour, perception, motivation, beliefs about changing climate, and mental health.

Among the contributions of PAP is the creation of a group that would help resonate climate action. In March 2020, under the leadership of

Dr.Ron R. Resureccion, former president of the PAP, the EPSIGPAP was created. EPSIGPAP is focused and committed to protecting and restoring the environment through the education and training of PAP members, the general public, and other stakeholders to promote healthy and responsible behaviour to ensure a sustainable future. This special interest group aims to generate interest in individual-level pro-environmental behavioural change. It intends to create opportunities to solve problems involving human-environmental interactions and promote activities that establish, manage, protect, and restore environments that foster sustainable development. The group aspires to do research in the field of environmental psychology. The planned activities for the group are knowledge sharing through training, seminars, workshops, and other educational campaign activities with PAP; and research on topics relevant to Environmental Psychology.

As part of its launching April 2, 2020, the EPSIGPAP invited PAP members to join the group. Members who signified interest filled out Google Forms. A total of 158 individuals responded to the invitation. The respondents comprise (82%) psychometricians, (15%) psychologists, (8%) guidance counsellors, and (18%) teachers. Individual responses (86%) signified interest in doing psycho-educational programs, (80%) training, and (88%) working with socio-civic activities.

EPSIGPAP conducted a series of webinars to educate the public about the environment and climate change. Due to the lockdown brought by the COVID-19 Pandemic, the group resorted to online platforms in spreading climate awareness. The group invited Dr. Danilo Tuazon, a registered psychologist, forensic neuropsychologist, and brain compliance learning specialist, in its initial project. He discussed the relationship between the environment and mental health in August 15, 2020. Dr. Tuazon tackled fundamental functions of the brain, how nature will help maximize the full potential of the brain to protect mental health.

During the first quarter of 2021, the EPSIGPAP encouraged its members to pursue their interest in researching topics relevant to the environment and climate. On January 16, 2021, the group hosted a webinar entitled "Building up Environmental Psychology Research in the Philippines: Proposal Writing Basics." Dr. Patricia D. Simon, a registered psychologist, led the discussion. She gave practical tips to help budding researchers build confidence in researching the field.

EPSIGPAP recognizes the importance of collaboration to spur climate action. On March 27, 2021, the Social Psychology Division and the Environmental Psychology SIG of PAP hosted a conversation titled "Green & Good: a conversation on environmental psychology, pro-environment behaviour, and the nexus of nature and mental health." Dr. John Jamir Benzon Aruta, a registered guidance counsellor, shared his studies and expertise on nature and mental health.

OnMay 7, 2021, the PAP Junior Affiliates 'aka' PAPJA held its annual convention. PAPJA consists of undergraduate psychology students from different colleges and universities in the Philippines. Cascading undergraduate students' environment and climate action efforts are imperative to attract the next generation of psychologists and promote sustainable solutions. The group facilitated learning sessions via Zoom entitled, "Harnessing the environment for personal well-being." The workshop facilitators were Dr. Oliver Sta Ana, Dr. John Jamir Benzon Aruta, and Ms. Leilanie R. Versoza. The topics were: How the Environment Influences our Behaviour and well-being; The Role of Nature on Mental Health; Bloom with Grace: Flourishing Amidst the Gloom of the Pandemic.

Dr. Marc Eric S. Reyes, incumbent president of PAP, is an active champion for the environment in the Global Psychology Alliance on climate and supportive of the programs and projects of the EPSIGPAP. Along with other psychologists around the globe, Dr. Reyes facilitates networking and linkages to sustain knowledge sharing and build a community of climate action advocates.

The journey towards sustainable climate action started in the Philippines a decade ago, but the pacing of relevant programs and interventions is slow due to the threat of COVID-19. The challenging situation would not preclude efforts toward collective climate action. As shown in the past year, (2021) the group endeavours to promote climate awareness through its series of webinars. EPSIGPAP, being a newly created group in PAP, is taking baby steps to impart pro-environmental behaviours. EPSIGPAP recognizes the importance of collective action to mitigate the effects of climate change. From reactive response during calamities, the group is inspired to amplify adaptive efforts and strategies. It is promising to help policymakers view environmental problems within the context of socio-behavioural problems. Psychologists and

other mental health practitioners can help foster sustainable pro-environment behaviour through climate actions that are inclusive and adaptive.

Conclusion

The climate crisis highlights a wide range of issues for psychology and psychologists in the Asia-Pacific region, and the increasing pace of the threats in the region creates an imperative for us to be planning and working collaboratively across the region to determine how we will frame our responses, what interventions might be required and how equity can be ensured as impacts are felt by the highly diverse communities that are especially vulnerable.

Psychologists in the Asia-Pacific region need to be preparing (and prepared) for the immediate, medium term and long-range effects of this change that, for all of us living today, will be permanent and escalating. We have important roles to perform in mitigating effects, addressing fears and assisting with adaptation measures. We will also need to advise on the planning needed to ameliorate the health and wellbeing effects on our peoples in the future, to accommodate the movement of people within our nations as they retreat from affected zones (mostly to our cities and larger population centres) and an influx of immigrants displaced from their own countries, ensuring all have access to the services and support they need in communities that will already be facing pressures from the ongoing climate crisis.

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Climate Efforts across Europe: Contrasts and Commonalities

Nicola Gale [1]

Introduction

Thinking on how psychology could best come together to contribute its science to global societal issues and climate change had started at various conferences and meetings over 2018/2019 including the American Psychological Association (APA)'s Convention in San Francisco California, and Harrogate in the United Kingdom hosted by the British Psychological Society. Climate change emerged as the central and salient issue facing peoples across the globe. The thinking on psychology and climate change took a giant step forward at the International Summit on Psychology and Global Health: A Leader in Climate Action ('the Lisbon Summit') held by the American Psychological Association and Ordem dos Psicólogos Portugueses (OPP), on 14-16 November 2019, in Lisbon, Portugal (APA & OPP, 2019).

Being the EFPA delegate to the Lisbon Summit provided a golden opportunity to begin thinking about how EFPA might bring together the efforts of European psychology to contribute to tackling climate change. The structure of the summit supported this with key presentations and time to reflect, discuss, and make outline plans together with colleagues from across the globe. Every specific goal considered at that time was not in hindsight the right one (mapping the psychology already informing European Commission work for example was soon discarded as impractical). The core ideas, in particular for EFPA the focus on research and the evidence base, which has led to the formation of our Expert Reference Group (more on this later in the chapter), were invaluable and stood the test of time.

At the conclusion of the summit participants signed a proclamation on collaboration, committing to use their professional, scientific, educational,

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With vignettes from Genevieve Ileris British Psychological Society; Valeriia Palii National Psychological Association of Ukraine; Sofia Ramalho and Tiago Pereira Portuguese Psychologists Association.

cultural and applied resources "to achieve progress on matters of utmost importance for which psychology offers the greatest contribution" (APA & OPP, 2019). This has provided the roadmap for our strategy, goals and activities. Through this process, climate change has become one of the main issues of concern and priorities for action of psychology associations both in Europe and across the globe, including of the Global Psychology Alliance in which EFPA takes an active part. The link between human rights and wellbeing and the environment is an important political theme in the region, and a passion for many of its psychologists, so it is perhaps unsurprising that it became a strategic focus for psychology associations.

This chapter first sets the European context, for the region and psychology, including attempting an answer to the question of why psychology would focus on climate change. It then outlines some of the key features of the European political context in relation to climate change. The position of the United Kingdom is specifically highlighted in relation to the country's presidency and hosting of the UN climate change conference COP26 in 2021. How European psychology is engaging with climate change is then the focus. The approaches being taken across Europe have considerable similarities. The framework developed by EFPA at the regional level has therefore been used as the organizing framework for the central part of the chapter. Vignettes from three European national psychology associations are woven into the text as illustrations of aspects of the framework and demonstrations of their work.

The European Context

Europe is a complex region of the world with 46 countries as members of the Council of Europe, 27 of which are in the European Union. In psychology, 37of the Council of Europe countries are in the European Federation of Psychologists' Associations (EFPA), including all of the 27. Europe as a region stretches from the Nordic countries, along the Baltic Sea, round the eastern side encompassing (depending on definition used) the Russian Federation, to the south round the Black Sea, Mediterranean Sea and on up the North Atlantic Ocean, with the Western and Central European countries in between.

Between the countries in Europe, there are big differences in geography, politics, cultures, country size and history to name a few. There are big

differences too between the psychology associations in the various countries that have EFPA membership. These are differences in scale in terms of numbers of members, financial and other resources such as staff and office bases; and function, legal and regulatory basis of the profession, among others. In all, some 300,000 psychologists, with their different needs, opinions and ambitions, diverse sub specialisms and therefore identities within the discipline, are within the EFPA umbrella. There is however much goodwill to cooperate and develop the profession across Europe. A particular example is the European Certificate EuroPsy (European Federation of Psychologists' Associations, n.d.) which sets a common standard for the profession. There is also a strong desire to develop the contribution of the profession to European society as a whole. This wish to make a difference to the societies in which they work appears to be shared among psychology associations across the globe demonstrated by the existence and aims of the Global Psychology Alliance (GPA) (American Psychological Association, n.d.-a.).

It can however be difficult for psychology in particular to make a difference in this way. Often, third sector or civil society organizations lobby for a particular population, or issue. Psychology however ranges across people of different cultures, ages, social situations (for example people in the criminal justice system), migration, health conditions; and a huge breadth of issues such as health, education, the world of work, sport and traffic. This breadth, diversity and sometimes competition can mean it is hard to show the outside world what psychology can offer and what its message is. One way to communicate a recognizable message from psychology is to major on cross cutting aspects such as prevention; another is to focus for a time on specific campaigns, such as (and how this has come about is explained next) what psychology can contribute to tackling the climate crisis.

Since the time of the Lisbon summit, much energy in our European psychology community, to say nothing of society as a whole, has been taken up with COVID-19. Attention across the global psychology community in 2021, however, turned back to climate change, informed (as Portuguese psychologists illustrate below) by the learning as a profession and discipline from responding to the COVID-19 pandemic.

A key driver for the timing in the wider world was the UN climate change

conference COP26 that the UK government hosted in partnership with Italy, that took place 1-12 November 2021 in Glasgow UK, which brought parties together to accelerate action towards the goals of the Paris Agreement and the UN Framework Convention on Climate Change. This was of major global importance. The various campaigns that were part of COP26 (Adaptation and resilience, Nature, Energy transition, Clean road transport, Finance (UK Government, 2021)) all have human behavior as an essential underpinning, which it was seen could provide an entry point for psychology. The time was therefore right for psychology to make its contribution.

Climate change and the political landscape in Europe

As has been demonstrated above, Europe and also European psychology extend beyond the EU. In terms of considering the political situation in Europe as regards climate change, however, a country-by-country analysis is a major undertaking beyond the scope of this chapter. To give the reader a flavor, this section therefore outlines some of the principal political initiatives of the European Union.

The European Commission has set the ambition for Europe to be the first climate-neutral continent in the world by 2050. The European Green Deal (European Commission, 2021, October 22) is the major program designed to make this ambition a reality.

The European Green Deal is in response to what the European Commission have called the existential threat posed by climate change and environmental degradation to Europe and the world. The stated goals of the European Green Deal (European Commission, 2021, December 8) will transform the EU into a modern, resource-efficient and competitive economy, ensuring no net emissions of greenhouse gases by 2050; economic growth decoupled from resource use; and 'no person and no place left behind'.

The European Green Deal is also the European Commission's way out of the COVID-19 pandemic, with major investment committed amounting to one third of the €1.8 trillion from the NextGenerationEU Recovery Plan (European Commission, 2021, December 22), and the EU's seven-year budget (European Commission, 2021, December 22). Expected benefits include fresh air, clean water, healthy soil and biodiversity; renovated, energy efficient buildings; healthy and affordable food; more public transport;

cleaner energy and cutting-edge clean technological innovation; longer lasting products that can be repaired, recycled and reused; future-proof jobs and skills training for the transition; and globally competitive and resilient industry (European Commission, 2021, December 8).

While much of the EU's program might seem to be focused on the technical aspects of tackling climate change, the 'people side' is also in evidence. 2021 saw the launch of an engagement initiative, the European Climate Pact (European Commission, n.d-a.), which is a part of the European Green Deal. As described by the European Commission, the European Climate Pact is an initiative that aims to bring people together around the common cause of climate change, and encourage individuals and organizations each to take steps to build a more sustainable Europe. Events and a public consultation began a process of engagement in greening four priorities (green places, green transport, green buildings, green skills) that can immediately mitigate climate change and benefit the environment, as well as be good for the health and wellbeing of people (European Commission, n.d.-b.).

A wide range of specific projects are being undertaken. One is tackling the issue of food waste. Some 20% of the food produced in the EU is lost or wasted, 88 million tonnes of food waste every year, with related costs estimated at €143 billion (European Commission, 2021, November 8). At the same time, the Commission estimates that some 33 million people cannot afford a quality meal. Tackling waste and tackling inequity thereby go hand in hand.

The EU initiatives are not confined to the continent of Europe, they also consider the impact of Europe on the rest of the world. This is Europe both being a good citizen and driving some of the change for others that in turn will benefit the region. The Commission has proposed new rules to tackle deforestation that is the consequence of EU activity, and new rules to encourage waste shipments within the EU to promote the circular economy and deal with the export of illegal waste to third countries (European Commission, 2021, November 17).

The EU put considerable political investment into COP26 both politically for example in G7 discussions and at the event itself where they put on around 160 side events themed to the negotiations. In terms of the outcome, Mauro Petriccione Director-General for Climate Action, European

Commission in a statement reflected on COP26 as "an important step in the right direction, in some areas even a breakthrough, opening precious opportunities for progress in the fight to stop climate change" (European Commission, 2021, November 19). The importance of following through on commitments in Europe was emphasized, in terms of the European Green Deal.

The political position of the United Kingdom on climate change

The United Kingdom has had a particular political focus on climate change as hosts of the COP26, the conference itself being the culmination of two years of diplomatic efforts of the UK Presidency. The result was the Glasgow Climate Pact (UK Government, 2021, November), an agreement of 197 countries that sets out the commitments across the globe on:

- Mitigation - reducing emissions
- Adaptation - helping those already impacted by climate change
- Finance - enabling countries to deliver on their climate goals
- Collaboration - working together to deliver even greater action.

The final statement from the UK presidency concluded (UK Government, 2021, November 13): "Today, we can say with credibility that we have kept 1.5 degrees within reach. But its pulse is weak. And it will only survive if we keep our promises."

As psychologists recognizing the importance of working with communities, it is interesting to consider the extent to which citizens have been involved in determining the direction on climate change. Commissioned by the UK COP26 Presidency, a consortium of academics and consultants led by Deloitte, and including AECOM which is a global infrastructure consulting firm, the University of Cambridge, One Young World and Radley Yeldar led a study talking to people in six regions of the world to explore what the future could look like in a climate-resilient, net-zero world (UK Government, n.d.-a).

The project highlights ideas and scientific understanding in relation to what can be done to make a net-zero world a reality. The regions were the Arabian Peninsula (specifically focused on the Kingdom of Saudi Arabia and

the United Arab Emirates), Brazil, India, Jamaica, Kenya, and the UK. The outputs combined ideas from the academics in each region about what would work, and the wants of citizen panels in the region, the idea being to develop an approach to net-zero that creates a world people actually want to live in. From psychology we recognize this building of a desired state as an approach more likely to succeed than emphasizing loss of current lifestyle. Four themes emerged (UK Government, n.d.-b.): water (responsible use); energy (more hydroelectric and wind power); built environment (with green infrastructure as part of planning to mitigate climate impacts); and food and land (good soil management). All citizens can now use a simple tool to turn the themes into a vision for themselves of the transition they want to see (UK Government, n.d.-c.) and promote these ideas among their communities.

The professional contribution is being harnessed too. Fostered within the UK, but with global reach, engagement by the international scientific community is being encouraged by the International Science Council through the curation and promotion in an initiative called Transform 21 of the scientific initiatives that provide the scientific knowledge base underpinning the transformations that will achieve the climate and biodiversity goals of COP26 (International Science Council, n.d.).

The response of European Psychology

The chapter so far has set the context, and shown how action is being taken on the European level politically. In psychology, efforts have built on the Lisbon summit, both for individual countries and for EFPA in coordinating efforts at the European level. The European countries which, in addition to EFPA as the regional body, were represented in the Lisbon summit included Belgium, Germany, Norway, Portugal, Spain, Sweden, Ukraine, and the United Kingdom. In this next part of the chapter, short vignettes from some of those countries selected to show a range of approaches from the different regions of Europe will be presented alongside the development and coordinating work of EFPA.

Organizing at the regional and national levels

In order to be effective at the European level in contributing psychological science to policy, it is important to organize. This is true also at the national and global levels, and would apply to most third sector / civil society or

membership organizations that wish to make an impact. Organizations need to identify an approach and actions to take that are within their remit, fit their strategic goals, and that they can resource effectively.

The framework for EFPA's activity is based on EFPA's mission as set out in the Statutes (European Federation of Psychologists' Associations, 2015): "3.1. The mission of EFPA is to promote the development, dissemination and application of psychology in all its forms, and to contribute to shaping a humane society, in Europe and beyond, on the basis of psychology's expertise." (p.5). The way EFPA strives to fulfill its mission can be summarized simply as contributing to society (e.g., by psychological knowledge and competences to achieve the UN sustainable development goals); developing psychology (e.g., by enhancing scientific and professional standards); and serving psychologists (e.g., by promoting and protecting the profession of psychologists at national and the European level).

In considering how best to make an impact, given the range of possible issues that a European psychology body can champion, EFPA decided to concentrate on two main strategic fields of action to cut across all three areas of focus (society, psychology, psychologists) in support of the mission. One was European mental health. It was thought that given mental health is considered core business for psychology associations, it was not something that could receive a lesser emphasis. This reflected too some of the earlier global debates about what should be the global area of focus for impact. European Psychology and climate change was also a clear choice as a strategic field of action for the period of the mandate.

In relation to a societal issue like climate change, thought needs to be given to how the issue is approached by psychology. Climate change is a topic that is the subject matter of very many scientific and professional disciplines. It is important to collaborate with others across the field to achieve the overall objective. It is equally important, however, to ensure as a professional organization that the work of the organization is grounded in the knowledge base of the discipline and not issue based activism. Going back to the Lisbon remit therefore, EFPA needed to consider how best to keep the focus on developing and promoting psychology and what psychologists' unique contribution can be to stem climate change. The line between policy influencing using the evidence base and issue activism is not necessarily easy to draw.

For a regional body and association of associations, how much original work to undertake and whether to stick to more of a coordinating role is a question that needs to be answered. In developing an Activity Agenda for 2021-2023, EFPA developed a map (European Federation of Psychologists' Associations, 2021a) setting out the steps that EFPA would undertake as part of the European psychology contribution to tackling climate change.

EFPA's Weather Map

1. Priority field of action	Make climate change one of EFPA's priority fields of action, and therefore a focus for the goals of EFPA's working groups.
2. Policy influencing at the European level	Monitor, disseminate and seek to influence the work of the European Parliament / Commission in the field, drawing on expert policy advice, and using influencing materials prepared by our Member Associations / an expert reference group.
3. Links across Europe	Foster connections between Member Associations that have climate change as a policy / advocacy priority, and facilitate regular discussions to share resources, actions and messaging.
4. Expert reference group	Form a reference network of European experts with research track records and deep knowledge in psychology and climate change to ensure psychological evidence is at the heart of what we all do.
5. Support hub	Develop an EFPA psychologists' support hub to bring together resources from across Europe on psychology and climate change.
6. Publicity	Use the news magazine to highlight expert articles on psychology and climate change. Publicise the work of EFPA's working groups re climate change. Publicise the policy / advocacy work of our Member Associations.
7. European Congresses	Encourage climate related submissions and a stream on psychology and climate change at both ECP2022 and ECP2023.

8. Connecting professional staff	Bring together professional staff working on psychology and climate change (e.g. research, policy, communications staff) into a coordinating network.
9. Working with others	Co-operate with our partner organisations (affiliate and associate members and MoU partners).

Selected steps of EFPA's map are discussed next, making links to particular national responses, showing how the quite different European efforts can be brought together to contribute across the region.

Step #2 Policy influencing

Step #2 policy influencing is an important part of the work on climate change for many associations and often popular with individual psychologists who like to see that their professional association has spoken out about something. The British Psychological Society (BPS) in the UK has an expert staff policy function and is active in policy influencing by engaging with politicians, government departments, public bodies and other third sector organizations to bring about change, writing authoritative papers and policy documents in response to government consultations and issues within the remit of the discipline. Active in the UK parliamentary process in Westminster, they provide the secretariat and are the public contact point for a cross political party group of politicians on psychology, this mechanism of All-Party Parliamentary Groups (UK Parliament, 2021, December 29) is an ideal way to build understanding of what psychology can contribute in solving societal problems. In the vignette that follows, an example is presented of how an effective influencing campaign is being developed that will use the psychological evidence in its method as well as drawing on the evidence in relation to the subject of climate change itself.

Policy, Psychology and Climate: the UK perspective

Vignette by Genevieve Ileris Interim Head of Policy and Public Affairs British Psychological Society, (with acknowledgment of the contribution of members of the BPS Steering Group on the Climate and Environmental Crisis)

"The British Psychological Society (BPS) recognizes the power that well-

structured and strategic campaigns have on advocacy, lobbying and raising public awareness of key issues, including the climate and environmental crisis. The BPS has a significant evidence base to draw from and the COVID-19 pandemic has clearly demonstrated the value of psychology and psychologists in responding to global challenges and supporting people during a time of crisis and prolonged personal restrictions.

It is this evidence and more that the BPS will draw upon to design, implement and evaluate a series of campaigns to highlight the role of psychology in addressing the climate crisis. The focus is to highlight psychologists as the experts in human behavior. Through the understanding of the human experience, psychologists can identify ways of supporting people to modify their behavior and call upon governments (in the UK and around the world) to be bolder in their policy ambitions to combat the climate crisis.

In December 2019, the BPS established an initial working group of experts. A steering group was then formed in October 2020 to prioritize two areas of work, health impacts and the drivers of social organization and individual change. To advance the work of this group the BPS is developing a series of campaigns. These campaigns will be built around a powerful and emotive narrative around the role of psychology and psychologists to enhance and support the climate action of individuals, organizations, communities, and governments.

The BPS has facilitated the establishment of an effective network of psychologists working in environmental psychology. Drawing on their experience and inviting the expertise of other BPS networks, the Society's policy staff will construct campaigns that will involve members and the broader public to demonstrate people's commitment to and desire for political action on climate change, to government.

The BPS understands that action to tackle climate change must happen at a micro, meso and macro level. Proven strategies utilized by other successful behavior change campaigns such as campaigns for reducing obesity will be deployed.

The first campaign was designed to focus on the narrative of the power of kinship to influence behavior modification. So as to not exclude people without families people will be asked to consider **#fortheloveof** and nominate

either a person for whom, or something (for example in nature) for which, they would commit to change. For example, their reason for change could be their children or grandchildren, or nature, oceans, elephants, bees etc.

Creating a strong narrative / storytelling has been central to the human experience for as long as we have been human (Canning & Reinsborough, 2017). Evolutionary biologists increasingly believe that our capacity for narrative is, in part, what helped to make us human. There is growing consensus in the psychology community that the neurological roots of both storytelling and enjoyment of stories is tied to our social cognition and the way we as individuals connect to form groups (Canning & Reinsborough, 2017).

For this kind of social change to occur, we must build our capacity to identify, analyze, and intervene not only in the institutional power structures, but also in the stories that are preventing the changes we know are needed. The outdated narrative of big oil, coal, and gas corporations (and their collaborators in governments) are still telling us that these corporations create jobs and that every last bit of fossil fuel is necessary for economic survival, even if it means destroying natural ecosystems, poisoning our air, and destabilizing our climate. Through an evidence-based narrative the BPS will put at the center of the campaigns the reality of what people really want and are actually willing and prepared to do to achieve real progress on climate change. Doing this can change more than policy, the story of what is possible for our immediate and long-term future is reimagined.

Public narratives can inspire mass support, but storytelling is at the heart of the day-to-day, person-to-person work of making social change. Successful campaigns rely strategically on storytelling to build relationships, unite constituencies, and mobilize people to act (Shanahan, McBeth & Hathaway, 2011). As people come together and share their stories, they identify common problems and create a narrative of how things could be better. The campaigns will use these stories to motivate actions, and the stories of those actions can be retold in successive campaigns to inspire, hone our strategy, and recruit more people to take even more actions (Jones & Song, 2013).

The shared narrative of the role of psychology will be the defining feature of the campaigns. The evidence will be that psychology and psychologists can support people to change **#fortheloveof** their identified loved ones, or

another group. The role of psychology is to share the psychological evidence base with other organizations to enable them to create their own campaigns and ultimately people-powered action to expect more from government and the big businesses they support. In this way the BPS can connect other organizations, communities, and individuals in a shared sense of identity and purpose.

The approach to campaigning begins with a review of the existing evidence on the issues the campaign is seeking to address, the changes the campaign aims to achieve and the stakeholders to be engaged to be successful.

To do this, the team will undertake a literature review and identify key BPS psychologists to act as spokespeople for the campaign. From this evidence a strong written and visual narrative will be created based on the power of kinship to motivate people to change, modify or sacrifice aspects of their lives to halt / reverse climate change. The goal is to demonstrate that people are prepared to do more, and the key policy ask is of Government(s) to **#bebolder** in their climate change targets and bring forward key elements of their climate change policy agenda.

A communications and engagement strategy will be developed to support the campaign. This strategy will identify and develop opportunities to engage with key stakeholders and audiences with a range of activities and events designed to highlight 'kinship' as a powerful motivator of behavior change.

Alongside the communications and engagement strategy we will identify opportunities to present the evidence to policy and decision-makers in both formal and informal meetings. This will include a range of political, business, academic and other public forums. The BPS is well connected in the UK Parliament where the elected representatives (Members of Parliament) meet in groups focused on both development of policy in particular areas (All-Party Parliamentary Groups), and also scrutiny (Select Committees), these groups regularly invite evidence from expert organizations such as the BPS. The BPS will identify and connect with like-minded organizations and campaign groups to encourage the incorporation of the psychological evidence to develop psychologically informed climate action campaigns and strategies."

Step #4 Expert reference group

Step #4 is to form a project group comprising a reference network of

European experts with research track records and deep knowledge in psychology and climate change to ensure psychological evidence is at the heart of what we all do. In this respect, EFPA, as happens with other areas of general import for psychology (such as ethics, human rights, education) and particular fields (community, (e-) health, work) has brought together member association country level experts to participate in developing work products directly for EFPA on a regional basis. Pressure to get going showed the importance European psychologists can attach to the topic. To share an anecdote, one member association chief executive officer commented she had never seen such eagerness for a European project.

In order to arrive at an agreed focus for the group's work, the EFPA Executive Council attempted in the terms of reference for the group (European Federation of Psychologists' Associations, 2021b) to describe various levels at which contributions to tackling climate change can be made. These included:

1. Devastating effects of climate change - descriptive accounts of the impact of climate change can be made by many individuals and bodies, and this is not primarily the domain of psychology.
2. Psychological impact on victims of climate change - this is within the remit of psychologists, but does not necessarily contribute to improvement either in welfare or in bringing about systemic change.
3. Psychological aid to victims of climate change - this is provided by psychologists delivering mental health services, it is not unique for victims of climate change, and is not designed to create systemic change in climate related behaviors.
4. Psychology and psychologists' unique contribution to stem climate change - climate change can only be mitigated by a general change of human behavior at various levels (e.g. individual, community, wider society).

EFPA Executive Council considered that a focus on psychological knowledge and method to prevent climate change would best promote the unique value of psychological science and method to society and in so doing also promote the profession.

When faced with a new problem, especially a crisis to address, specific

evidence may already exist (for example in systematic reviews). What is generically known can be repurposed (Karayianni et al., 2021). It is also important to identify early the gaps where further research is needed and how those can be filled. In order to do so, it was proposed that an important wider piece of work was needed to compile the psychological evidence that exists in relation to climate change to be used; and also the generic psychological evidence and models that are suitable to be applied to climate change but have not already been so applied. Out of that would also come identifying gap areas where further research would be beneficial and agendas could be set and collaborations encouraged, in a similar manner to the agenda set by one group of psychologists at the start of the COVID-19 pandemic (O'Connor et al., 2020).

Step #5 Support hub

Step #5, the support hub, builds on EFPA's learning from the COVID-19 pandemic. The support hub for COVID-19 (European Federation of Psychologists' Associations, 2020) brought together material from across Europe and global partners to provide resources on first response; isolation and quarantine; supporting individuals, families across the age span, local and national communities; and support for psychologists in their own professional practice, not forgetting links also to authoritative regional guidance for example from the European Centre for Disease Prevention and Control (ECDC) an agency of the European Union, and the World Health Organisation Regional Office for Europe.

The hub for psychology and climate change (European Federation of Psychologists' Associations, 2021c) aims to replicate this success by giving a single point of access to psychology resources for psychologists to use in making the discipline and profession's contribution to the global response to the threat of climate change. The resources aim to cover supporting individuals and families to change behavior to live in a more sustainable way; communities to bring people together to make changes to tackle climate change and to cope with the effects of climate change on their communities; and resources to support psychology's engagement with policy makers on climate change. Links to the UNFCC (United Nations Framework Convention on Climate Change), COP26 (26th United Nations Climate Change Conference of the Parties), and national government materials are

also given.

EFPA can disseminate via its hubs resources with general application to share across the European psychology community, and where applicable more broadly to its citizens, for the benefit of all. The National Psychological Association of Ukraine is one of the newer members of the European psychology community, an umbrella organization founded in 2017 that unites various Ukrainian psychological associations working in different approaches and independent professionals from the field of psychology (National Psychological Association of Ukraine, n.d.-a.). The Ukrainian psychologists have been active in researching attitudes to climate change among professionals in their country, and developing and piloting educational resources (National Psychological Association of Ukraine, n.d.-b.). The Ukrainian team explain their approach in the vignette that follows.

Why psychologists can be the agents of change in the climate crisis in Ukraine

Vignette by Valeriia Palii, President of The National Psychological Association of Ukraine

"Climate change in Eastern Europe manifests itself in a tricky way. The temperature level is increasing, rivers continue to dry, drought is followed by massive rains like those in tropical areas, but for the people the evidence for it is seen as pretty thin. In ordinary perception there is one more hot summer, one more winter without snow, one more river has dried up. A lot of information and arguments for the climate issue are completely distant from Eastern European reality and are not convincing for people.

The activity of the National Psychological Association of Ukraine on climate change, as psychologists, appeals to Ukrainian geographical, climate, and ecological reality. The awareness strategy uses relevant messages to our society. Evidence-based psychological knowledge and insights from behavioral science enhance the effectiveness of our work and make the changes possible.

The Climate Working Group in the National Psychological Association of Ukraine was created in 2019 after the International Summit on Psychology and Global Health: A Leader in Climate Action (APA & OPP, 2019). The group decided to start acting on the community level and focused on using psychologists as "agents of change", since every day they get in touch with many people who appreciate their opinion. An information campaign for

psychologists was launched about the impact of climate change on mental health (Palii, 2021). The goal of this was to make the specialists who deal with mental health problems every day aware of the climate crisis and share their knowledge in order to change the habits in the community.

Initial successful results motivated the group to move forward. A team from the climate group took part in the PsychSolutions (American Psychological Association, n.d.-b.) competition which was an international contest of global and innovative ideas in mental health organized by the American Psychological Association. The group pitched an idea about creating an online training course for psychologists, teachers and medical workers from Eastern Europe about climate change and mental health (Palii, Shkuropat, & Klymchuk, (2021). The team from the National Psychological Association of Ukraine got to the finals and won the People's Choice Award.

Now the team is creating a modern, interesting, and informative course, which will educate specialists who work with people about the climate crisis, mental health and environmentally conscious behavior. The course will be evidence-based, drawing on intervention techniques from behavioral science. The plan is to equip people with practical knowledge about the personal steps and general strategies which can be taken to combat this problem. The focus will be on possible short- and long-term actions which everyone can take to address climate change at different levels, from individual behavior to community and policy solutions. The course will be held on an online platform. All participants will register to access the program for free. Every lecture will be clear, brisk, and will consist of evidence-based knowledge on a specific topic, thought-provoking materials, and practical solutions. There will be a short revision test after every lecture and one final test at the end of the course. Every participant who completes the test will receive a certificate. After the pilot launch for Ukrainians, the group intends to translate the course into English and share it among neighboring countries. The vision of the National Psychological Association of Ukraine is that the training course will empower specialists, increase their awareness and encourage them to use new behavior strategies and share it with the community."

Step #9 Working with others

Step #9, working with others, is a sine qua non for making a contribution on a global issue. EFPA, together with many of our Member Associations

who engage directly, has been delighted to engage with the Global Psychology Alliance that came out of the Lisbon summit and is generously supported by the APA. Members of the GPA, including EFPA and the Portuguese Psychologists' Association, because of the status of APA being an observer organization to the UN Framework Convention on Climate Change (UNFCCC), were able to attend part of COP26 and this was an important opportunity to meet with personnel from the EU, different countries, businesses and other organizations to explain how psychology can help in the endeavor to tackle climate change.

EFPA was granted special consultative status at the Economic and Social Council of the United Nations in 2017, and is currently exploring ways of becoming more active in work at the UN in Geneva, to open up the opportunity for policy influencing work on psychology and climate change as well as the strategic priority area of mental health.

EFPA works closely in partnership with other organizations in Europe that represent a particular domain of psychology across a wide area of Europe, many of which have associate membership of EFPA. One such is the European Community Psychology Association (ECPA). EFPA is keen to work more closely and partner more often with its associate members, and is putting together a joint project with ECPA resourced from EFPA's working group the Standing Committee on community psychology, on the topic of climate change and migration. This also relates to Step #1 Priority field of action, Make climate change one of EFPA's priority fields of action, making climate change a focus for the goals of EFPA's working groups.

The final vignette is from Ordem dos Psicólogos Portugueses in Portugal. It describes how Portugal in the south west of Europe has been affected by climate change, the pace of that change and impact on its peoples, and how they as a psychology association have responded. It demonstrates the making of links with political and business leaders and organizations, being at the table; professional collaborations at different levels including with EFPA and the GPA in both of which OPP is an active and influential partner; and also, role models in terms of their approach to ensuring their own organization does the right thing. All these aspects can be considered indispensable in making an impact which is both credible and lasting.

Impact of climate change and psychologists' response in Portugal

Vignette by Sofia Ramalho, Vice-President of the Portuguese Psychologists Association and Tiago Pereira, Board Member of the Portuguese Psychologists Association

"In this millennium, Portugal has had about 3 million hectares of land burned by rural fires (San-Miguel-Ayanz et al., 2020). This is one third of its territory. 540 thousand hectares was burned in one year in 2017, when 117 persons died and Portugal suffered 72 days of extreme meteorological conditions. Despite new equipment and technology, the affected area almost doubled in the twenty-year period 2000 - 2020 when compared to 1980 - 2000. All Portuguese felt it directly or indirectly. All Portuguese understood and had to deal with changes and impacts of the climate crisis.

When, in November 2019, many global psychological associations met in Lisbon for the International Summit on Psychology and Global Health: A Leader in Climate Action, (APA & OPP, 2019) organized by the Portuguese Psychologists Association (OPP) and the American Psychological Association, it would have been almost impossible to predict that, a few weeks later, the first cases of COVID-19 would be known and, few months later, societies across the globe would be in the midst of the most serious pandemic of the last 100 years.

The COVID-19 pandemic, even though it adversely affected some climate-oriented commitments from the Lisbon Summit, had three relevant consequences for the climate change issue: more awareness of the importance of decision making and people's behavior in public health and societal challenges; relevance of psychological science and psychologists' contributions; and showed that, despite being difficult, it is possible to change, as can be seen for example on diminution of CO2 emissions.

Despite the complexity of the global scenario, since 2019, OPP has pushed forward its efforts in advocating for the importance of Psychology and Psychologists in addressing the climate crisis and global health with eight main initiatives (Ordem dos Psicólogos Portugueses, 2021):

1. Meetings with political decision-makers as well as environmental organizations' leaders.
2. OPP's inclusion on the Advisory Board of the Portuguese Association of

Impact Evaluation and work with the Portuguese Association of Business Ethics.

3. Discussions within professional and scientific communities, namely in the Representatives Assembly of OPP and in the Psychology National Forum (OPP and the 31 Universities that offer Psychology degrees).
4. Global cooperation with EFPA and Climate Change Expert Reference Group, and in the Global Psychology Alliance (around 70 world psychology associations).
5. Establishing a strategic action for OPP based on eight Societal Challenges, one being the "Climate Crisis and Sustainability" for promoting literacy, training for psychologists and advocating for more resilient communities.
6. Contributions to facilitate the green transition in the context of the European Green Deal and the promotion of a Green Europe.
7. Participation in the design, implementation and evaluation of public policies applied to climate action and behavioral change, through psychological science, nudging and effective communication.
8. Internal changes to OPP's services and communication policies to be aligned with OPP's external strategies on this topic, including the Environmental, Hygiene and Safety certification according to standards of quality.

In 1958, Maslow wrote on "The Mission of the Psychologist" that the "world will either be saved by the psychologists or it won't be saved at all" (p.1). OPP believes that the world will be saved and it will be saved with the contribution of psychologists and psychological science to the most complex societal challenges, including climate crisis. OPP believes in a world, with the contribution of psychologists and psychological science, of wellbeing and social cohesion for all."

Considering potential

'Supportive of people' interventions are needed and matter, and could be said to be the core business of many psychologists. These are valued by countries and in some areas, more can be done to make them universally accessible, to organize and fund them.

There is considerable potential too for psychology working at the community level to engage people in change. This means a role for the national, regional, and international psychology bodies including the GPA in bringing together psychologists with expertise in working with communities and climate change. Psychologists can draw on shared narratives of how to do this in different cultures and circumstances.

There's a role for psychology in bringing attention to the human factors, using the knowledge base to support behavior change. This needs to include the systemic level of social infrastructure and not just point at individual level changes. So, what do governments, public bodies, organizations need to put in place?. It is some of these wider interventions supporting human change that promise to help solve the climate problem.

What could get in the way of using such evidence-based solutions from psychology? Barriers can exist within the approach of authorities, reaction of communities, and indeed the preferences of psychologists ourselves. How things have always been done, what is popular, intuitively obvious, may not be the right approach. The approach taken by European national associations and EFPA, in concert with global colleagues, it is hoped will help break through any such barriers.

It can be seen that European psychologists have organized enthusiastically since the Lisbon summit to use psychology's expertise in policy influencing on climate change, partnering with other organizations with different expertise in the climate field, and developing resources and support for fellow psychologists and professionals. The shared desire to make a difference, and to come together around an issue to demonstrate what psychology can offer, laid the groundwork; responding to the COVID-19 pandemic offered some of the know-how; and then working together globally in the GPA, and the external beacon of COP26 and the global political endeavors of the United Nations has acted as something of a catalyst and inspiration.

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Australia and Climate: The World's Most Serious Health Threat

The Australian Psychological Society

Introduction: APS at the Lisbon Summit

In 2019, the APS was represented at the International Summit on Psychology and Global Health in Lisbon, Portugal. At this inaugural gathering, APS leadership presented the Society's Psychology Week findings. We were proud to sign on to the international pledge to apply psychological science to combat climate change. At the writing of this chapter, it is two years on and the APS continues to make great strides.

Climate Change in Australia

Toward the end of 2019, a sense of unease was spreading through many communities across Australia. There had been reports of the bushfire (wildfire) season – which typically begins for the eastern states at the start of summer in December – starting earlier. Some areas had already seen fires in September, and as we moved closer to Christmas, bushfire alerts were coming through at an alarming rate.

By the end of February 2020, over 17 million hectares (42million acres) of land had burned and 33 people died (Richards, Brew, & Smith, 2020). Reports of the fires made headlines across the world, with images of communities evacuating and animals feeling under the red haze of fire and smoke. It is estimated that over one billion mammals, birds and reptiles combined were killed, with modelling suggesting that the fires had had a significant impact on rare or threatened animals, plants and insects. Over 400 million tonnes of C02 was emitted (Werner & Lyons, 2020 May 4) and 11 million Australians were affected by smoke.

These few months, now known as Australia's Black Summer of 2019-20. Whilst Australia has a long history of extreme weather events, the impact of these fires was unprecedented and the mental health impacts are still being felt two years on.

Our psychologists who were on the frontline of the response, both through the APS Disaster Response Network and through their own practices, report of cumulative trauma from the fires and now the pandemic. The effects include anxiety, trauma, post-traumatic stress disorder and depression. Climate anxiety is also on the rise with psychologists stating anecdotally that this is increasingly being addressed during consults.

The key findings from the Climate Council, (Hughes et al., 2020) Australia's leading climate change organisation, confirm that climate change fuelled this devastating period. A combination of hot, dry conditions and the years of reduced rainfall added to severe drought provided the perfect conditions for catastrophic fires.

The twelve months from January to December 2021 have seen multiple extreme weather events across Australia, including widespread flooding and cyclones. With the 2021-22 summer now here, and COP26 having taken place in November 2021, many wait to see what action will be taken on a local and global scale to fight the impacts of climate change.

APS' Perspective on Psychology's Social and Moral Responsibility Regarding Climate

Psychology as a profession and discipline has a social and moral responsibility to play an active leadership role in climate change mitigation and adaptation, to advocate strongly for speedy policy action, and to contribute expertise to relevant local, state, national and international dialogues.

The APS has long acknowledged that climate change is regarded as the most serious global health threat of the 21st century and has numerous impacts on both physical and mental health (McKeever, 2021). In June 2020, the Society updated its position statement (APS) strengthen our stance in line with the mounting urgency for the world to act on climate change.

The APS accepts the consensus of Australian and international scientists that human activities, particularly since the mid-20th century, have resulted in a steep growth in greenhouse gas concentrations, causing substantial global warming and generating a high risk of catastrophic climate change. To prevent catastrophic climate change, substantial and speedy changes at national,

organisational, community and individual levels are needed.

Psychological Impacts of Climate Change

During the 2019-20 summer, attention in Australian traditional and social media channels turned to the impacts of climate change on mental health. The APS was called upon to address the mental health impacts. We have a long history of commenting on this issue, but there was greater and more widespread attention.

Research shows widespread emotional reactions to awareness of the threat of climate change in both adults and children. Emotional responses include:

- fear and anxiety;
- depression;
- sense of loss and sadness;
- anger and frustration (at inaction by national leaders).

For children in particular, a sense of helplessness, and despair and hopelessness at inaction by the current adult generation is felt (APS, 2017; Sanson et al., 2019). This has been made clear through the climate protests led by Greta Thunberg, which grew in intensity during 2019.

APS Communications on how Psychology can help

Psychology trained professionals (including practitioners, academics, and researchers) have the expert scientific knowledge, skills and resources to help in climate change mitigation and adaptation. The following points include approaches the APS has recommended for its psychologist members.

Psychology professionals can:

- help build understanding of the behavioural and motivational factors associated with causes of climate change
- assist governments, communities and individuals to prepare for and reduce the risks of climate-related events such as floods and bushfires (environmental adaptation)
- help individuals and communities adapt to their psychosocial impacts (psychological adaptation)
- deliver psychological first aid immediately after climate-related disasters,

as well as support over the longer term such as community resilience programs
- help individuals and communities to peacefully resolve conflicts arising from climate change impacts such as resource shortages and forced relocation
- assist individuals and organisations to face the reality of the climate crisis, and supporting them to take responsibility for acting to reduce the threat
- help organise fair and sustainable laws and regulations for equitable sharing of limited resources, locally, nationally and globally
- and of central importance, advocate to governments, policy-makers, decision-makers, industries, etc. about the critical need for fast and widespread action in order to protect human health and wellbeing.

In addressing the psychosocial impacts, psychology can provide guidance and support for coping and dealing with the emotional responses to climate change (APS, 2017; Burke et al., 2017; Macy & Johnstone, 2012).

An important psychological insight is that taking action on climate change is a strong antidote to anxiety and builds self-efficacy and realistic hope (Sanson et al., 2019). This was made particularly clear during Psychology Week 2019.

Australian Psychology Week 2019: A Focus on Climate Change

Each year the APS runs Psychology Week – a national campaign which shows Australians how much psychology can improve their wellbeing and their lives.

In 2019, we zoomed in on social justices and what we can learn from young people – with a particular focus on climate change. We conducted a review into research literature on the climate crisis in relation to children and youth and brought in a fantastic group of 16 to 25-year-olds into our Youth Advisory Group. Together, we talked to them about the climate crisis, gathering their views, experiences and support needs.

The results from our research (APS, 2019) painted a compelling picture:

- 95% of Australian youth believe that climate change is a serious problem

- 4 in 5 are anxious about climate change
- 4 in 5 youth are concerned that climate change will reduce their quality of life in the future
- 3 in 4 youth feel that young people's opinions and concerns are not being taken seriously.

Many of the members of the advisory group were very passionate about action on climate change, demonstrating determination, courage, persistence, problem-solving, collaboration, ability to manage their feelings about social justice and the capacity to take a global perspective on the world. They felt that society had much to learn from young people.

We used this data and feedback to inform what young people, parents and caregivers, education providers, the community and media, governments, and the psychology profession – can do to help manage feelings, learn and take actions on the climate crisis, including to:

- think and talk about how knowledge about climate change and/or experience of its impacts affects us personally and is likely to affect our future lives
- take action as an individual (e.g., changing consumer behaviours, writing about climate change for a newsletter, writing a letter to a politician, attending a rally)
- think of creative and fun ways to address the issue with friends
- joining a group that is working on the issue
- celebrating small wins
- focus on self-care when needed.

Recommendations for each group can be found in the Psychology Week 2019 Report (APS).

Our findings mirror a recent study conducted by Humboldt State University in Arcata, California (Thompson, 2021) of 10,000 young people from ten countries on how they feel about climate change and government responses to it.

The APS Disaster Response Network Climate-Related Action:

The APS Disaster Response Network (DRN) is a network of over 600

APS psychologists who donate their time to support frontline workers and communities following a range of disasters. The APS partners with the Australian Red Cross to deploy psychologists and to provide a coordinated response.

The DRN was first set up in 2009 following the catastrophic Black Saturday bushfires that ripped across parts of the state of Victoria, killing 173 people, burning 400,000 hectares of land and destroying hundreds of homes and dwellings (NASA, n.d.). Since then our psychologists have responded to Cyclone Yasi, 2011, the Bundaberg floods in 2012, Cyclone Marcia in Rockhampton in 2015, Cyclone Debbie in 2017, the Bourke St Tragedy in 2017, the Black Summer bushfires, 2019/20 and the floods across parts of New South Wales and Queensland in 2022.

Our psychologists who conduct this work speak of the benefits (Wilson-Evered, 2020) of these early interventions immediately following a disaster, and also of the critical nature of the ongoing work, given the compounding weariness and impacts on mental health from both natural disasters and the COVID-19 pandemic. Research tells us that the impacts of these events can linger for months – if not years (Richardson, Gibbs, & Roberts, 2020). Three years after the Black Saturday bushfires, a quarter of people involved still experienced serious mental health challenges: depression, anxiety, post-traumatic stress disorder. This is why it is so important that clinical service providers are trained and experienced in understanding the context of disasters.

APS Efforts from Lisbon to the Present

1. **APS Climate Resources**: The APS has developed a wide range of resources to help people across communities deal with the impacts of climate change and major weather events. Our suite for the public explores how to prepare for and recover from natural disasters and include information sheets for helping children.
   These include talking with children about the environment, coping with climate change distress, dealing with burnout, and resources about what you can do to empower yourself to help in this space.
   The APS has nimbly disseminated these resources to media and via social media, ensuring that they reach a wide readership leading up to, during, and following extreme weather events.

2. **Climate and Health Alliance**: As part of the Climate and Health Alliance (CAHA) of more than 70 organisations in the health sector in Australia, we are working on a mission to create a powerful health sector movement for climate action and sustainable healthcare.
3. **Reporting on the health profession**: CAHA's recent report (2021) *Real, Urgent & Now: Insights from health professionals on climate and health in Australia* surveyed 875 respondents from across Australia in late 2020. The survey explored health professionals' engagement with climate change, their emotional response to the issue, exposure to climate-health impacts and solutions, their views on priority actions, as well as barriers and enablers to talking about climate change as a health professional and advocating for climate action.
   The findings aim to help health practitioners speak about climate change with clients and the community more broadly. It is clear from this research that the vast majority (78%) of health professionals are concerned – or indeed, alarmed – about climate change, with 86% agreeing that it is a serious problem requiring immediate action, and that the public needs more information on its link with health.
   Whilst 30% are talking to their patients or clients about the health impacts of climate change, 42% do not feel well informed enough about the health impacts of climate change to communicate climate health messages. 54% of health professionals are seeking to be informed and updated on the issues of climate change and health by health professional organisations – revealing the clear role the APS can have in informing psychologists.

Supporting clients and professionals

All agree that there are approaches, supports and resources that can be put in place to find a way forward, including:

- the importance of self-care in order to take effective action to help others
- the need for psychologists to upskill in cumulative trauma, and in uncertainty and anxiety therapy skills
- the need for those who are experiencing distress about climate change have that distress validated
- that there are ways to take action around that distress, such as connecting

with nature, and that clinical support may be needed from a mental health clinician
- the need to plan for the increase in temperature and the mental health impacts
- proportionate and sufficient action is needed from leaders
- a balance of telehealth support and in-person outreach support is required
- ensuring culturally and linguistically diverse people or Indigenous Australians are supported through outreach work from their own cultural group, including through community institutions such as the fire and emergency services, to build trust and engagement
- the facilitation of community empowerment.

A shared responsibility

Governments, businesses, and organisations must recognise the urgency of the climate crisis and associated environmental problems and develop and implement effective policies to speedily reduce greenhouse gas emissions and draw down the excess gases already in the atmosphere.

Given the role the science of psychology can play in bringing about large-scale behaviour change and in public messaging, psychology needs to be at the advocacy table.

The APS recommends that:

- Governments, industries, organisations, psychology and other health professionals, and the public recognise the urgency of the climate crisis and develop effective strategies to mitigate climate change and minimise climate change impacts and promote successful community adaptation and resilience. Marginalised groups and vulnerable people should be given particular attention
- Governments and education providers develop and implement national curricula on climate change, which include the science of climate change, its psychological and social dimensions, and solutions to it
- Psychology practitioners, researchers and educators collaborate with climate change scientists, social scientists, government, and other expert groups, to contribute to understanding and addressing the human behaviour drivers of climate change, as well as psychological dimensions

of the response to climate change, its mitigation, and adaptation to it

- Psychology practitioners, researchers and educators bring their skills to bear in climate change advocacy, education and training, mitigation and adaptation.

Activities by APS members on climate change and mental health

The APS took part in an expert panel discussion on climate change and mental health in October 2021, which brought together experts from across the health sector to discuss the impacts and what can be done to improve outcomes.

Fiona Charleson, public health researcher at the University of Queensland, shared the complexity around the links between mental health and climate change: from the direct pathways such as exposure to traumatic events (bushfires, other sever weather-related events) to indirect pathways (social, political and economic determinants of mental health such as poverty, unemployment and housing). The findings from research in the International Journals of Environmental Research and Public Health reveals that the mental health outcomes of environmental exposures such as temperature, humidity, drought, bushfires and flood include psychological distress, mortality among people with mental illness, and self-harm and suicide.

APS President Tamara Cavenett spoke about themes coming through in practice in 2020-21, namely an increase in clients across the lifespan who are feeling impacted by this issue, including through cumulative trauma (repeated events in a person's life), and how this has been intensified by the COVID-19 pandemic given the worldwide uncertainty about the future.

Cebele Dey, child and adolescent psychiatrist from Doctors for the Environment Australia, shared new research that the average 6-year-old in 2021 will live through three times as many extreme weather events than their grandparents, and similarly reported increasing presentations, particularly from rural and regional Australia which had already been greatly impacted by drought and bushfires.

Carol Ride, psychologist and founder of Psychology for a Safe Climate, noted that scientists, academics and policy makers in climate change are also feeling the intense grief, anger, despair, depression, exhaustion and even isolation, including around and lack of action at a government level on the issue. Professor Alan Rosen, psychiatrist, highlighted that vulnerable populations are at particular risk of mental health impacts, such as those living in climate impacted areas, as well as asylum seekers, refugees, those with severe mental health issues, the prison population and Indigenous Australians.

Looking Forward

The APS will continue to work to achieve these goals and is eager to continue shared efforts with our psychology partners from across the world at the 2022 Global Psychology Alliance Summit in Bogotá, Colombia.

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Climate change: challenges and possibilities for Brazilian psychologists

Ligia Abreu-Cruz[1] *and João Gabriel Modesto*[2]

Brazil has the most remarkable diversity of species in the world (Ministério do Meio Ambiente, 2021). However, its strategic relevance to global biodiversity is often mistaken by only one of the country's biomes, the Amazon Rainforest. Amazonian degradation has been a thermometer for global concern on climate change, perhaps by its geographical proportion and dazzling impact, but there is a far more worrisome scenario. Together, all Brazilian biomes hold 20% of the total species on the planet, found on land and water (Ministério do Meio Ambiente, 2021), and all of them are being devastated, as demonstrated in Table 1.

Table 1. Biodiversity and vegetation loss in Brazil's biomes

Biomes	**Biodiversity strengths***	**Cumulative statistics from 1985 to 2020****
Amazon region	Biggest tropical forest in the world 30 of the 100 mil plants species from South America Biggest hydrographic basin in the world, containing 20% of world's water disponibility More than one third of existing species in the planet live or reproduce in the region	Around 16,4% of the region has been burned between 1985 and 2020 Around 12% of native vegetation has been lost between 1985 and 202
Atlantic forest	Biodiversity is bigger than the ones held in entire continents, including North America	Around 6,5% of the forest has been burned between 1985 and 2020 Around 10% of native vegetation has been lost between 1985 and 2020

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Caatinga	Great variety of landscapes, with many species that only exist in this biome High on genetic resources, given its significant biodiversity	Around 10,5% of *Caatinga* has been burned between 1985 and 2020 Around 10% of native vegetation has been lost between 1985 and 2020
Cerrado	Headwater to the three biggest hydrographic basins in South America The Cerrado is admitted being the world's richest savanna in terms of biodiversity Second largest biome in South America	Around 19,8% of native vegetation has been lost between 1985 and 2020 Around 36% of *Cerrado* has been burned between 1985 and 2020
Pantanal	The world's largest wetlands region Headwater to major South American river systems	Around 57,5% of *Pantanal* has been burned between 1985 and 2020 Around 12% of native vegetation has been lost between 1985 and 2020
Pampa	Contains the biggest extension of Aquífero Guarani, one of the world's largest underground water reservoirs One of the most important temperate grasslands in the planet	Around 1,5% of *Pampa* has been burned between 1985 and 2020 Around 21,4% of native vegetation has been lost between 1985 and 2020

**Adapted from Ministério do Meio Ambiente (2021), Instituto Brasileiro de Geografia e Estatística [IBGE] (2021) and World Wildlife Fund - Brazil (2021)*
***Adapted from MapBiomas (2021)*

Other than the Amazon Rainforest, the Atlantic Forest and *Cerrado* are the most endangered biomes in Brazil (World Wildlife Fund - Brazil, 2021). This fact demonstrates the historical process underlying present-day environmental tragedy. The colonization of Brazil was based on predatory, abusive exploitation of human and natural resources, first viewed as "riches of the earth," an interpretative bias that is reflected until the present day. Over the

XIX century, for example, wildfires followed the development of agriculture, under the assumption that nature was an unlimited resource that needed to be extracted (Martinez, 2005). Following this logic, intensive agriculture and livestock slowly substituted native vegetation in the central region of Brazil (location of *Cerrado*) (World Wildlife Fund - Brazil, 2021), under the XX century´s assumption of progress at all cost- also meaning urbanization at all costs. Which, as a result, left today the Atlantic Forest to hold 60% of all Brazilian urban areas and *Cerrado* to present a 5.6 growth rate for agriculture since the eighties (MapBiomas, 2021).

The historical social-economical construction of a now endangered environment has also developed a system of assumptions and cognitive biases that underlies Brazilian social practices and institutions. According to a cognitive approach, biases, and beliefs constitute different subjective person-environment relations, even in the same concrete context (Higuchi et al., 2017). For example, despite the deforestation of the Brazilian biomes, some Brazil local communities have developed their existence based on a sustainable relation to each biome, becoming themselves Brazil's historical and cultural patrimony (e.g., quilombolas, ribeirinhos, pantaneiros) (Ministério do Meio Ambiente, 2021). The so-called traditional knowledge of these populations is an excellent example of a cognitive system that enables the development of sustainable conduct (Higuchi & Pato, 2018). It demonstrates that no environmental solution can be brought from outside the person-environment relation itself (Campos-de-Carvalho et al., 2017). Brazilians are supposed to construct a sustainable way of life, adapted to the surroundings that constitute their own identity. This process should occur simultaneously with the development of rigorous environmental policies by the Brazilian government. However, this has not been the case, especially during the government of President Jair Bolsonaro.

The Brazilian government: Fake News and anti-scientific discourse

Jair Bolsonaro is a far-right politician elected in 2018 as president of Brazil. The president is known for prejudiced speeches against minority groups and key omissions of scientific data during the pandemic (Modesto et al., 2020). It is also noteworthy that the president is accused of defending conspiracy theories (e.g., claim without proof that the Brazilian elections are fraudulent)

and spreading Fake News on different topics, such as vaccines and COVID (Galli & Modesto, 2021). The president's scientific denial also includes the country's environmental issues.

In 2019, the National Institute for Space Research (INPE) presented data on the increase in burning in the Amazon Rainforest during the Bolsonaro government. The president, however, said that the data was false (without giving evidence about it), and the director was dismissed from the institute (Exame, 2019). In 2020, after a new complaint by INPE about Amazon deforestation, the agency coordinator was dismissed from her position (Kafruni, 2020). Finally, in July 2021, the government withdrew from INPE the responsibility for monitoring the fires, again showing a denial of data on environmental issues in Brazil (Oliveira, 2021).

In addition to denying scientific data, the federal government disseminated fake news about deforestation in the Amazon Rainforest. In a speech at the United Nations (UN), the president accused indigenous peoples of being responsible for the fires. This argument is not supported by the images obtained by monitoring satellites in the region (Leitão, 2020). The president also accused actor Leonardo DiCaprio of financing fires in the Amazon (BBC, 2019).

Together, the dissemination of Fake News and the omissions of Brazilian federal government demonstrates the government's resistance to debating and combating environmental problems (such as climate change), which has already worried Brazilian researchers (Ventura et al., 2020). Denial and lack of concrete actions in favor of the environment have practical consequences. For example, Gatti et al. (2021) estimated that the absorption of carbon dioxide in the Amazon Rainforest is declining due to deforestation and climate change.

The Brazilian government should advocate pro-environmental policies, after all, changing a paradigm is a collective effort. Institutions are responsible for planning and executing interventions to transform the population's cognitive processing and content about environmental issues (Lehman & Geller, 2008). Among several cognitive constructs that can guide these interventions, one stands out as a possible explanation for current Brazilian failure in developing a pro-environmental way of thinking: Biases acting as barriers to climate change mitigation behavior.

The psychology behind biased communication: Limited cognition and discredence

Due to the multidetermined essence of pro-environmental behavior (Steg & Vlek, 2009), a single factor cannot account for climate change mitigation behavior. Nevertheless, after Gifford's famous categorization of the "seven dragons of inaction" - psychological barriers that hinder pro-environmental behavioral choices - the importance of cognitive processes as determinants gained visibility. According to Gifford (2011), most people think climate change is a problem, and sustainable behavior is necessary. However, even after removing the structural barrier, most people do not engage in corresponding behavior or, at least, do much less than what could be done individually. Several cognitive contents and processes are responsible for this hindrance and were organized by the author in seven categories, two closely related to Brazil's present scenario: limited cognition (e.g., uncertainty, judgmental discounting, optimism bias, among others) and discredence (e.g., mistrust, denial, reactance etc.).

There is a relative scientific consensus on the relevance of adequate knowledge about climate change to promote sustainability (Kaiser & Fuhrer, 2003). Therefore, the effort of Brazil's government to reduce access to knowledge is an undeniable immediate barrier to climate change mitigation behavior. On the other hand, there is an even stronger agreement concerning knowledge and pro-environmental behavior: the fact that knowledge is far from enough (Schultz, 2002).

Even with access to good information, not always believing in climate change alters individual behavior. For example, in a longitudinal study, Hall et al. (2018) found that even people who are highly concerned about climate change (and who endorse government climate policies) may have low rates of pro-environment actions at an individual level. It is common for people justify inaction, postpone behaviors, or present insufficient actions (Gifford, 2011).

Insufficient knowledge creates a problem, but, even worse, uncertain knowledge promotes other psychological barriers linked to discredence, such as mistrust and denial. According to some authors, the basis of society's behavior is the reciprocity principle, in which whoever receives a favor is morally bound to retribute. In turn, trust is a precondition for the

functioning of the reciprocity norm. Thus, any collective endeavor will automatically fail if there is no trust among members (Colquitt et al., 2007). According to Gifford (2010), positive climate change behavior will diminish when one does not trust that there are public-service motives in force.

In an environmental domain, denial can be believing that climate change is not accurate, or, if it is happening, it is a natural process, not anthropogenic, and individual actions play no role. Often, this bias is more affect-based than originated after rational consideration (Gifford, 2010). As a self-protective strategy, in the face of environmental threat, denial can also be defined as a biased interpretation, in which climate change can even be recognized as a problem (i.e.: knowledge is present). However, the implications to one's individual and collective life are ignored (Wullenkord & Reese, 2021).

The tendency to refuse such aspects can even come in a more compelling discourse when aligned to the judgmental discounting (another bias caused by limited cognition). Gifford et al. (2009) pointed out that the undervaluing of distant or future risks are two of the world's most common psychological barriers. Because of these biases, even in the presence of worse environmental conditions, when compared to other locations, people tend to believe that climate change is better and will occur later in their places. According to Van der Linden (2015), this kind of risk perception is more predicted by experiential and socio-cultural aspects than individual determinants.

Brazilian psychology agenda for sustainable development

At least two courses of action need to address limited cognition and discredence: convey adequate climate change communication and teach people skills to avoid fake and biased communication. In addition to accurate climate change scientific data, positioning this knowledge at a local level is essential. In Brazil, Barros and Pinheiro (2020) found that adolescents expressed more concern about the world situation than their city, which is a case of spatial optimism bias. This bias was also found in other Brazilian studies (Pinheiro et al., 2018). According to the authors, it is crucial to deal with this bias in communications about climate change. After all, if people do not recognize the problem as local, there may be more resistance to climate change mitigation. Some researchers also pointed out that climate change communication should focus on positive approaches that favor the general public's acceptance of mitigating actions (Pinheiro & Farias, 2015).

Considering the denial bias, psychologists can develop strategies for identifying and reducing Fake News related to environmental issues and climate change. For example, there is evidence that warning alerts about news content and fact-checks tags can reduce the endorsement of fake news (Clayton et al., 2020). Therefore, Brazilian psychologists can investigate whether this is an efficient strategy for environmental fake news spread in the country.

So far, the Brazilian Society of Psychology (BSP) has contributed to the growth of scientific evidence of environmental issues in Brazil. For example, the first Congress on Environmental Psychology and Person-Environment Relations was held during the BSP annual congress in 2019. In addition, the BSP annual congress itself has been a space for discussion of environmental issues and sustainable development. For example, different authors have discussed the role of psychology in climate change during the BSP's congresses (Sociedade Brasileira de Psicologia [SBP], 2019). Moreover, in 2021, it is noteworthy that 623 papers (out of 749 papers in the event) referred to at least one sustainable development goal. In conclusion, we believe that the BSP and Brazilian psychologists have made efforts to mitigate the effects of climate change.

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Impact of Air-pollution on Cognitive and Brain Health: A Case of South Korea

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Introduction

Great Smog covered the London city for five days in 1952, caused by a combination of industrial pollution and high-pressure weather conditions. Particulates released by coal-burning factories produced dark and heavy clouds that seriously impaired visibility. For example, pedestrians were unable to see their own feet due to thick smog, and vehicles could only see a few meters in front of them due to thickened smog. Heavy smog brought the city to a near shutdown, and it had a severe impact on human health. In weeks following the peak episode, 12,000 deaths were attributed to lethal smog, and many more suffered from breathing problems such as chronic obstructive pulmonary disease (Bell et al., 2004). As a direct response to the great smog, a series of laws and regulations were put in place to reduce air pollution including the Clean Air Act of 1956, which has been marked as a turning point in the history of the global environment. Despite such endeavors, an exceedingly high level of air pollution still exists in many parts of the world and entails considerable problems in a variety of dimensions.

Since the late 20th century, industrialization, economic development, and population growth have greatly increased energy demand in developing countries. Greater energy use has enabled economic output and material consumption, enhancing our standard of living, but it has also released more particulates into the air. Therefore, increased air pollution became a serious problem in individuals and societies, followed by the largest-scale of development around the world. According to the World Health Organization (WHO), more than 4 million people die early because of ambient air pollution each year. Also, both acute and chronic exposure to particulate matter exceeding the WHO guideline reduce average life expectancy by 1.8 years per person. Therefore, we should take note of the effects of air pollution as a major global environmental risk to our life and health.

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What is air pollution?

Air pollution is the presence of substances in the air that are harmful to human health, welfare, or environment. Variant air pollutants can be grouped into four categories depending on their chemical composition, reaction properties, emission, persistence in the environment, and their eventual impacts on human health. Accordingly, air pollution is comprised of a diverse mixture of gaseous pollutants (e.g. sulfur oxides, nitrogen oxides, carbon monoxide, ground-level ozone), persistent organic pollutants (e.g. dioxins), heavy metals (e.g. nickel, lead, mercury) and particulate matter (PM) (K. Kim et al., 2015). Among various pollutants, particulate matter especially draws much attention owing to its brutal effects on human health. Particulate matter refers to the sum of solid and liquid particles suspended in the air. Particles have an irregular shape, and their aerodynamic behavior is expressed in terms of the diameter of an idealized sphere. The sampling and description of particles are based on the aerodynamic diameter, which is usually referred to as particle size. Thus, major particulate matters are classified based on the following criteria: coarse particles (PM_{10}) with diameter of 2.5 to 10 μm, fine particles ($PM_{2.5}$) with diameter smaller than 2.5 μm, and ultrafine particles ($PM_{0.1}$) with less than 0.1 μm. The particle size reflects the impact on human health since smaller particles can reach deeper into alveoli when inhaled PM penetrates the respiratory tract. Thus, tiny particles have been considered a more hazardous factor in global life expectancy compared to other risk factors such as smoking and drinking.

Particulate matter can be directly emitted into the air (primary PM) or be formed in the atmosphere from gaseous precursors such as sulfur dioxide (SO), oxides of nitrogen (NO), and non-methane volatile organic compounds (secondary PM). Primary PM and gaseous precursors can originate from multiple natural and man-made sources. Natural sources include wildfires, dust storms, volcanoes, and marine aerosol. Anthropogenic (man-made) sources include solid-fuel (coal, lignite, heavy oil, and biomass) combustion, industrial and agricultural activities, erosion of the pavement by road traffic, abrasion of brakes and tyres, and energy production in households. Secondary particles are formed in the atmosphere through chemical reactions of gaseous pollutants. Particles from anthropogenic sources and secondary reactions are more toxic and contribute more to the formation of $PM_{2.5}$ compared to naturally developed particles which make only a small contribution to the

total concentration. It is consistent with previous results that $PM_{2.5}$ is more harmful to human health than PM_{10}.

Air pollution in South Korea

South Korea has experienced one of the fastest rates of economic growth and urbanization during the past 60 years. It started as an agriculture-based economy. However, Korea has instituted drastic economic measures since the early 1960s, and increasing industrialization enabled one of the fastest and largest rates of growth in the 20th century. Korea achieved gross domestic product (GDP) growth averaging 7.3 percent annually between 1960 and 2019, they became the 10th largest economy in the world. Meanwhile, rapid industrial development also brought some problems in Korean society. Industrialization and urbanization led to an increased volume of air pollution and other environmental concerns as well as economic expansion. For example, concentrations of particulate matter, ozone, and nitrogen dioxide in Korea have been gradually increasing, whereas emissions of sulfur dioxide have reduced owing to switching from coal to gas. During past years, Korea has had the greatest level of population exposed to excessive $PM_{2.5}$ among OECD countries. It indicates that most Korean people continue to be exposed to serious air quality and various accompanying health risks (OECD, 2018). Especially, the metropolitan area of Seoul, which is among the most polluted cities in the world, has about two times higher $PM_{2.5}$ concentration levels than the WHO's upper guidelines (Trnka, 2020). Therefore, there are increasing concerns and demands in Korea regarding particulate matter, and they have become major social and economic issues. Although Korea's level of interest in environmental issues is also increasing, problems persist, and air pollution is still a major concern in Korea. Based on these needs, we have reviewed the detrimental influences of air pollution on various aspects in South Korea and other countries around the world. Given that particulate matter is seriously noted due to its detrimental effects compared to other pollutants, we have focused on PM especially in this chapter.

Impact of air pollution exposure on societal level

Climate change is a major global challenge together with air pollution, and there is complex interaction between them (Kinney, 2018). First, air pollution is a widely known risk factor for climate change. Many common

air pollutants contribute to form greenhouse gases which lead to climate change and global warming. According to a 2019 US Environmental Protection Agency (EPA) study, carbon dioxide was responsible for 80 percent of the country's total greenhouse gas emissions, methane accounted for 10 percent, and Nitrous Oxide made up 7 percent. Specifically, greenhouse gases deplete the atmosphere that protects the earth from radiation, and lead to more energy from the sun reaching the surface. Additionally, by trapping radiation and earth's heat in the atmosphere and preventing it from dissipating off the surface, greenhouse gases increase global temperatures again. Therefore, hallmarks of climate change including rising sea levels, heat-related deaths, and increasing transmission of infectious diseases like Lyme occur. Additionally, climate change aggravated by air pollution also influences extreme weather change, leading to more devastating storms, hurricanes, floods, and wildfires which are hazardous to human life.

There is a destructive feedback loop between air pollution and climate change since climate change also impacts air pollution conversely. As the climate continues to warm, the land becomes drier and produces more dust. This climate change also creates more ground-level ozone that is a byproduct of pollutants and has a further adverse impact on human health. Increased temperatures also trigger reactions between chemicals, causing more secondary air pollutants to be produced.

Meanwhile, the OECD reported an adverse impact of air pollution on the economy in various forms. First, increased mortality and morbidity due to air pollution are captured in non-market costs. For example, pollution-related illnesses such as cardiovascular disease and chronic respiratory disease result in increased hospital admissions and medical expenses, leading to additional costs on both society and the individual. Second, air pollution may contribute to increased market costs due to reduced labor productivity and losses in natural outputs. Health problems related to air pollution leads to an increasing number of restricted activity days, reduced ability to work, and lower participation rates in the labor force. Statistics from the Centre for Research on energy and clean air (2016) indicated that costs from mortality and morbidity-related air pollution are estimated as $2.9 trillion which is 3.3 percent of the world's GDP. In children, those who are susceptible to asthma attacks miss school days, impacting their learning while healthcare requirements can result in their guardians also taking extra time off work.

Thus, market and non-market costs are interrelated, and they result in significant effects on local and global finances. In addition, air pollution also has a direct impact on productivity of natural outputs. In the agricultural or forestry sectors, air pollution has the potential to damage crops or trees and thus cause reductions in yield. Accordingly, reduced agricultural output can cause serious economic losses, especially in countries where agriculture constitutes a large part of the economy. For instance, Chameides et al (1999) reported that most crop yields in China were depressed by 5-30% as a result of direct effect of suspended particulate matter, as these aerosols caused reductions in direct sunlight reaching crop yields. According to the report of Korea(2019, 현대경제연구원;미세먼지에 대한 국민 인식 조사 보고서), costs from the damage on agriculture, fishery and construction sectors being the most severely affected from air pollution are estimated as 0.2 percent of GDP in 2018.

Impact of air pollution exposure on individual level

Cognitive and physical health

To date, numerous studies have demonstrated that air pollution adversely affects human health. Inhalation of air pollutants has serious effects on the skin, lungs, heart, and eyes (B. Chen & Kan, 2008; Jeong, 2013; Neghab et al., 2011; Snider et al., 2016). Among the various type of pollutant, particulate matter ≤ 10 (PM_{10}) and 2.5 ($PM_{2.5}$) are particularly notable since they are more harmful than others owing to their size. These particles are small enough to e penetrate into lung tissues, and the size of PM determines the potential effects on our health. Exposure to PM increases the risk of cardiovascular disease, atherosclerosis, oxidative stress, insulin resistance and inflammation. Additionally, those in childhood and older adulthood are especially susceptible to the harmful effects of PM on health.

The brain is also affected by PM with diameters less than 2.5μm. Deeply penetrated particles in the lungs can be absorbed into the bloodstream and have an adverse impact on the brain, crossing the Blood Brain Barrier (BBB). In a brain imaging study of young adults (ages 8-12 years), higher traffic-related pollution exposure was associated with less functional connectivity between some brain regions that are part of the resting state default mode network (DMN) and frontal-parietal (FP) network (Pujol et al., 2016). In

a birth cohort study in the Netherlands, children exposed to higher PM levels during fetal development had thinner cortex in several brain regions of both hemispheres (Guxens et al., 2018). In longitudinal studies with elderly women, long-term exposure to $PM_{2.5}$ accelerated loss of both gray matter (GM) and white matter (WM) volumes (Casanova et al., 2016; J. Chen et al., 2015). These results support the view that exposure to air pollution may have a hazardous impact on the brain in aspects of structure and function.

In accordance with the above findings, potential effects of PM on the incidence of neurodegenerative disease and cognitive deficits have been examined across various studies. In a population-based cohort study in Korea, a higher level of carbon dioxide exposure was significantly related to an increased risk of dementia compared to lower levels of exposure (Chang et al., 2014). A study utilizing Women's Health Initiative Memory Study (WHIMS) data showed that exposure to high PM2.5 was related to accelerated global cognitive decline, adjusting for potential confounders including demographic and clinical characteristics and life-style factors. Although the mechanism underlying the association between particulate matter and dementia is unclear, previous studies focused on two plausible hypotheses supporting the underlying mechanism in the brain. The first mechanism, also called the peripheral pathway, proposes that inhaled PM into lungs induces inflammatory responses, microglial activation, production of reactive oxygen species, and increased production and deposition of Aβ peptides (Peters et al., 2019). This hypothesis is consistent with mounting evidence that supports the role of inflammation in the development of dementia. The second mechanism which is known as direct pathway hypothesizes that PM may reach the brain directly via the olfactory bulb. Based on abundant evidence from empirical studies, researchers suggested that air pollution may play a role of risk factors for cognitive and physical dysfunction.

There is consistent research that identifies the detrimental effect of PM on physical health and cognition across countries including Korea. In addition to research on physical and cognitive health, imaging studies are significant in understanding the mechanism and treatment of various diseases and inflammation. MRI could also provide the information of neural effects of PM on humans and its pathway (Zaheer et al., 2018). Therefore, emerging neuroimaging evidence shows an association between particulate matter and brain health in other OECD countries such as the U.S., Europe and China.

However, research examining the impact of air pollution on brain function and structure is still limited in Korea despite the importance. Based on the necessity, Seoul National University in collaboration with University of Southern California started a study that would examine the deleterious effect of long-term exposure to particulate matter on cognitive performance and its neural mechanism among Korean older adults. Additionally, it may be meaningful that this study could identify how exposure to air pollution affects integrative quality of well-being in late life, including cognitive function, psychological status, and brain structure and function.

Psychological health and behavioral aspect

Previous studies have consistently showed that air pollution contributes to the development of illness and mortality through increased inflammatory response and oxidative stress. Based on these neural mechanisms, emerging evidence also suggests that the existence of air pollution induced psychological health problems and negative affect such as anxiety, depressive symptoms, and anger. A Korean community-based urban cohort study showed that long-term exposure was associated with the risk of Major Depressive Disorder (MDD) among the general population. Specifically, the risk of MDD during the three-year follow-up period increased with an increase of $PM_{2.5}$. Additionally, the association between exposure to $PM_{2.5}$ and MDD was greater in participants with underlying chronic disease such as diabetes, cardiovascular disease, and obstructive pulmonary disease than those without the disease. Also, long-term exposure to ambient air pollutants including PM_{10}, NO_2 and CO was found to be associated with subjective stress, poor quality of life, and depression, adjusting for socioeconomic status, health-related behavior and medical history. Regarding the impact of air pollution on mental health, gender differences should also be considered. In general, it has been known that women are more susceptible to risk of mental health disorder than men. However, in older adults, men showed a more substantial link between air pollution and psychological health, since men may be exposed to air pollution more frequently with their high activity than women (Hong et al., 2016; Mannucci & Franchini, 2017). This finding indicates that exposure to air pollutants may play a role as an independent risk factor of poor quality of life and mental health for men, especially.

Considering the previous studies regarding psychological health, exposure

to pollution may be associated with increased risk of suicide. In a cohort study of Korean adults, long-term exposure to air pollution including PM_{10}, NO_2, SO_2 was significantly associated with an increased risk of death by suicide (Min et al., 2018). Additionally, the risk of suicide was the highest in PM_{10} among three pollutants. It is consistent with previous results that examined the acute effect of air pollution on completed suicide (C. Kim et al., 2010). Even though the possible biological explanation for the observed association is still unclear, the most possible mechanism is that inhaled ambient particles translocate to the brain via circulation from pulmonary capillaries or directly via the olfactory nerve. In the brain, these particles induce systemic and neuronal inflammation and subsequent oxidative stress (Calderón-Garcidueñas et al., 2008; Genc et al., 2012; Yao et al., 2015). Evidence supporting the hypothesis is that high levels of various inflammatory response and oxidative stress have been found in suicide attempters or subjects with depression and anxiety (Patki et al., 2013; Raison & Miller, 2011; Salim, 2014; Serafini et al., 2013). Therefore, future investigation into the underlying pathway of the detrimental effect of air pollution on psychological health should be performed.

Individual behavior changes due to air pollution are also important. Previous studies reported that individuals are more likely to engage in protective behavior by spending less time outdoors to offset some of the adverse consequences from diverse pollutants exposure in children and the young-adult group (Mansfield et al., 2006; Neidell, 2009). Meanwhile, older adults are more susceptible to air pollution exposure than the middle-aged group. Thus, it is necessary to examine older adult risk perception and protective behavior towards ambient air pollution. In a cross-sectional study in Korea, researchers found that older adults have a low level of risk perception for air pollution, compared to the young adult group (Park & Kim, 2020). Also, Park et al (2020) reported that individuals who have chronic disease related to pollutants showed more protective behavior than those who are healthy. This result is contrary to previous research that older adults without physical disease showed more healthy behavior than those who have underlying disease unrelated to pollutant particles. Thus, the study findings emphasize that risk perception and attitude toward risk of air pollution should be considered to encourage health behavior in older adults.

Conclusion

In this chapter, we reviewed the cause of air pollution and its severe effects on societies and individuals. At societal level, air pollution causes climate change and significant economic losses across countries. Also, accumulating studies have reported that long-term exposure to air pollution leads to various diseases, cognitive deficits, and psychological problems. Considering the detrimental effects of air pollution on diverse dimensions, it is important to fully understand how air pollution affects human health and behavior. While studies show increased air pollution concentration has adverse health effects on cognitive functioning, the underlying mechanism of the effects has not yet been elucidated fully. Studies elucidating the pathways and mechanisms associated with exposure to air pollution would be helpful to propose policies geared to reduce air pollution and mitigate its effects on human health.

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Psychologists' Contributions to Pro-Environment Behaviour Change in some Selected Countries in Africa

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Abstract

Understanding the role of psychological science in shaping human behaviour towards promoting and maintaining a healthy environment is critical to a safe, sustainable, and balanced ecosystem in Africa. In addition to addressing the negative impact of climate change on physical and mental health, psychologists can help build resilience to mitigate the effects of climate change. Against the backdrop of COVID-19, the Nigerian Psychological Association has pursued environmental advocacy including focusing its 2021 national conference on ''global climate change, ecosystem and behaviour: issues and action plans." In addition, a number of psychology departments in Nigeria have hosted pro-environment programmes. Similarly, the Ghana Psychological Association has collaborated with corporate and religious bodies to educate the public on climate change initiatives and has called for an annual week-long celebration to promote climate change initiatives. And additionally, in East Africa, before the onset of the COVID-19 pandemic, the Uganda Council of Psychologists began working hand-in-hand with local universities to create climate change awareness campaigns, planning to organise field trips and conduct survey studies in the most impacted regions of the country. Ultimately, this calls for behavioural and societal change to avert future disasters. As scientist-practitioners, we need to adopt a multi-

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sectoral approach and tailored research to address climate change concerns in Africa.

Keywords: Africa, climate change, health, policy, programmes, pro-environmental behaviour

Introduction

Negative climate change actions and other environmental issues have become very critical in the contemporary world, order following increasing awareness of their interrelationships with worsening ecosystems (Aline, Sonia, Pablo, Sahran, & Tim, 2018). Humankind's adverse manoeuvres result, for instance, in dangerous gas emissions that corrode the ozone layer, lead to high temperatures, and weather catastrophe with negative consequences on arboreal habitat, aquatic ambience, physical environment, human health/safety and sustainability (Maulu et al., 2021). Others result in drought, desertification, fire, deforestation, pollution, gully erosion, the emergence of new diseases as well as natural disasters all of which impact the ecosystem negatively.

Climate change is seen as "the most complex and serious environmental issue that human societies have ever faced" (O'Brien et al., 2010, p. 3), threatening sustainable development (Tarusarira, 2017). It poses a serious threat to humanity and the environment. The impacts of the global challenge are already visible. According to Ogunbode et al. (2021), climate change threatens mental health via increasing exposure to the social and economic disruptions created by extreme weather and large-scale climatic events, as well as through the anxiety associated with recognising the existential threat. Indeed, the struggle for water, land, and vegetation resources are known causes of conflict among human species.

The United Nations Millennium Project suggested solutions such as the elimination of distorting subsidies which favour fossil fuels at the expense of renewable alternatives, investment in sustainable and cost effective energy technologies, the creation of targets limiting the concentration of greenhouse gases, and the development of climate-friendly markets through strategies such as carbon trading and rationalised production and consumption patterns (Melnick et al., 2005).

Climate change adaptation has come to the fore of policy discourse,

focusing on strategies that minimise the negative outcomes of climate change on economies, communities, individuals, and livelihoods (Pinto et al., 2012). Spearman and McGray (2011) indicate that climate change adaptation policies can sustain the economic development of a country while coping with critical stresses to the economy and the society. According to Laube et al. (2011), adaptation policies ought to be mainstreamed into national development strategies.

Psychological Contributions to Combating Climate Change

In addition to economic interventions to combat climate change, behavioural contributions, although currently insufficiently mainstreamed, are key. To address this gap, in November 2019 the American Psychological Association and the Order of Portuguese Psychologists co-hosted an international summit entitled *Psychology and global health: A leader in climate change action* to synergistically bring together the potential of psychological science and practice in advancing positive behaviour change, improved adaptation and resilience, and other psychological contributions to combating climate change. The summit brought together psychology leaders from across the globe to focus on psychological contributions to global health in general, with a particular focus on United Nations Sustainable Development Goal (SDG) number 13. "Take urgent action to combat climate change and its impacts."

The summit in Lisbon brought together about 46 country leaders or key representatives of national psychological associations including Professor Michael Ezenwa, President of the Nigerian Psychological Association, and Associate Professor James Kagaari, representing the Uganda Council of Psychologists. The summit began with the signing of the *Lisbon Declaration*: a joint commitment to promoting the role of scientific psychology in actions combating climate change and involving relevant stakeholders in developing national plans of action to sustain pro-environmental behaviours and practices.

Each representative at the conference signed the *Lisbon Declaration*, committing implementation of the agreement within their countries, thus maximising national impact.

Since then, despite challenges posed by the onset of COVID-19 -

which emerged as a global pandemic very shortly after the summit - most participants of the Lisbon summit have maintained communication through regular meetings to reaffirm commitment and report progress. The first post-Summit achievement was the formation of **Global Psychology Alliance (GPA)** made up from the over 46 national psychology association leaders across all the continents that attended and endorsed the Lisbon declaration. The key goal of the group was to hold regular reviews of progress and promote steady communication among members in the area of positive climate change actions.

This chapter presents important highlights of the activities of national psychology associations in three African countries: Ghana and Nigeria in the West and Uganda in the East. It is especially important to assess progress in Africa, as developing countries in the continent are especially vulnerable to the effects of climate change (Niang et al., 2014; Serdeczny et al., 2017) and are likely to be the most affected by climate change (Mendelsohn, 2007).

Ghana, Nigeria, and Uganda

Ghana sits on the Atlantic Ocean and borders Burkina Faso, Cote d'Ivoire and Togo. Its population in 2021 was about 30.8 million (Ghana Statistical Services Census, 2021).

Nigeria borders the Gulf of Guinea, between Benin and Cameroon. The total geographical area is 923,768 square km and the climate of the country varies from equatorial in south, tropical in the centre, and arid in north (Central Intelligence Agency (CIA), 2021). The CIA (2021) report shows that it is the most populous country in Africa with about 219,463,862 persons. The country is party to a number of international environmental agreements including the Climate Change-Kyoto Protocol; Climate Change-Paris Agreement; Comprehensive Nuclear Test Ban; Desertification, Endangered Species, Hazardous Wastes, Law of the Sea, Marine Dumping-London Convention; Marine Dumping-London Protocol and other pacts (CIA, 2021).

All these agreements are relevant to the course of promoting desired climate change interventions.

Uganda lies astride the Equator between latitude 4^0 N and 1^0 S and longitudes 29.5^0 E and 35^0E. It is bordered by the Republic of South Sudan

in the north, the Democratic Republic of Congo in the west, the Republic of Kenya in the East, and the United Republic of Tanzania and the Republic of Rwanda in the south. The country has an area of 241,550.7 km², of which 41,743.2 km² are open water and swamps, and 199,807.4 km² are land. Uganda experiences a range of climatic conditions depending on topography, local relief, and geographical location. Its annual rainfall figures vary widely, with a range of 500-2,200 mm. The drier areas receive barely 500-1,000 mm annually, most of which is erratic in frequency and distribution (MWLE, 2001). The country is heavily dependent on natural resources such as forests, rivers, and lakes for its development.

Promoting and Maintaining Healthy Environment Initiatives

Ghana

Since 1960, Ghana has experienced a surge in its mean annual temperature of 1OC per decade (Pinto et al., 2012), impacting soil productivity, crop selection, and profit (Prince Maxwell et al., 2016). Moreover, the country has suffered a severe decline in annual mean rainfall in the Southwestern regions, (Owusu & Waylen, 2009), with the other parts of the country, including the Volta Basin, experiencing shorter than usual dry seasons (Owusu et al., 2008). Factors such as poor maintenance of drainage systems, urbanisation, haphazard development, and inadequate storm drainage increase the severity of floods in Accra, the national capital (Afeku, 2005; Karley, 2009; Rain et al., 2011; Sam, 2009). Moreover, Roland et al. (2019) found an association between climate change and the quality of salt produced in the Songer salt project located within the Ada East District of the Greater Accra region of Ghana. Arndt et al. (2014) note that given Ghana's dependence on hydropower, rain-fed agriculture, and unpaved rural roads, the country's long-run economic growth is potentially vulnerable to anthropogenic climate change.

Manteaw (2018) suggests that Ghana's biodiversity and wildlife stock are at a significant risk due to the current exploitation of natural resources including the increasing demand for bushmeat, while Ahenkan et al. (2018) show that Ghana's government incentives for private sector investment in adaptation are unattractive, including a poor knowledge base, little access to finance, inadequate incentives, weak collaboration efforts, unsatisfactory recognition,

and the absence of a clear-cut government policy.

In addition to the government and the private sector, academic institutions are involved in efforts to combat climate change. The Centre for Climate Change and Sustainable Studies (C3SS) at the University of Ghana seeks to "lead the development of research, human resources, and the building of institutional capacity to tackle climate change impacts and related sustainability issues" (C3SS, 2021). Its vision is "to be a leader in climate change and sustainability research and learning in Africa". The C3SS has among its objectives, the coordination and promotion of climate change and sustainability research and advocacy at the University of Ghana. In this regard, the Centre aspires to build a network of both local and international collaborators to produce the requisite knowledge resources to help build capacity and make indelible contributions towards climate resilient sustainable development (C3SS, 2021).

Despite these efforts, there is paucity of policies to address attitudinal challenges that stem from the belief system of Ghanaians (Ghanian Government, 2015). Ghana is rich in policies that set up structures but not on how to mould and shape the attitude of the general populace on climate change. Advocacy has largely neglected the psychological aspects. It is in this light that the Ghana Psychological Association has been pushing for the inclusion of psychologists on committees to promote climate change initiatives. The Ghana Psychological Association (GPA) is the umbrella association of psychologists in Ghana and is seeking to collaborate with organisations such as C3SS to use the principles and theories of psychology to shape people's thoughts, feelings and actions relating to climate change.

Psychologists are needed to craft attitudinal change programmes aimed at climate change adaptation. Whereas C3SS looks at measures in the physical domain, the GPA is concerned with the mental processes that could either aid or impede efforts aimed at climate change adaptation. The GPA, including its Emergency Task Force, has responded to man-made and natural disasters, in the past decades, by, for example, providing psychological interventions for flood victims in Accra. Immediate and short-term interventions are usually developed with other emergency services and stakeholders as part of pre- and post-disaster management. Based on these initiatives, the GPA is on the verge of publishing an edited book on the psychosocial dimensions of crisis

and disaster management in Ghana, incorporating environment and climate change initiatives.

Nigeria

Bush burning (to clear weeds before harvesting crops or to expose animals for hunting), erosion, periodic droughts, and flooding are the most common environmental hazards experienced in Nigeria (Onu, 2020). The problem of gully erosion is quite significant, especially in the sandy areas of the South-East. Indeed, large expanses of human settlements have been increasingly swallowed by gully erosion leading to thousands of households rendered homeless in Nanka in Orumba North Local Government Area (LGA), Agulu in Aniocha LGA, and Uga in Aguata LGA, all in Anambra State.

Following the Lisbon declaration, The Nigerian Psychological Association (NPA) developed a programme of action on climate change (see Table 1).

Table 1: Nigerian Psychological Association's (NPA) Schedule of Programmes/ Contributions to Global Health: A Leader on Climate Action

Dates	Action Plan
December 2019 to January 2020	Sensitization of members of Executive Council of Nigerian Psychological Association, League of Fellows, State & Divisional Leaders, and Congress
January 2020 to April 2020	Six-zonal round table discussions on climate change issues and the roles of psychologists as behaviour change agents with: a. Ministries, Departments, and Agencies b. Representatives of the Legislature c. Media d. Civil Society e. Political Parties
May 2020 to July 2020	Special summit on climate change actions in Nigeria in collaboration with academia and international development agencies; & Advocacy Visit to the National Assembly

August 2020	National conference and scientific Congress of Nigerian Psychological Association with special session on climate change actions by psychologists, a review. The presentations at the session will be published in a special edition of the Nigerian Journal of Psychology, one of the Association's Journals.
September to December 2020	Nationwide environmental protection, climate change education, health promotion, and sustainable development campaign

It is important to note that the COVID-19 pandemic significantly disrupted the full actualisation of the set programmes. Nevertheless, NPA made significant contributions such as promoting positive climate change actions in the undergraduate psychology curriculum, media actions, and the hosting of the 2021 NPA Annual Scientific Congress (the biggest psychology event in Nigeria) on climate change themes and subthemes among others.

The 2021 NPA congress was held on Tuesday 24th -Thursday 28th August 2021 in the South-Eastern city of Enugu. It focused on the theme of 'Global climate, ecosystem and behaviour: Issues and action plans,' including 19 sub themes such as climate change, population, health and poverty, behaviour, environmental disasters and emergency management, environment, lifestyles and behavioural practices, climate change adaptation and mitigation, mental health, and sustainable environment. There was an opportunity for virtual and in-person participation and about 200 abstracts were presented.

In addition, many departments of psychology including the Department of Psychology at the University of Nigeria, Nsukka, held a major virtual conference on climate change action on November 24, 2020. The conference was organised in collaboration with AphriaPUB Limited, an educational resource centre that specialises in promoting African research access and visibility. The theme of the conference was "Climate change, mental health and wellbeing." The opening ceremony attracted over 100 attendees, including conference presenters, staff, and undergraduate and postgraduate students.

In his opening remarks, Prof Alex Ikeme, a Professor of Food Science and Technology and Master of Science degree holder in Industrial/Organisational

Psychology, elucidated the significance of the conference and the opportunity it offered to scholars to interrogate the behavioural issues involved in climate change. Addresses were delivered by Prof Ike E. Onyishi (Chair of the Department), Prof Aloysius Michaels Okolie (Dean, Faculty of the Social Sciences) and Prof Arize Charles Igwe (Vice Chancellor of the University), before the keynote speech was delivered by Dr Uju Agomoh, Executive Director of Prisoners' Rehabilitation and Welfare Action and Executive Committee Member of the African Security Sector Network.

Dr. Agomoh applied her diverse social background and vast experience in program design/implementation to illustrate the critical and crucial role of psychology in fostering the attainment of SDG 13. Her presentation recognized psychologists as one of the indispensable partner disciplines needed in the multidisciplinary approach to change negative environmental behaviours and effectively mitigate the impact of climate change.

A total of 74 papers were scheduled for presentation, contributing to a rich and incisive engagement of scholars, practitioners, intellectuals, and experts in the fields of Social Sciences, Medicine, Education, Arts, and Humanities. Recommendations included: include climate change-related issues in relevant psychology courses; establish environmental psychology programs at the postgraduate level; promote psychologists as leaders of relevant climate change action groups where it is within their core area; and adopt an inclusive approach involving all stakeholders to combat climate change.

In addition to these conferences, individual NPA members have participated in media engagements, conducted research and publications, and engaged in various pro-environment roles across different sectors. It is important to note that the national COVID-19 lockdown limited the NPA's ability to execute most of her agenda, including a visit to the country's National Assembly. The NPA is committed to continuing the work as the world emerges from the pandemic.

Uganda

Uganda is experiencing longer droughts and more erratic rains. Between 1900 and 2009, Uganda's average annual temperature was reported to have increased by between 0.8°C - 1.5°C, with projections suggesting that temperatures are likely to increase by 1.5°C to 4°C in the next 50 to 80 years

(Ministry of Water and Environment, 2015).

Human factors are contributing to climate change in Uganda. According to Bildirici and Ozaksoy (2017), 90% of the national energy is provided by wood fuel resources, contributing to forest cover consistently declining over the years. However, the situation improved to 88% in 2019 (Ministry of Water and Environment, 2019).

The Uganda Environmental Education Foundation (UEEF), a local Non-Governmental Organisation (NGO), in collaboration with engineering and natural science-based departments of higher education, has embarked on designing and implementing curricula that will ensure sustainable energy resource systems in line with Uganda's National Development Programmes (NDP 111) and UN SDGs 12 (responsible consumption and production), 13 (climate action), 14 (life below water) and 15 (life on land). NDP 111 Uganda, through its policy framework, is setting up an approach to streamline national training systems in light of the national and regional global human resource needs and trends. Also, to realise the SDGs 12, 13, 14 and 15, the NDP 111 report (2020) highlights the poor management of natural resources including land, water and environment, coupled with the worsening effects of climate change due to: (i) poor land use and insecurity of tenure (ii) limited capacity for climate change adaptation and mitigation; (iii) little disaster risk planning; (iv) rampant degradation of the environment and natural resources caused by low enforcement capacity, limited environmental awareness, limited alternative sources of livelihoods and limited research, innovation and adoption of appropriate technology; (v) limited access and uptake of meteorological information and inaccurate information due to low technology and equipment for early warning preparedness, ineffective systems and mechanisms for addressing vulnerabilities; (vi) poor coordination and institutional capacity gaps in planning and implementation; and (vii) absence of appropriate incentives for good environmental management practices.

Climate change is continuing to threaten humanity and the environment. For instance, in 2020 the Lake Victoria floods displaced people, disrupted transportation, sanitation, power systems and business infrastructure along its beaches was destroyed. The water level increased remarkably to an all time record (Awange, 2021).

Ugandans have been harmed by climate change, necessitating community

resilience to prepare, recover, and adapt, or change sources of income or livelihood when faced with climate change shocks and stresses (Jones & Tanner, 2015). Fortunately, according to Murray and Zautra (2011), people are often able to make the necessary psychophysiological and social adjustments and return to their pre-stress level of functioning, successfully alleviating any disturbances in homeostasis that resulted from stressors. Furthermore, people are then able to sustain their sense of purpose, persevere, and continue forward with few signs of the impact of stressors.

Although Uganda is ranked 147 out of 178 countries in terms of climate change resilience (Warner et al., 2015), people build resilience through social networks and respond to calamities by sharing information, food, and emotional and psychological support. Additionally, it is important that people's shared belief in their collective power to produce desired results is crucial to solving collective problems such as climate change (Mei-Fang Chen, 2015).

For instance, in the Central, Southern, and Western regions of Uganda, we have a sociocultural belief, "Bulungi Bwansi," translated as a community good. This is where communities come together to improve on their roads, wells, springs and maintain other community facilities such as schools, and health centres. In so doing, the community members share knowledge and learn, objectively analyse and use information to identify and solve their psycho-social problems, and create shared meaning, which is therapeutic in itself.

The Uganda National Environment Commission has spearheaded the incorporation of climate change into universities in Uganda, so the onus is upon psychology departments and the Uganda Council of Psychologists (UCPsy) to take advantage of this and tease out how psychological science and psychologists can play a role in this endeavour. Psychologists in Uganda are involved in research and training at institutions of higher education, integrating climate change studies into psychology curricula.

At the International Summit in Lisbon, the President of Portugal remarked: "***It (climate change) is one of the issues that must be addressed multilaterally… Not a single country, not even a superpower…can unilaterally address this challenge***". Recognizing the importance of global involvement, UCPsy has drawn a plan of action as follows:

1. Convene a meeting of psychologists together with national leaders in environmental management (Government, NGOs, industries).
2. Use the media to educate communities on environmental change management.
3. Produce brief notes for integration in National Development Plans (NDP) in line with SDGs, cognizant of existing national, regional and continental policies and laws.

UCPsy is considering a proposal to invite members of psychology departments in Ugandan institutions of higher education to create a standardised curriculum on climate change theory, practice, and community outreach that would cover the whole country, potentially extending to the East African Community.

Culture and Belief Systems as a Catalyst for Climate Change Interventions

Jenkins (2013) argues that climate change threatens to "disinherit cultures of the concepts and practices that sustain a way of being human" (p.17). In essence, changes in climate are inseparably associated with the sociocultural contexts in which they occur (O'Brien et al., 2010). For example, cultural and socio-economic factors underlie the challenge of exploitation and hunting of wildlife in most African countries (Manteaw, 2018). Nonetheless, existing programmes and strategies to tackle climate change in many African countries have failed to consider local sociocultural values and how they impact attitudes toward climate change. There is ample evidence to show that engaging sociocultural values and beliefs that filter individuals' perceptions and behaviours, and engineer direct action, is an effective approach (Mastaler, 2014; Shehu & Molyneux-Hodgson, 2014). Nasr (1967) suggests that the ecological crisis is primarily a crisis of values - with religion being the main source of values in any culture which influence the decisions humans make with respect to the environment (Nasr, 1967). Human behaviour is unquestionably impacted by religion and religious beliefs (Hulme, 2009; Slimak & Dietz, 2006), influencing the way in which individuals perceive and interact with their physical environment (Schuman et al., 2018). Religion is an important factor among Africans whenever they define, initiate, oppose, adopt, or sidestep the processes of development (Tarusarira, 2017).

Given that religion shapes individuals' perceptions (Emmons & Paloutzian, 2003) and behaviors (Hulme, 2009; Slimak & Dietz, 2006), we must investigate how the religious beliefs of Africans impact climate change adaptation. In the same vein, we must explore how African traditional beliefs reflect climate change and climate change adaptation. The epistemology of the African cosmovision considers the spiritual and physical worlds as intertwined, leading to a deep reverence and respect for nature (Turaki, 2006). This implies that a destruction of nature is a destruction of oneself, since the self cannot be detached from nature (Haverkort & Reijntjes, 2002). African traditional beliefs, including certain aspects of the African culture such as proverbs and taboos, seem to convey knowledge about climate change and climate change adaptation.

A concern for the environment, including climate change, is not new to Africa. Historical anthropological and sociological research point to how different communities have used cultural values, customs, and taboos to protect their forest and water resources. Adom (2016) showed that some Akan (Ghanaian) proverbs talk about protecting the environment. For example, '*Meye papa senea ebeye a makwantuom k) nananom h) beye dwoodwoo na wonsi me kwan*' (I am doing good things so that my journey to the world of the spirits will be safe and not blocked the way), suggests that the way a person lives his or her life on the earth has metaphysical consequences. It is therefore required that individuals shun activities that harm the environment. Another proverb is '*Adidi daa ye sene adidi preko*' (It is not good to eat all you have in a day), which warns against the depletion of natural resources without regard for the future. Also, '*Kwae a agye wo no yenfre no kwaewa*' (Do not be ungrateful to the forest that has saved you) suggests that since the forest has been beneficial to the individual, the individual must protect the forest.

Further, '*Dua koro gye mframa a ebu*' (An isolated tree cannot stand the might of strong wind or storm) depicts that it takes a number of trees standing together to preserve the forest and to address the impact of biodiversity depletion. Among the Igbo people in South-east Nigeria, farmland is divided into *Obiulo* (farmland around residential area) and Ikpa (the distant farmland). Produce from *Ikpa* is often preferable in terms of taste, yield, and longevity. Tradition forbids people from going to *Ikpa* on *Nkwo* days (*Nkwo* is one of the four market days. Others are *Orie*, *Afor* and *Eke*). The rationale behind this practice is multifaceted, one of which is the belief

that such a practice prevents overexploitation of the *Ikpa*, a deliberate attempt at conservation of the ecosystem. In addition, fishing, hunting or other exploitative activities of any sort in some aquatic resources are completely forbidden in some populations in South east Nigeria. In Uga community for instance, *Agwazi* stream is such an example.

The psychological associations in Africa can help educate or remind the people about the rational and scientific bases of some of these known proverbs and practices to drive positive climate behaviour change. Similarly, different ethnic groups in Ghana have different taboos, meaning something that is "forbidden" (Blakemore & Shelia, 2001). Barre et al. (2009) noted that some taboos could serve specific environmental functions by preserving wildlife and vegetation. Although taboos can sound mystical, there may be rational or scientific bases for them. For example, sacred groves are the "indigenous reserves that have been strictly protected, and in some cases many centuries ago, due to their religious and cultural significance" (Awuah-Nyamekye. 2009, p.259). Hence, the idea of sacred groves is informed by the need to conserve natural resources (Awuah-Nyamekye, 2014; Sarfo-Mensah, 2001). Also, fishing or hunting may be prohibited on specific days of the week. In a sense, some aspects of our belief systems and sociocultural practices are helpful in promoting climate change interventions.

National psychology associations in Africa should partner with religious bodies to harness religious beliefs that are pro-environmental, and to provide attitudinal change programs aimed at tackling religious beliefs that may have adverse consequences on the environment.

Psychologists also need to link negative environmental actions to climate change effects in their campaigns as a deliberate strategy to connect cause and effect so as to encourage positive environment behaviour change. When people can associate their actions with certain effects in the environment such as improper waste disposal and disease outbreaks, they are more likely to engage in positive environmental behaviour.

Psychology and Climate Change: Challenges, Prospects, and the Way Forward

In the three countries addressed in this article, psychologists are not typically consulted in the development of national programs and policies. For

instance, psychologists in Ghana, Nigeria, and Uganda were not included in government-based response teams, task forces, or other levels of engagement for the management of the COVID-19 (Chukwuorji & Iorfa, 2020). In this regard, the NPA has made enormous efforts to make psychology relevant and visible through methodical advocacy and outreach to important government agencies such as the Federal Government's Presidential Taskforce on COVID-19 and the Federal Ministry of Health. Consequently, NPA has participated in the weekly COVID-19 case management meetings of the Federal Ministry of Health and the Nigerian Centre for Disease Control (NCDC) (Ezenwa, 2021).

The general lack of recognition for psychology is also manifested in the small number of universities that offer psychology as an undergraduate program. A 2019 review of universities in Nigeria indicated that there were 174 universities in the country (Mogaji, 2019). A reasonable number in the South award degrees in psychology, but just eight of the 61 universities in the North do so, limiting psychologists' ability to impact public policy.

Another challenge is the lack of sufficient funding for research, limiting psychologists and national association's ability to develop and implement programs. Most researchers in Nigeria, for instance, are unable to receive grants for their work from the public sector. They rely essentially on self-help, saving from their meagre salaries in order to carry out their research and on some corporate organisations. The insufficient funding also restricts the dissemination of research findings because many are unable to pay for open access publication outlets. The institutions where the authors are affiliated to, do not, in some cases, pay for these publications.

The authors do not know of any university in Ghana, Nigeria, or Uganda which offers graduate level programs and training in environmental psychology. There are climate change programs, but these are often in departments such as Geography and the Physical Sciences. Psychologists are not included as resource persons or lecturers to teach any of the courses in the climate change programs to the best knowledge of the authors.

In Uganda, the psychology profession still lacks a law to regulate its practice, which is a major hindrance to the visibility of psychology in the country. This is further exacerbated by lack of resources such as funding, or adequate staff at universities to design, teach, and supervise research

in environmental psychology. However, this situation is changing with psychologists now designing and implementing interventions to address psychological challenges faced by our communities. The UCPsy is advocating for the creation of a law to regulate the practice of psychology, which would enable psychologists to more effectively pursue a seat at the policymaking table.

Conclusion

This chapter has discussed the efforts of national psychology associations in Ghana, Nigeria, and Uganda to use psychology to combat climate change in their home countries. The chapter focused on the roles of psychologists in these countries in the promotion and maintenance of a healthy environment. It further highlighted how culture and belief systems matter in climate change interventions, as well as what psychologists can do in relation to cultural issues and local belief systems. There is a clarion call to include psychologists in climate change intervention initiatives and the need to have multi-sectoral annual week celebrations to protect the environment in general.

Psychologists in Africa need to be more proactive in climate change policy and action in order to ensure that the positive impacts of the profession are properly harnessed in the continent.

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Psychological Consequences of the Climate Crisis in Latin America and Nicaragua

Roberto Ordóñez González[1]

"Almost everything you do will be insignificant, but it is very important that you do it."
Mahatma Gandhi

The American Psychological Association (APA) and the Portuguese Order of Psychologists invited professionals to the first Summit on Global Challenges to Psychology, in Lisbon, which focused on the effects of climate change on mental health. This was an initiative that brought about an awareness of the climate crisis and facilitated conversations between organizations present at that summit, and their meetings helped to motivate efforts toward international networking among psychologists, based on common themes of interest and geographic proximity.

At this summit, seven leaders of Latin American countries (Nicaragua, Guatemala, México, Colombia, Uruguay and Brazil) met to plan and organize a Latin America and Caribbean Summit. Forty-one organizations representing all the countries of the region attended this virtual event. The result was a formal agreement that will benefit psychology associations in Latin America and the Caribbean. (N3)

Another relevant consequence of the Lisbon summit was the creation of what is now the Central American Union of Psychology Associations (UCCAP). Representatives of some of the countries attending the Lisbon Summit had already met in Havana, Cuba, but they formalized their commitment, agreeing and establishing specific dates and activities, when they met again in Portugal. There was an agreement there between Nicaragua and Guatemala, to create this union of Central American Psychology associations.

After Roberto Ordóñez, president of ANDEPSI, the Nicaraguan Association of Psychology, returned to Nicaragua, he signed a collaboration

1 translated by María Elena Humphrey

agreement with Christian Tejeira, president of the Panamanian Association of Psychologists, with the goal of creating a regional association.

This regional association was formally established in February 2022, at a general assembly held in Honduras, with the official participation of the Colleges (legal professional regulatory entities) of Psychologists of Costa Rica, Guatemala and Honduras and the Associations of Nicaragua, Panama, and El Salvador. (N6)

Nicaragua is active in raising awareness of climate change and its effect on mental health

As a result of the Lisbon Summit, and through the Nicaraguan Association for the Development of Psychology (ANDEPSI), a legally constituted organization representing psychology in the country, a project was designed with the main objective of motivating actions and debates that promoted academic and professional reflection on climate change and its effect on mental health, while providing tools and concepts that enriched the understanding of this global phenomenon.

There were specific activities that took place, including communication campaigns, courses, conferences, and exchanges of opinions in the university community. There were also initiatives to establish national and regional committees so there would be a constant awareness of the consequences of climate change.

Situation prior to the Lisbon Summit on Climate Change and Mental Health

In Nicaragua, mass media, universities, psychology professionals and educators had not openly recognized the relationship between mental health and climate change, therefore, there was a lack of research and activities related to this topic, although Nicaragua is among the fifteen countries that are most vulnerable to the effects of climate change, according to a publication of the Inter-American Development Bank. (N2)

Situation of Nicaragua that has an impact on actions to raise awareness of climate change and mental health

The Central American country sustained constant economic growth

until 2018, when there was a sociopolitical crisis, with consequences, such as establishment of laws and policies, that authorized the government to increase surveillance of organizations. (N4) There was also a reduction of public and private investment, and an increase in migration, among many of the consequences. All this has had a negative impact on ANDEPSI and its membership.

Parallel to this, the Covid-19 pandemic caused a lot of damage both to the physical and mental health of Nicaraguans, as well as to the economy, forcing a pause and a redefinition of ANDEPSI activities.

Hurricanes ETA and IOTA, category 4 and category 5, struck Nicaragua, November 3rd and November 17th, 2020. They caused serious damage to the physical and mental health of the population, as well as to the infrastructure and to the vulnerable economy. (N5)

ANDEPSI KEEPS MOVING FORWARD

The Nicaraguan Association for the Development of Psychology, faced with these scenarios, kept going, despite adversity. Its members organized volunteer emergency mental health services, with the support of trained psychologists, to provide online care to those affected by the pandemic, as well as to those suffering in disaster areas due to the impact of hurricanes, adhering to WHO (World Health Organization) guidelines. Professionals from all over the country received online training to alleviate anxiety, depression, and post-traumatic stress of those who used these services.

But the focus of the commitments made in Lisbon was not lost.

Thanks to an economic contribution granted by the American Psychological Association, a systematic campaign on climate change and mental health was maintained with excellent results such as:

- Various national media campaigns, such as radio and television programs, written press, digital programs, among others, to publicize the problem of climate change and to motivate action.
- Conversations in universities with students and teachers raising the urgency of the problem and sharing ideas of actions that could be carried out as students and professionals of psychology, both in prevention and in response to current and upcoming consequences.

- Creation of a website: www.andepsi.com, with a label that leads to a database where relevant and scientific information on climate change and its effect on mental health will be uploaded.
- Edition and publication of a journal about natural disasters, climate change and mental health as its central theme.
- Design and implementation of the national commission of environmental psychology, which designed an action plan to continue promoting awareness of climate change consequences in the year 2022.
- The initiative to have a Central American Permanent Regional Commission of Environmental Psychology, whose main job is to put the climate crisis on the agenda of national organizations, and in this way support national activities and additionally achieve regional proposals that give more visibility to these concerns.
- Conferences have also been held inside and outside Nicaragua, to raise awareness about the future of the planet, to motivate those who have been indifferent to the impact of climate change and to encourage responsibility of psychological organizations and their professionals to create prevention campaigns and training to alleviate current and future damage due to the climate crisis.

The contextual problems are many, and the resources we have are few, but ANDEPSI and its directors have a firm will and a desire to make an impact inside and outside our territory, which is why we work with a lot of passion, intelligence, and discipline. (N1)

Considering the words of the Uruguayan writer Eduardo Galeano:

«Mucha gente pequeña, en lugares pequeños, haciendo cosas pequeñas, puede cambiar el mundo». ("*A lot of small people, in small places, doing small things, can change the world.*")

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Lebanon

Aimee Karam[1]

As the President of the Lebanese Psychological Association, (now, former LPA president), I participated in the International Summit on November 14-16, 2019, in Lisbon, and pledged to apply psychological science to combating global climate change along with other colleagues, representatives of National and International psychological organizations and leaders of psychological associations from more than 40 nations.

During the meeting, we developed plans for advocacy, policies, media campaigns and research and agreed to continue to work together to put these plans into action in our respective countries.

We also pledged to encourage stakeholders in government, academia, health and business to use more psychological science in designing policies to promote sustainable preventive and corrective behaviors.

The summit content was shared on the LPA website and Facebook page. It was also shared on the Institute for Development, Research, Advocacy and Applied Care's (IDRAAC) Facebook and Instagram accounts.

The following are some of the steps we have taken in the Lebanese Psychological Association:

Psychologists' Education on Climate Change Management

Why involve psychologists?

Psychologists lack relevant knowledge, scientific and factual issues related to climate change. This concept is still perceived as an idea, an option, a trivial concern.

Therefore, there is an urgent need to create awareness on the risks and consequences of climate change among psychologists. They need to get data and facts in order to be able to communicate the relevance of taking

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actions. They are well prepared in addressing people's emotions, using guided discovery, exploring attitudes, collaborative research, developing strategies and interventions and in proposing solutions.

Their involvement in policy making, will contribute to changing people's attitudes, reinforcing awareness and preventing more destruction, chaos, danger and adversities. They would advocate in favor of including the climate change concern as a major topic in education, schools, universities and governance, making it inherent in the culture and planning.

Psychologists would also be able to translate scientific data into understandable language that could be adopted and implemented by individuals.

What can we do?

It would be useful to first assess what is being done, where, and what is involved? How can psychologists be encouraged to become the champions of climate change; develop the interest in climate change; explore what gaps may exist; and assess the existing resources. With this information the planning of relevant programs of education, including different levels of knowledge-beginners, moderate and advanced- can be initiated.

How can we do it?

We can work on creating an international committee of psychologists for climate change in order to coordinate bodies and planning actions. This could constitute a powerful lever, capable of encouraging and supporting national, regional and international initiatives through civil societies, professional bodies and/or associations.

Communication could be facilitated through well informed online channels, and a digital platform aimed at shaping new attitudes, crisis interventions and behavioral change.

It is imperative to include effective advocacy champions in this work, testimonials from policy makers and other influential individuals and opinion leaders in order to emphasize why it is so important to get involved.

Following the Summit in Portugal, our plan was to:

A Call for a general meeting to all members and mental health associations

by:

1. Introducing the subject and its relation to Mental Health and Psychology
2. Defining the role of Psychology
3. Defining the input and impact on community health and citizenship building since it is a common concern that would bring people together
4. Creating committees of interest that would and define their role and actions
5. Writing articles in Newspapers
6. Appearances on TV programs
7. Advocating through schools, hospitals, universities, industries, NGO's

B Call for a meeting with Ministry of Public Health, Ministry of Education and Ministry of Environment and raise the issue of climate change at a national level:

1. Develop partnerships with the three ministries above
2. Design national training of psychologists and NGO's
3. Nominate a Day of Climate Change awareness and celebrate

The feasibility of this work depends significantly on the situation in the Lebanon. With all the recent events and the devastating explosion that hit Beirut, and the long-term issues Lebanon has faced over the years, the burning issue of climate change has been paralyzed and is not seen as a priority. When the system falls, it is like a house of cards, the fall expands everywhere, in every sector. We know that Climate Change concerns are not a choice, they are a reality of utmost importance, embedded in every single day of our existence on the planet Earth.

Climate Change and its impact in Nepal

Suvang Pyakurel[1] and Usha Kiran Subba[2]

Background

Climate change has become a global agenda because of the possibility of a global natural disaster and the apparent imbalance between the environment and humans. Climate change is a global phenomenon with effects on multiple sectors and, hence, is considered a defining issue of our time. It poses a major global concern due to the rapid change in mean temperature and its impacts on the livelihoods of people resulting from melting of ice and snow cover, glacial lake outburst floods (GLOFs), landslides, sea level rise and frequent changes in rainfall patterns all over the world (UNFCCC, 2006)[1]. Impacts of climate change are visible, both in developed and developing countries; however, people in developing countries are more susceptible to them. The resulting climate change impacts are more pronounced in the Least Developed Countries (LDCs) like Nepal because of the low level of awareness about climate change and poverty.

Climate change has serious impacts on health, including but not limited to dehydration, increased incidence of water and vector-borne disease, malnutrition related to reduced crop yields, and physical and psychological effects of extreme events. In vulnerable countries where health systems are not able to plan, prepare for or respond to these challenges, the impacts can be particularly devastating. The First World Climate Conference (1979)[2] identified climate change as an urgent world problem and issued a declaration calling on governments to anticipate and guard against potential climate hazards.

Climate change has been a major global concern since the adoption of the United Nations Framework Convention on Climate Change (UNFCCC)[3] in 1992 because of the threat global warming poses for human beings and ecosystems. Although climate change refers to any change in climate

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over time, either due to natural variability or as a result of human activity, UNFCCC puts more emphasis on the effects of human activity due to the continued exploitation of natural resources, particularly carbon-based fuels that have increased the global levels of greenhouse gasses. Although the developed countries are the main causes of global warming and changes in temperature and to the atmosphere, none of the countries are free from these impacts. Climate change impacts have become increasingly measurable and visible in the least developed countries like Nepal, where people at the community level have been directly affected by these impacts. Lower level of awareness and adaptation capability to the changing patterns of weather and climate in their daily lives. This is why it is now crucial to understand the global climate change concerns and the way they have been addressed by the countries at the national and community level.

The series of conferences and meetings on addressing climate change began in 1979, within the span of the last more than 40 years, the efforts to combat the impacts of climate change have not yielded the expected results. Indigenous, local, and traditional knowledge systems and practices, including indigenous peoples' holistic view of community and environment, are a major resource for adapting to climate change, but these have not been used consistently in existing adaptation efforts. Integrating such forms of knowledge with existing practices can increase the effectiveness of adaptation.

The aim of this contribution is to share knowledge on how climate change can affect public health in Nepal based on scientific evidence from global studies and experience gained locally.

Introduction

Nepal is a mountainous country with three ecological zones; mountains, hills and plains. It has a rich cultural diversity that comprises 125 castes/ethnic groups (CBS, 2011)[4], out of which the government of Nepal has already recognized 59 indigenous nationalities with unique languages, tradition and cultural practices (NFDIN, 2001)[5]. The Ministry of Environment states that, "Nepal's wide climatic and topographic variation includes 118 ecosystems, 75 vegetation types, and 35 forest types." Although Nepal ranks 25th in the world in terms of biological diversity (MoE, 2011)[6] and possesses rich cultural diversity, it remains one of the most directly affected countries by the impacts of climate change due to negligible causes.

Nepal is one of the climate change prone countries in the world. According to Climate Change Atlas 2010 Nepal is ranked fourth most vulnerable country to global climate change, despite its negligible emission of global greenhouse gasses. Taking Nepal as a case study, the new Climate Change Vulnerability Index (CCVI) released by the global advisory firm Maplecroft (2011)[7] ranks Nepal as 4th amongst 170 vulnerable countries. A point has now been reached where there are no longer any other options for survival other than to take action to create solutions to the climate change-related problems. Nepal's greenhouse gas emission is 0.027 percent of the total global emission which is very low. Indigenous peoples comprise 5% of the world population, yet manage around 80% of the planet's biodiversity (Galloway-MacLean 2010, cited by Trosper and Parrotta, 2012, p. 3)[8].

Nepal is a country of immense cultural diversity; the government of Nepal has recognized 59 indigenous groups with unique traditional knowledge, cultural practices and language (NFDIN Act, 2002)[9]. Since traditional knowledge and the cultural practices of indigenous peoples have a close symbiotic relationship with nature, promoting and preserving this knowledge and practices will promote a more sustainable environment, livelihoods and development.

National Adaptation Programme of Action (NAPA) to Climate Change (2010)[10] has identified public health as one of the most vulnerable sectors to the negative effects of climate change. Epidemics relating, such as cholera, gastroenteritis, diarrhea, encephalitis, meningitis, typhoid, jaundice, kala-azar, malaria, dengue, chikungunya and scrub typhus are exacerbated with warmer temperatures and flooding during the monsoon season, as well as lack of clean water and sanitation.

A study carried out by NAPA/MoE (2010)[11] indicates that Nepal only has 0.4% of the world's population and is responsible for only about 0.025% of the annual greenhouse gas emissions yet is disproportionately vulnerable to climate change impacts. The impacts have been more severe amongst peoples in the rural communities, whose livelihoods are still dependent on subsidiary farming, because of the lack of information on climate change and inability to understand the changing patterns of climate. A study done by BBC's International Charity, Media Action (2013)[12] in seven Asian countries, including Nepal, found a general lack of access to information on weather and

environmental changes in Nepal by the most vulnerable groups.

Nepal is vulnerable to climate change and like in many least developed countries, existing health systems are not adequately able to plan, prepare for, and respond to those challenges. The Ministry of Health and Population (MoHP) of Nepal prepared the Health National Adaptation Plan (H-NAP)[13] Climate Change Health Adaptation Strategies and Action Plans of Nepal (2017-2022)[14] and is implementing it to address climate change related issues. Climate change currently contributes to the global burden of disease and premature deaths. At this early stage the effects are small, but are projected to progressively increase in all countries and regions". Temperature observations in Nepal from 1977-1994 showed a general warming trend with significantly greater warming at higher elevations in the northern part of the country than at lower elevations in the south. This finding is reinforced by observations by Liu and Chen in 2000 on the other side of the Himalayas on the Tibetan Plateaus.

The cross-sectional entomological survey conducted in 2006 after first outbreak of dengue in Nepal identified the presence of malaria in 5 major urban areas of terai regions bordering with India (Biratnagar, Birgunj, Bharatpur, Tulsipur and Nepalganj) and first record of Dengue in Kathmandu in 2009[15]. In the past no cases had been recorded in Nepal. The presence of dengue in these urban areas may be attributed to climate change. Similarly, there is evidence that malaria vectors (such as Anopheles fluviatilis) which have traditionally not been found above the elevation of 1500 meters have now been seen at heights of 2000 meters and more. Now, malaria is highly endemic in 13 districts and endemic in 52 districts of Nepal including a few mountain districts. One of the reasons for its shifting in higher altitudes and geographical spread might be because of climate change.

On March 26, 2021 Himalayan Times published an article "Hazardous haze blankets valley"[16]. Toxic haze blanketed Kathmandu valley, leaving those out in the open with burning eye sensation and breathing difficulty. This article can be seen as the latest examples of the climate change and its effects on multilevel affecting lives of millions living in different geographical locations inside Nepal especially affecting Kathmandu.

According to the Ministry of Home Affairs, more than 110 places in the country have reported forest fires in the month of March alone. Langtang

National Park, which is 32 kilometers north of the capital, also witnessed a massive wildfire. The valley is a bowl-shaped basin, which usually does not permit air to flow out, trapping pollutants during the winter. Himalayan Times adds, "The Air Quality Index reached 294 in Kathmandu today at 5:00pm. Statistics by the Department of Environment indicated an AQI of 443 in Bhaisepati, 221 in Kirtipur, and 220 in Bhaktapur this afternoon. DoE Spokesperson Indu Bikram Joshi said wildfire and internal pollution load had resulted in smoke fog. According to international standards, an AQI value below 50 means good air quality, while AQI above 300 is hazardous. The air quality and pollution city ranking updated by IQAir, a Switzerland-based air quality technology, ranked Kathmandu the most polluted city with 275 AQI, followed by Beijing (186 AQI) and Mumbai (169 AQI)[17].

Programs and Preparation

The health impacts of climate change have a number of important characteristics that must be taken into account when framing appropriate adaptation responses. Climate change adaptation strategies must be considered in relation to broader characteristics–such as population growth, poverty, water, sanitation, health care, nutrition and environmental degradation- that influence a population's vulnerability and capacity to adapt.

Dhimal and Bhusal, Nepal Health Research Council, 2009 suggest following as major adaptation strategies.[18]

1. Strengthening Health System

2. Awareness, capacity building and promotion of local adaptive knowledge

3. Coordination among the concerned stakeholders and integration of health impacts of climate change into broader developmental plans and related activities

In order to avoid or prevent these health risks of climate change in the near and distant future, appropriate strategies are essential for early planning and strengthening of the country's health system. The Government of Nepal has in place several major policies, plans and strategies to address climate change sensitive health risks. It includes; (i) Constitution of Nepal (2072) (ii) National Adaptation Programme of Actions (NAPA) to Climate Change (2010) (iii) National Framework on Local Adaptation Plans of Action (LAPA)

(2011) (iv) National Health Policy (2076) (v) Public Health Service Act (2075) (vi) National Population Policy (2014) (vii) Nepal Health Sector Strategy (2015-2020) (viii) Nepal Health Sector Strategy – Implementation Plan (2016-2021) (ix) Health National Adaptation Plan (2017-2022) (x) Nationally Determined Contributions (2016)[19]. Despite all these efforts to counter its impact on the health sector, significant change could not be achieved because awareness among Nepali population is on a different level. Unplanned urbanization, haphazard development work and road extension projects, plotting and selling of lands in green slopes etc. is contributing more to the climate unpredictability.

As mentioned by Trosper and Parrotta about the value of indigenous and local traditional knowledge and cultural practices for the sustainable management of natural resources and livelihoods, it is important to raise the level of awareness about climate change based on available local traditional knowledge and cultural practices, in order to develop long-term solutions to climate change. Therefore, a proper documentation and transfer mechanism of these processes through education for future generations is vital for their protection and in finding long-term solutions to the impacts of climate change.

Education, Training and Public Awareness gives high importance to the education on the technical aspects of climate change. This issue has also been recognized by many countries, including Nepal as evidenced by the efforts to develop a curriculum on climate change. Yet the understanding of how traditional knowledge and local cultural practices can be adapted to help address climate change requires more emphasis. Extensive research and publications help to understand climate change, but also supports the sustainable management of resources, ecosystem, biodiversity and transfer of knowledge to future generations.

Conclusion

It is equally important that, as already stated above, these need to be balanced with existing empirical data, early education of the pertinent issues in order to determine best practices for sustainable development while minimizing impacts on the environment and development. In this context, the government of Nepal has already started developing the suitable climate change education curriculum, but how will the values of traditional

knowledge and cultural practices be presented so that children have a better understanding of climate change and relate that in their day to day life is still not a topic of discussion and has not been incorporated into the curriculum.

Nepal can be a model country to share knowledge and experience of developing educational materials and climate change education curriculum with a balance of modern education and indigenous and local knowledge and cultural practices to address climate change for sustainable solution of environment and development.

The role of mental health workers at this stage is to develop a bilateral intervention and awareness programs which helps to acquire indigenous knowledge as well as provide necessary awareness about climate change and its consequences with the underlying need of providing psychosocial assistance to the needy ones.

Our future and Role of Association of Psychologists in Nepal (APN) in Climate change initiatives:

The theme of the Earth Day 2021 Is Set to Galvanize Climate Action. With this motto in mind, APN is seeking global partners to prepare, participate and penetrate the wave of change embracing the behavioral impact of climate change and human actions. APN seeks to explore the underlying effects of climate change on human life across Nepal and work with indigenous population to make a sustainable model for coexisting with the environment promoting interdependence which has been carried down from the generations.

APN is looking forward to working as per UNFCCC's topic concerning sustainable development goals. Climate change requires global collaboration, increased finance, and the equitable sharing of solutions. So APN is to develop a project addressing the following activities in collaboration with global funding agencies for climate initiatives.

- Baseline Research: 9 districts of Nepal will be selected as sites to measure the impact of climate change for the last five decades. A qualitative study will be developed and will be used to generate information on indigenous practices and changing climatic impact on livelihood. Three districts from Himalayan, Hilly and Terai regions will be selected respectively to gauge the psychological impact of human actions and climate change.

- Advocacy and Awareness: The qualitative study will be followed by a series of awareness campaigns and capacity building. The climate change literacy initiatives for community awareness will be promoted in schools and institutions provided with audio visual content to make it culturally friendly. The stories across the country will be shared to promote a sense of competitiveness among the study population to come up with unique ideas and to drive them for collective efforts for adaptation and resilience promoting mental health.
- Be the voice for the rural population of Nepal concerning climate change: It is important that we let our representatives, whether on a local or national level; about environmental concerns and share the progress or the drawback with the world. Reminding our leaders to submit a more ambitious National Determined Contributors (each country's climate plan to reduce emissions) is a good place to start. Check to see if people's actions are progressive and keep encouraging our government to continually boost the climate ambitions. Climate action improves health, reduces inequality and bolsters the economy, something every politician cares about. And climate action no matter how big it is or where it is taken has a global impact, which means the actions we take locally impact the entire world (UNFCCC,2021)[20]. Taking inspiration from other projects around the world and collaborating for ideas and support for the voluntary environmental groups around the country will be the areas APN will get involved.

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LEADERSHIP & CLIMATE ACTION IMPLICATIONS FOR PSYCHOLOGY ASSOCIATIONS

Leading on Climate in Times of Uncertainty: The Challenge of Change

Terri Morrissey and Richard Plenty [1]

INTRODUCTION

'Don't blame the mouse, blame the hole in the wall.' The Talmud

This final chapter is different from the others in that rather than describing current and future activities that psychologists are taking to help people both adapt to and mitigate climate change, it focuses more specifically on the people issues associated with the transformation of our global systems necessary to address the climate crisis - and the challenge of change.

It has been written by the two facilitators of the first global summit in 2019: Terri Morrissey, who as CEO of the Psychological Society of Ireland from 2015-2019 laid much of the groundwork for an enhanced level of international cooperation in the psychological arena through her sponsorship of initiatives such as 'Hands across the Waters' which brought together Ireland, the UK and USA professional bodies for events and conferences; and her colleague Dr Richard Plenty, a British organisational psychologist with extensive international experience.

They provide their personal perspective on what has happened to date and their experiences at COP26 as well as their own thoughts about how the GPA might be able to accelerate the transformation process.

The Road to COP26

Finally, we'd arrived. Almost exactly two years after facilitating the first 'International Summit on Psychology and Global Health: A Leader in Climate Action' in Lisbon in 2019, we were the first two delegates of the Global Psychology Alliance to reach Glasgow for the international COP26 in November 2021.

It felt like a very important milestone. The Global Psychology Alliance

1 Directors, 'This is...' Consulting

(GPA) had been formed following the Lisbon Summit to promote international psychology and provide a framework to help psychologists work collaboratively on global issues of major significance for mental health and psychological wellbeing. The focus was initially on climate change and there was a strong commitment to raise the profile of psychology and improve its impact.

It had been a great start. 44 Psychological Associations, comprising 38 national and 6 cross-national societies, had attended the Lisbon Summit, and each of them had come up with plans for tackling climate change in their country or region. The President of Portugal, Marcelo Rebelo de Sousa, had spoken passionately and convincingly about the key role he expected psychology would play in the 21st century in supporting leaders to address global issues such as climate change. He saw psychology as a science whose time had come.

Following the Summit, the formation of the GPA meant that an international professional network of more than 65 associations was in place able to speak with 'one voice.'

However, this initial drive on climate change was very quickly taken over by events - the unexpected arrival of the global pandemic, COVID-19, which threatened the health of people around the world. The focus shifted from climate change to dealing with the impact of the pandemic, with both national and global responses - and papers, guidelines and psychological inputs into ways of dealing with it. This proved very helpful in terms of building an international psychological community able to support each other on immediate issues but meant that the challenge of bringing together national and international psychological associations to have more influence in the climate change arena had to be put on hold.

COP26 was billed as the biggest and most important global conference on the environment ever. So, given its stated aspirations, it was imperative that the GPA attend. Fortunately, in the midst of the pandemic, the GPA had the foresight to apply for delegate status before the deadline of December 2020, through the auspices of the American Psychological Association (APA), for attendance at COP26 the following year. The APA did an excellent job in supporting this endeavour in terms of adding its credentials to the original application, facilitating the process throughout and in providing funding

support.

The decision to grant the GPA 'observer' status was only granted weeks before the event. The GPA was allocated six delegate places and eventually through a process of volunteering - and taking into account the realities of travel considerations, availability, financing and COVID restrictions – the delegates were agreed. There was one from the American Psychological Association, one from the Ordem dos Psicólogos Portugueses, one representing the European Federation of Psychology Associations and one from the Ukraine (who in the end could not make it due to visa problems). The two authors completed the delegation party.

The COP26 Experience

The GPA were granted access to the 'Blue Zone' allowing the representative team to mix with national government delegations and other NGOs, as well as to take part in and interact with the proceedings. Over 30,000 people were involved in the full conference. The scale of the event, the national pavilions with their innovative displays of work being carried out, the extensive agenda of daily presentations, the vastness of the whole campus and the scope of the negotiations were all impressive.

It felt wonderful to be part, even for a short time, of a global community clearly committed to addressing environmental sustainability. It seemed to us that just about all the delegates that we met were focussed on the very real challenges of climate changes; their potential impact on society and the planet and in particular the effect on issues such as human habitation, migration, social justice and the future of large groups and populations most affected by climatic events. And they were determined to make a difference.

The GPA had been officially accepted to COP26 too late to get a speaking platform. However, though there were few events about psychology explicitly on the formal agenda, we found a ready audience when we talked with people individually or asked them questions about the role they thought psychology could play. The people we met appreciated the relevance of psychology to climate change: the importance of climate justice, the impact of climate change on health and psychological wellbeing, and the significance of behaviours, attitudes and mindset in setting and achieving climate change targets that could make a difference.

We were able to begin the process of getting global psychology and the GPA into the established mainstream COP process on climate change. To give just one example, in a meeting with John Kerry's senior aide, Jesse Young, it became clear that one of the ways that the GPA could be of most relevance would be to encourage all its members to develop national plans for their Associations to work on the issue of climate change in their territories and to set out how best psychology could contribute to national goals. Jesse was willing to review any efforts we were able to make along these lines and consider how the USA might be able to provide support.

This insight along with others, such as the need for leadership, collective responsibility, large systems transformation, supporting technological innovation and reframing behaviour change from sacrifices and loss to looking at the benefits, helped to focus our resolve on the need for continued effort in looking at ways in which psychological insights could play a part in bringing about change in complex systems.

Was COP26 a success?

Whilst the GPA benefitted from attending the event and interacting with others, the bigger question is whether the COP26 conference itself was a success. After all, tens of thousands of delegates from Government and Non-Governmental Organisations attended the two weeks in Glasgow in November 2021 – in the midst of a pandemic. The logistics and costs of just actually getting there - with testing for COVID, lockdowns, impediments to travel - not to mention the seeming inherent contradiction of travelling thousands of miles for many delegates to a climate change conference – were onerous enough in themselves.

COP26 aimed to get everyone committed to new and tougher targets. The COP process itself provides an opportunity for different countries to come together on a regular basis and, through a 'ratcheting' mechanism, negotiate targets they commit to for the global good.

The intention of COP26 was to gain global agreement on key targets to be achieved by specific dates into the future. There was growing evidence that temperatures higher than 1.5 degrees would have deleterious effects on ecosystems, habitations, habitats and people; that emissions needed to be curbed to contain the temperature rise; and that time was also running out to

do this. The key targets were therefore set as follows:

- Temperature level rise beyond which it would be dangerous for the planet (1.5C)
- Reduce greenhouse gas emissions to a net zero level
- By mid-century, 2050, with a milestone of 2030 to check on progress

Three key numbers to keep in the forefront of everyone's minds, designed to create a sense of urgency.

This sense of urgency was palpable in the negotiations and inside the conference itself. There was quite a degree of commitment overall. This was evidenced by what happened at the 11th hour when it looked like agreement was going to be sabotaged by a last-minute amendment proposed by India supported by China to the wording of the resolution. This amendment had not been negotiated in advance.

The Chair, Alok Sharma called for a break. Following frantic discussions among some key players, John Kerry, the American envoy, Alok Sharma and others, the Chair resumed the vote with a new set of words cobbled out during the break. Prior to announcing this he almost broke down in tears and apologised to the gathered assembly on the manner in which this amendment had been presented. To a round of applause he continued, and a renegotiated form of words was voted on, to the dismay of some delegates who went along with the changed wording for the sake of consensus. In fact, those who objected but felt obliged to vote were precisely those who would have been most affected by the changed wording. The amended wording replaced "phased out" with "phased down" of coal - a perceived death knell to some island nations present.

This pattern of behaviour is not surprising in a complex change process with winners and losers. What this episode demonstrated was that each country had its own context to deal with; each had its own agenda, and its own constituent needs, to represent. Vested national interests, such as coal burning, oil and gas production, and agriculture and the perceived national loss or gain had to be weighed against the collective requirements of the planet as a whole. In some instances individual interest trumped overall needs. The eventual consensus was a suboptimal outcome for all the players in relation to the urgency of the situation.

As psychologists observing all of this live in the media, and having been there in person ourselves, it was fascinating to watch all this play out.

There is, as yet no consensus on whether COP26 was a failure, had limited success or was just a "talking shop". The participants have only recently concluded their deliberations. Still, the evidence available so far shows that the direction of travel is positive, though not as yet sufficient. The first peer-reviewed assessment of the impact on temperatures of the COP26 pledges, published in the journal Nature in April 2022, showed that global warming could be limited to just under 2C 'if all pledges were implemented in full and on time' (1).

How COP26 is viewed eventually will depend almost entirely on whether the agreements made lead to real change. Whilst there was significant progress made - for example on agreements on carbon emissions, methane gas reductions, reforestation, and funding for climate justice - turning these into reality remains a challenge.

THE DYNAMICS OF CHANGE

All changed, changed utterly. A terrible beauty is born WB Yeats (2)

Change is never easy. It is one thing to say that change is required - but it is quite another to bring about change, whether individual behaviour change or major social change. Unfortunately, experience from previous COP events, in particular COP21, has not been encouraging (3).

There are many examples of studies (4) that show that peoples' stated intentions to change behaviour patterns, from voting intentions to cessation of smoking, to dieting to changing lifestyles, do not often translate into actual changes in behaviour. Many pollsters, for example, have made erroneous predictions based on voting intentions and surprises have resulted. People either believe that they will change, change their minds or simply lie (5). Many New Year's resolutions fall by the wayside by the end of January. It is not that easy to change the habits of a lifetime!

Perhaps many of us are suffering from what Tali Sharot (6) calls the "optimism bias", the genuinely held belief that somehow things will be better, work out all right in the end and that hope trumps experience. What is needed is a good hard dose of realism, based on the evidence, in order to look

at the specific behaviours that really need to change. At the same, we need to think more explicitly about the nature of the transformation needed:

- What kind of change process is most likely to be successful?
- How can the habits that have built up over our lifetime be changed?
- What are the key enablers and blockers of change?
- How can we create the environment which makes change easier? What conditions are necessary and what incentives (and disincentives) may be required?
- How can psychologists and psychology best contribute?

Change is needed if the climate targets are to be met and not become more than scratchings on tablets of stone to be discovered years from now in the rubble of a dried-out planet.

The Change Process

Psychology has much to offer in terms of understanding how both systems and individual change occurs, and how it can be facilitated and supported (7), (8).

In some senses, the overall systemic change process can be seen as quite a simple one; after all, we know where we start (current levels of emissions), we know where we want to get to (net zero by a defined time point), and we know that we need to plot a path between the two. We can try to plan systematically and build allies and support. This linear change model, 'change as a journey,' lends itself to straightforward planning and project management. It is implicit in the overall way the COP framework and process have been institutionalised.

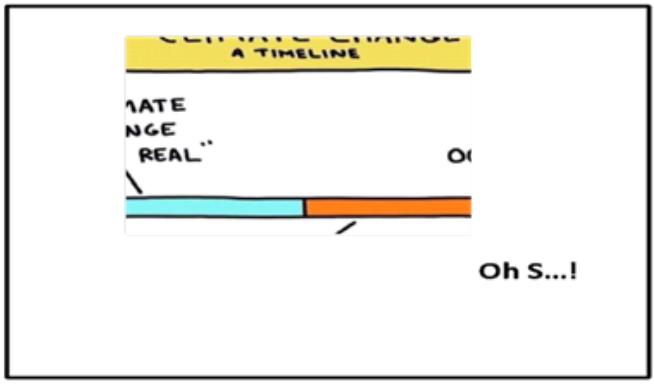
The reality is that the change process is bound to be more complex, intensive, far reaching and less top down than this simplistic perspective might imply. The transformation needed of our global energy, transportation, agricultural, and food systems is so extensive and has such important political, economic, social and individual ramifications that a top- down simple process risks getting bogged down.

We also won't be able to plan everything in advance. Circumstances are continuously changing, technology is advancing, there can be profound and unpredictable implications depending on the decisions we make, and it will

not always be easy to identify any one person or authority with the power to enforce the process. So there will need to be the capacity and capability to learn as we go, be agile enough to build on opportunities as they arise and develop consensus as to the best ways forward.

This is complex change characterised by 'learning' and 'emergence' rather than simple change which can be implemented solely through programme and project management. Attitudes, mindset are behaviours matter. In practice, we will need to develop customised change strategies at multiple levels of our societies that fit the situation in different contexts. A positive vision, stretching agreed targets, building capabilities, empowering people to come up with solutions and holding people accountable for results are likely to be features of successful programmes (9). There will be a need to bring many people and stakeholders with very different perspectives and interests on board and involve them in finding their own solutions specific to their particular circumstances (10).

The importance of psychology to support change based on learning, involvement and building community and acceptable action is self- evident. It is important to win hearts and minds as well as have activities and tasks properly scheduled. If we fail to educate and influence people quickly enough and get to a point where the planet is running out of time (some believe we are already at that point) then imposed change and forcing the issue may become inevitable.



Source: Social media

Such a scenario would require the use of centralised power to force change. It would be better to avoid this if possible. It is hard to imagine how nations, organisations, communities and people could be forced into action contrary to their immediate interests without very dramatic changes to the global order and a high risk of global conflict. Furthermore, an autocratic approach to change is not generally associated with high levels of innovation.

A people-centred approach is more likely to succeed. Understanding how changes in mindset, attitudes and behaviours occur is therefore likely to be key in helping to accelerate change. What do we know from a psychological perspective about how people handle transitions? Can this give us any comfort about people's readiness for change and sense of urgency?

One model often used to look at individual transformation is Prochaska's Model of Change (11). Prochaska's model highlights that in order to change habits and create new ones, we need to go through a process of change that takes time, requiring us to understand

- Why change is necessary (pre contemplation)
- For it to dawn on us emotionally that the consequences to ourselves and others of our not changing are significant (contemplation)
- We then need to feel we have the capacity to change
- Have the courage and confidence try things out and see what new approaches work
- Then build on our success in an environment which rewards the change and removes us from the temptation of reverting to old ways

This provides an interesting template for assessing where we are on climate change and what needs to be done. Many people now intellectually accept the case for change, but not all have reached the stage where they feel emotionally committed to change their lifestyles. To make progress, existing habits need to be seen as somewhat undesirable and the move to changing them needs to be portrayed as bringing better and more desirable rewards. Also, people need to feel a sense of agency and self-efficacy about making the change.

Without the contemplation stages completed, the move to action and sustained action is very difficult, if not impossible. The conscious decision to act is a basis for moving forward. This decision-making process is based on knowledge of the steps required to move and also a desire to move out of

an undesirable state into a more desirable state. So a challenge is what will trigger the need for a move to action in institutions, governments, business, individuals and societies? Will the enablers of change outweigh the barriers to change? Is there yet a critical mass concerned enough to make the transition required? When will awareness translate into action, implementation plans and real shifts in behaviour?

Whilst behavioural change on a global scale may be difficult, it is not impossible to imagine. There are parallels with the recent COVID pandemic which has forced people to rethink lifestyles in relation to working life. The adoption of technologies such as Zoom have highlighted how quickly behaviour can change when in a crisis. Not only that, but even though remote working was initially forced on people, quite a number have maintained the behaviours, wishing to opt for hybrid ways of working and less commuting.

It appears that people can make dramatic shifts in their behaviours when faced with an existential threat. The analogy with climate change breaks down, however, as the climate threat does not seem to be perceived as immediate and urgent in the same way as COVID 19 was. Many hold the view that there is still time left to bring about the transition.

In many people's minds, the forces for and against change are finely balanced. Understanding what lies behind people's thinking is important if we want to accelerate behaviour change and change people's habits. What makes people want to change? What is stopping them?

The Forces for Change

The principal reason for change in the climate arena is the now firmly established international scientific consensus that global warming represents an existential threat to humanity, that urgent and immediate action is required, and that further delay is potentially disastrous. The reports keep coming and are sobering to read. For example, the IPCC concludes that – in the absence of viable carbon capture technology - any further hydrocarbon extraction is incompatible with global warming of 1.5 degrees or less (12).

The risks associated with climate change are being taken increasingly seriously by those in power. Whilst there are still some politicians who cast doubt on the validity of the scientific findings, COP26 suggests that, although there remain different perspectives on the most appropriate course

of action and the contributions individual countries should make, most world leaders accept the reality of climate change and have moved beyond climate denial.

The public are also increasingly aware of the issues. A recent comprehensive UNDP and Oxford University study of 1.2 million respondents, spanning 50 countries and covering 56% of the world's population, suggests that in most countries, there is little doubt in peoples' minds, particularly among those with higher education, that climate change is real (13). Over all 50 countries, 64% of people said that climate change was an emergency. In some countries people already see it as a clear existential threat, with a view that unless "something is done" we will run out of time - and humanity and the planet will be in grave danger.

Climate change is part of a broader picture of mounting concern that people have about the way we are treating the planet. There is mounting evidence that as well as the continued burning of fossil fuels, the dumping of plastics into seas, the persistence of current agricultural practices involving pesticides and factory farming, food waste, industrial pollution, and many other deleterious practices are all adding up to environmental disaster. These behaviours have been well documented elsewhere in this publication. It might be expected that this awareness alone would be sufficient to galvanise major responses to changing behaviour.

Pressure for change is coming particularly from young people who see a dismal future if nothing is done. An overwhelming number of under 18s feel a sense of urgency about this issue. The Oxford/UNDP survey shows that an average of 70 percent of under-18s across the G20 countries believe there is a climate emergency, ranging from 63 percent in Argentina and Saudi Arabia to 86 percent in Italy and the United Kingdom. Young people's concerns are often expressed in their choice of preferred companies to work for - and a desire to work in ethical, sustainable and meaningful contexts. Very few want to be employed by organisations that are helping to contribute to the destruction of the planet. Jobs in the traditional companies of the industrial revolution, which were once seen as well paid, viable and with long term employment prospects, are currently being shunned in favour of greener, cleaner and more environmentally friendly organisations.

Consumers, too, are voting with their feet and demanding that sustainability is taken seriously. Often this starts with a call for less waste in packaging, food and plastic. Many supermarkets in the European retail sector are responding to these demands. In the UK, for example, there is a league table of sustainable practices in supermarkets where firms are measured on practices such as waste, packaging and environmentally friendly produce, which extend to cover the footprint of carbon emissions for their activities and supply chains (14).

Partly as a consequence of pressures from consumers and wider society - as well as a concern that their bottom-line may be impacted if they are not seen to take action - sustainability is now firmly on the agenda of many companies and is measured in their annual reports along with governance and corporate social responsibility measures.

Even industries that are difficult to decarbonise, such as aviation, have initiated programmes of strategic change. For example, the Airport Carbon Accreditation Programme (15) is now in its 12th year and 304 airports have so far been accredited. On a broader scale, a recent agreement, the Toulouse Declaration (February 2022), is an agreement for Aviation Decarbonisation by 2050 (16). It involves the major aviation players, airlines, airports and aerospace manufacturers.

A more general enabler is the growing advance in technological innovation. For example, the costs of renewable electricity have been decreasing rapidly over recent years to the extent that in most of the world it is now less expensive to generate electricity through wind or solar power than through fossil fuels, making it increasingly attractive to replace coal, oil and gas with green alternatives (17). There are many other areas of technological innovation which show promise, including for example advances in green hydrogen.

In the financial sector, also there is increasing awareness of the need to carefully scrutinise where money and pension funds are being invested. Not surprisingly, investment in green technologies is increasing. It can be much more difficult to find investors for traditional sectors, in particularly fossil fuels, as there is concern about assets which may eventually be stranded (18).

Another driver for change is the moral imperative to act with a view to the

impact on the future and on future generations. Many communities take these responsibilities very seriously (particularly indigenous communities… outlined elsewhere in this publication) as they see environmental degradation. More and more we are witnessing the erosion of once valued and desirable amenities such as beaches, rivers, lakes and urban landscapes being reduced to wastelands. A recent GPA project showed this in stark terms (19).

These kinds of experiences are galvanising people at community level to take action to change the kinds of practices that caused these tragedies to take place. It is not enough to suffer anxiety about these events. They also trigger the need for proactive behaviours to prevent further such events taking place. Dramatic changes in the landscape have encouraged communities (e.g. Costa Rica) to restore and regenerate whole ecosystems. This activity could be repeated in other areas before they are lost beyond redemption.

A related key driver for change is the movement for climate justice championed by people such as Mary Robinson (former President of Ireland). This looks at how climate events are disproportionately impacting poorer and more vulnerable communities and typically ones which are not producers of carbon emissions. This imbalance is a major global inequity which the climate justice movement is seeking to redress through measures and activities aimed at reducing the impact and reducing the production of greenhouse gases (20).

In summary though, the most compelling force for change is the fact that mitigating climate change is ultimately in all of humanity's interests. This fact is most likely to be driven home by the increasing number of climate-related disasters that the world is certain to experience over the coming decade. As people begin to see for themselves what is going on, the realisation is bound to grow that a continuing unconstrained warming of the planet would have catastrophic consequences.

We have little alternative but to act. The challenge to effecting change is not so much 'Why?' as ''How?', 'Who?' and 'What' and 'When?'. Whilst it is clear that the overall case for change is overwhelming, the main problem is that taking action now does not always result in clear and immediate benefit and may sometimes actually require a degree of sacrifice.

The Forces against Change

Complex change is rarely straightforward or simple. There are generally

many stakeholders involved, many vested interests and so many situations where, whilst the ultimate objective is clear and may even be agreed, it is not in people's immediate interest to take action.

The area of climate change is no different in principle - but the scale of the challenge is huge. In order to meet ambitious climate change targets, we must transform our global energy, transportation, agricultural, and food systems from their existing carbon intensive state to sustainable, carbon-neutral systems. There will be winners and losers on a grand scale – individuals, communities, businesses and countries. Political and social systems will need to adjust. Nations will need to find ways of working together with a range of other countries whose interests and perspectives are very different from their own.

The transition will be fraught with difficulties and a recent example illustrates this very well (21). Debating the Government Environment and Climate Change recommendations, Irish scientists outlined the actions that would need to be taken to reach the targets set by the Government itself. The realities they spelt out were stark. They argued that the actions that the Government recommended would not bring the country anywhere near the targets set out by the Paris Agreement (keeping global warming to no more than 1.5 degrees Celsius). As one politician put it: "We don't have unfettered capacity to implement changes...as described…Introducing 'top down' rationing of fossil fuel to business and homes was not 'practical politics'". Indeed the majority of those appearing in the debates do not oppose carbon budgets in principle, but when it comes to implementing them in real life, they then oppose them. This has opened up two big gaps. The first is between science and politics (already witnessed in the COVID situation) and the second is the gap between targets given by and agreed by politicians and the efforts required in their implementation.

More recently, the conflict in the Ukraine has meant that national energy security has become a major concern, particularly for European countries that have been dependent on Russian oil and gas, but also more generally because of high energy prices. This means there is a strong incentive to make money from the oil and gas sector. In the UK, for example, there has been pressure to reinvest in North Sea oil and gas assets and to reconsider the case for fracking as practicable transition strategies. At the same time, there has been growing

opposition to onshore wind-power because of concerns expressed by some local communities on the effect on the visual environment. The risk is that the move towards renewable energy might be delayed as a consequence of attention being diverted during a time of immediate crisis.

The overall logic for change remains so overwhelming, compelling and frightening that many activists – and some of those who have been long been involved in the field - think that those who oppose it are simply blockers who should be compelled to change, forcibly re-educated or publicly shamed. This logic can apply to individuals, organisations and countries. The danger is that this kind of approach ends up as counterproductive in terms of influencing the wider community by creating unnecessary divisions (22).

As importantly, it encourages those in power to pay less attention than they ought to the social, economic and political realities that need to be managed if change and transition are to be effective. Many people will not fully buy into and accept changes that are imposed on them unless they understand why they are necessary and believe the implications have been thought through. If not, they may be tempted to try to find ways around regulations and legislation, making it difficult to enforce.

Politicians, especially in a democracy, can find it impossible to impose unpopular solutions from the top down successfully where these require people to make substantial sacrifices. There are political realities such as elections, public acceptance and resistance based on mistrust of authority, which have to be contended with. Sophisticated communication, persuasion and nudging may be required. There needs to be carefully drafted legislation, public information campaigns, efforts to look at the impact of change and find ways of making this acceptable, community support, investment in building the supporting infrastructure and ecosystems required, as well as a realistic appraisal of the costs and benefits of change.

A key blocker is likely to be the cost of implementing many of the more immediate proposed changes. People can't always afford the changes that are desirable. For example, the proposal to replace all gas boilers in domestic homes in both Ireland and the UK is beyond the reach of many households and, unless it is subsidised in some way, will be difficult to implement. Similarly with the move to electric vehicles. According to one leading Irish economist (23) the statistics for the purchase of electric cars indicate that

purchasers come from middle to upper income brackets and from people who do not drive very far.

The position is further complicated because individual and personal changes in behaviour, whilst part of the solution, are not enough to solve the problem. The shutdown of travel and associated drop in carbon emissions during the COVID-19 pandemic showed that social responses alone would not be enough to drive the deep and sustained reductions needed to reach net zero-emissions (24). So will people really be prepared to change their life-style and travel less for gains that may not seem obvious? The enormous pent-up demand for travel as the pandemic begins to fade would seem to indicate that this argument is far from won.

While individuals have a part to play, it is systemic change that is required. Yet it is often individuals who are the target of climate change activists, who seek to blame people for lifestyle choices. The language of change can be quite negative. People are being asked to make sacrifices and to give up what they have been used to, to reduce their standard of living and their happiness for an abstract greater good. This does not lead to an appetite for change, as Kahneman has pointed out (25). People tend to regret a loss rather than value a gain.

Indeed, simply 'stopping' our current way of life has the potential to be immensely divisive, ripping communities apart and doing serious harm, particularly to poorer countries and people. Access to energy impacts life expectancy and quality of life. Energy—literally and metaphorically—provides 'power for the people' and has given people longer life expectancy, better quality of life and more choice and has raised expectations across the world (26).

Climate Stalemate?

So while there is overwhelming evidence that we are facing a climate catastrophe and we need to act urgently, it is far from a simple task to make the changes required.

The transformation of global systems that is necessary requires political will, investment of resources, technological innovation and (crucially) a willingness to both look to the longer term and look after the common good that has been conspicuously absent. There are always more immediate and pressing

problems that can deflect attention from the action needed to deal with the brutal long-term realities of climate change. In the UK for example there has been the impact of Brexit, Covid and now the Ukraine, which have taken attention.

Attitudes and behaviours need to change as well as the technology. People need to be properly informed and educated about the necessity for action. Change can require societies to make considerable effort, take a degree of risk, and be willing to eschew the easy option for, in some cases, little immediate reward.

A climate stalemate has developed. Despite the fact that the logical case for change is overwhelming, the immediate psychological barriers are formidable and the pace of change over the last twenty years has been far slower than desirable. There are many people who accept the bigger picture, but either feel powerless themselves to do much about it or are not prepared to make any changes to their lifestyle. This can lead to cognitive dissonance, the mental discomfort that results from holding conflicting beliefs, values or attitudes.

Excuses, Excuses

People generally tend to seek consistency in their actions and beliefs and a common response to this climate conundrum is 'delayism' (27). Proponents of delayism provide a number of 'excuses' as to why action should not be initiated, and change should be delayed. The thinking behind these excuses is important to understand in developing an effective change strategy. Otherwise we can end up with a culture of despair, sometimes called 'doomism'.

An 'excuse' often heard is: ***Someone else should do it first***. Whatever the bigger picture, it's important to recognise that it's not in some entities/ individual's immediate interests to speed change up. Whole countries' economies are built around existing technologies, and they will not want to lose out before they have to. Bargaining power gets stronger as the availability of resource dwindles - hence the Saudi aspiration to be the 'last man standing' (28). And at the community and individual level, people won't want to lose their jobs.

A second 'excuse' is: ***What's in it for me?*** It is not always clear how someone can benefit from making a sacrifice. For example, taxing carbon may be a good idea in principle but may not be seen as such by people

who consequently have problems paying for heating in winter. Many of the trade-offs can be very long term and the advantages of a communal long-term benefit versus a personal short-term loss are not always understood or accepted. Older people may not live long enough to see any direct benefit; younger ones may need the cash.

Thirdly: ***It's someone else's problem***. This can be a rational perspective from the point of contributing to CO2 reduction if you are living in a part of the globe that is not a prime emitter of greenhouse gases (though adapting to climate change may well then be important), but this mindset is also common in the developed world. Those who are customarily held responsible include governments, big business, technology, oil and gas producers, and the aviation sector. Unfortunately, this kind of "nothing to do with me" thinking can allow us to carry on as before, not seeing, or refusing to see, the consequences of our behaviour and not making the connection between what we do and the outcomes - intended or unintended. This conveniently gets us off the hook.

A fourth related 'excuse' is that i***t will not make any difference anyway***. People may argue that any reductions they, their communities or their countries make will have very little impact in practice especially if the country and/or their emissions are very small compared to other countries, in particular when set alongside the growth in carbon emissions from China.

A fifth related 'excuse' is that ***the problem is too difficult*** - similar to the ***we don't know where to start 'excuse'***. This too can be entirely rational. The argument is that the climate change challenge is so hard and so complex that it makes it almost impossible to find a pathway through the maze. There are too many interacting variables to sort out; too many moving parts and too many players, which make arriving at an answer beyond reach. When some experts are advocating a total change in the global political system or reverting back to the days before electricity or some other type of lifestyle, it can seem like a totally impossible task.

A sixth 'excuse' '***it will sort itself out somehow in the future***' is based either on the hope that as technology improves, then it may be cheaper to make changes later (e.g. renewable energy costs have been reducing) or that future technological innovation will provide answers that are not yet available. There is a need to balance early implementation against other imperatives like avoiding social unrest, overall health, and economics.

Add to these the more traditional '*it is not really a problem at all* (denial), the practical '*there's too much else going on at present*' (COVID, Ukraine, elections etc.) and the pragmatic '*we need to have a planned, organised transition where we will continue to need fossil fuels*' and we have created get-out clauses for doing almost anything. Say these 'excuses' often enough to ourselves and we can convince ourselves that either the problem will gradually disappear, or it will somehow be magically fixed by some unknown actor in the future.

And faced with all these 'excuses', most of which on the face of it are not unreasonable, it is not surprising that many initially well-intentioned people committed to doing 'something' give up trying to work out the most effective courses of action to take and end up doing absolutely nothing. At the individual level this can lead to feelings of despair and a sense of helplessness; at the community and national level this generally leads to the topic sliding down the agenda in terms of priorities, discounting the impact of current practices in the overall scheme of things - and focussing on other challenges.

In these circumstances, many of those who understand most clearly and feel most strongly about the existential threat posed by climate change have turned to disruption as a strategy to draw renewed attention to the issue and 'try and change the goalposts' (29). The Climate activist Greta Thunberg, for example, has had enormous success in mobilising public opinion through her authenticity, role model behaviour and passionate commitment and has undoubtedly made a substantial difference to the political debate.

Still, as progress made remains too slow, a sense of continuing frustration can encourage people to raise the stakes. As noted earlier, some organisations, for example Extinction Rebellion, have taken the disrupting strategy further, being prepared to break the law and cause severe public inconvenience and even harm in order to make their point. They take aim not only at governments, institutions and organisations but on the attitudes, behaviours and lifestyles of the general public, aiming to directly disrupt current ways of living, for example by glueing themselves to motorways.

Historically, disruption and even revolution have been catalysts for change, particularly where there is a need to overturn the established order. However, there are risks with this approach when taken to extremes. If people are adversely affected by protests, opinions can become polarised and the disrupting strategy counterproductive, turning people off and hindering

progress. Governments may take a view that immediate societal stability is most important, decide to clamp down and refuse to bow to protestors, whatever the merits of their case.

From a professional psychology point of view, this area also represents an ethical dilemma. Responsible disruption (for the good of the planet, respecting each other) can easily turn into irresponsible disruption ('because our cause is right, we are prepared to do anything to achieve it'). As Anatole France says: '*It is the certainty that they possess the truth that makes men cruel*'. Hardly a comfortable area for a profession whose core value is respect.

And while responsible disruption and challenge to those in power undoubtedly has value in keeping the subject of climate change on the political agenda, there is also the fact that shaming others into action is not anywhere near sufficient on its own to bring about long term sustainable meaningful change in such a complex area.

Climate change is increasingly understood to be a serious issue by the global community - the problem is how to deal with it urgently in a way that is effective, fair, does not cause unnecessary conflict and suffering - and leads us as swiftly as possible to a better, more sustainable future. This is an area where psychology can make a major contribution.

MAKING CHANGE EASIER

Rather than blaming people for their actions or inactions, it may be more helpful to think of how we can make transformation and change easier from a systemic, collective perspective. How can we lower the barriers to change and make it easier for people to get involved in a constructive way, to be part of the solution rather than causing more problems? How can we create an environment which makes it more likely that countries, organisations and individuals will do 'the right thing'?

Removing obstacles to change is a good starting point. Force-field analysis of enablers and blockers (as described earlier in the chapter) is most effectively used when attention is focused first on removing obstacles rather than reinforcing the drivers for change. Paying too much attention to enablers risks creating negative reactions if imposed from the top down.

Combining this kind of systemic and collective perspective with a

positive mindset and an involving, supportive approach to change puts us in an excellent position to grasp new opportunities for shaping the future and creating the widespread base of community support that facilitates transformation. It is important to work to get as many people as possible on the same side.

For example, Katherine Hayhoe, in her book *Saving Us: A Climate Scientist's Case for Hope and Healing in a Divided World* (2021) (30), states that the root cause of polarisation is fear; that what we have in common is greater than what divides us; that we need to look for the common good and that we need to create a better narrative for the future.

So what building blocks can be put in place which would make transformation easier?

Reinforce cooperation

Let's start by looking at the very big picture. The transformation in our global systems that needs to be made if we are to mitigate climate change is profound and will have immense implications for people. A key element is that the world must move away from dependence on fossil fuels, but transportation, food, construction and manufacturing are also affected. It is difficult to see how this can be achieved without substantial cooperation and collaboration.

The Tony Blair Institute for Global Change (31, 32, 33) has produced a number of documents about climate change and how to make the transition in what they term as the biggest challenge the world faces. They claim: "*this requires a transition across our whole economy and society that must be fully integrated into the work of governments, business and institutions - in the UK and internationally*". They highlight the need for governments to work more closely with business and are generally supportive of developing further international cooperation..

Indeed, world leaders and politicians have stressed the need for international co-operation to address global challenges, including President Joe Biden (34) and the Secretary General of the United Nations Antonio Guterres, who as recently as the 76th General Assembly on 14 September 2021 said: *We face a moment of truth. Now is the time to deliver…restore trust…and inspire hope. And I do have hope…humanity has shown that we are capable of great things*

when we work together" (35).

The COP process has provided a mechanism for bringing people together internationally, focusing on the climate change challenge and producing explicit national targets. The process has not been without its critics, but without a framework such as this, it is difficult to see how progress can be made as countries are more likely to act purely in their own self-interest.

The story of 'The Tragedy of the Commons' illustrates what can happen when people act selfishly without regard to the longer term (36). The story is about farmers who all have access to grazing in an area of common ground, the 'Commons'. It is a very good example of the need to cooperate to preserve a common heritage. Those who act in their own short term selfish interest, by allowing their herds to graze unfettered in the common area, thus eroding its use for their neighbours or future herds, gain in the short term but ultimately ruin the facility for ever. Those who bear in mind the greater good by restricting usage to just what they need can preserve the areas for other users. If all behave in an agreed interdependent way then the common area can be kept arable and usable for all, and ultimately all benefit.

Of course, the challenge is how to persuade people in a situation like this to work interdependently and what guidelines need to apply. Elinor Ostrom, a Nobel prize winner, developed eight key concepts from the story of the Commons (37).

1. Create clearly defined boundaries and membership
2. There needs to be locally adapted rules for the equitable distribution of costs and benefits
3. Everyone needs to be involved in arrangements and agreements
4. Effectively monitor agreed rules and behaviours
5. Develop positive and negative consequences for following or transgressing the agreed rules
6. Develop methods for fast and effective conflict resolution
7. All based on local self determination
8. In larger systems, groups relate to other groups using the above seven principles

The COP process as it stands is weak on items 5 and 6, i.e. holding

participants to account and resolving areas of conflict. Ways of strengthening these areas will be critical if pledges are to be turned into action. Item 2 (equitable distribution of costs and benefits) also needs to be improved, although COP26 did pay attention to this in terms of discussions on climate justice and the transfer of resources from richer to poorer nations.

On a professional level, the Global Psychology Alliance has so far been a good example of international collaboration, with an excellent spirit of cooperation, but will need itself to take these guidelines into account as it reaches the next stage of its evolution.

Educate People

Whilst having a top-down framework is essential, it is not sufficient. The changes we face are so complex and far reaching that they will need to take place at multiple societal levels, tailored to local circumstances, in a changing environment, in the context of competing priorities, and in the absence of a standardised blueprint solution, with rapidly changing technologies and over extended periods of time. Mindsets, attitudes and behaviours will ultimately have to change for individuals and communities.

People will need to learn how to find and realise their own solutions. The more skilled people are in doing this, the easier it will be to gain momentum. This is a massive education, communication and training challenge. There is a lot of work that needs to be done to bring people up to speed in this area. We know from the UNDP survey data cited earlier that those who are the most informed and educated are generally the most supportive of change. Leaders at all levels of society and professionals who support them need to understand the issues, develop the skills necessary to be effective and have the opportunity (and support) to put things into practice.

There will need to be a strong emphasis on developing effective forms of education for young people at schools and colleges, as well as communication on climate change and climate policies tailored to specific audiences and purposes. It is important that people learn to identify and accept accurate information and avoid or reject misinformation, disinformation and misleading narratives.

People will learn from experience. Working with others on projects and in multi-disciplinary teams such as community reductions in energy usage may

not be unusual. At all levels, including local and community interventions, successful mitigation requires bringing stakeholders together with very different perspectives and learning how best to manage conflict and change. This will be a new experience for many.

Taking responsibility and the courage to speak out will be important. In his book, *Collaboration with the Enemy- How to work with people you don't agree with, like or trust* (38), Adam Kahane outlines three key "stretches" necessary for true collaboration. The first is acknowledging dialogue is not enough; the second is the need for experimentation especially around what can be influenced, not controlled; and the third is to "step into the game"- look at what each of us is contributing to the problem and work to try and resolve that.

Optimise the socio-technical-policy system

A systems perspective is critical. Psychologists have known for years that context shapes attitudes and behaviours, so if we are able to change the environment (in the broadest sense) in which people operate this can have as much impact as a direct intervention to modify behaviours. The most important thing is to take people into account when looking at the total system and not to optimise any sub-system (technical, economic, social, political) in isolation.

As an example, one way of getting people to use public transport and/or bicycles rather than their car for commuting purposes might involve cooperation between local authorities, organisations and commuters in adjusting schedules of buses to make travelling fit more closely with what people need; reviewing pricing arrangements; investing in infrastructure by building new cycling lanes; encouraging companies to provide changing facilities and secure bicycle storage; promoting health benefits, and incentivising those who use the system.

Trying to change individual behaviours directly by an advertising campaign making them feel guilty about commuting by car, emphasising the climate damage caused by car pollution and the social responsibility we all have to improve the environment may well be less effective.

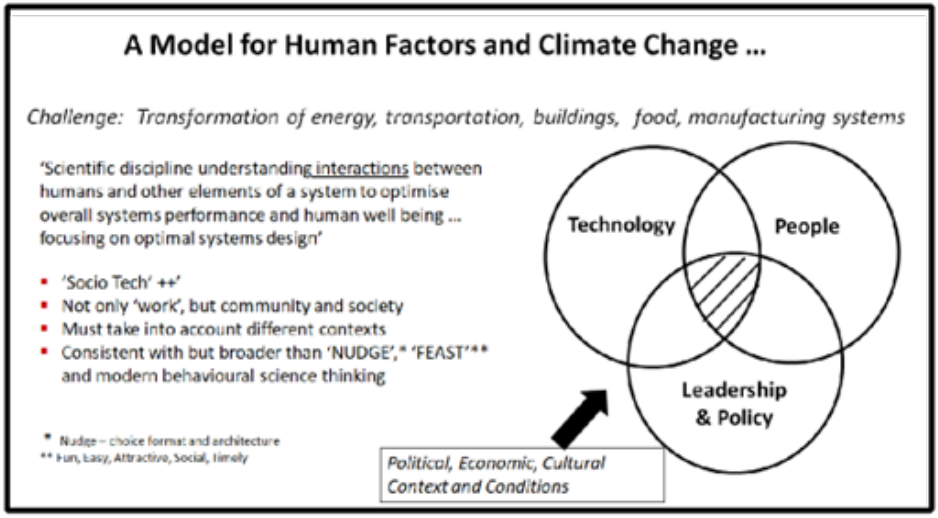
This is a systems rather than individual focus. In any complex area where technology plays a key role, it has long been known that there are advantages

to be gained by optimising the overall socio technical system. For example, recent research by Trinity College Dublin in their EU funded PROSPERO programme (39), looking at collaborative decision making in aviation as a way of reducing both environmental impact and costs and the risks associated with it, brought multiple stakeholders together, including 16 organisations across 8 countries. They concluded that:

- A whole systems approach was needed, taking into account the socio technical system and the risk associated with technology and change
- On technology, the key was to ensure that the information and knowledge needed was shared in a timely and understandable format so that key decisions could be taken
- On the social side, the need was to create social cohesion by building trust, encouraging interdependent working and ensuring mutual respect and accountability

In the climate change area, a broader systems model can be useful to also take into account the policy frameworks that are developed, the quality of leadership and the need to address society, community and work. In his book Michael Mann (op cit) argues we need this kind of approach to move things forward saying: '*It is all of the things we have talked about - behavioral change, incentivized by appropriate government policy, inter-governmental agreements, and technological innovation – that will lead us forward on climate. It is not any one of these things but all of them working together …*'. The diagram below illustrates this conceptually.

Designing systems, processes, regulations and incentives that make it easier for people to take the 'right' course of action lie at the heart of this approach. Thaler and Sunstein in their book *Nudge* (40) develop these ideas further, describing in depth how communication, framing, and policy architecture can have an enormous impact on behaviour – and in some cases do away with the need for legislation and enforcement.



HOW THE GPA CAN SUPPORT CHANGE

Lastly, let us return to the potential contribution of the GPA in the change challenge. Given that the central problem we face is shifting attitudes and behaviours on a global scale, and that key challenge is how to encourage emergent action, an alliance of committed national and international psychology associations has much to offer governments, business, organisations, communities and individuals who are not experts in this area.

The starting point should be to reinforce the quality of our **GPA Individual Psychology Association Plans** on climate change, making sure these are up to date and relevant. The GPA could then bring these together and connect them to the mainstream international frameworks through the United Nations and other international bodies. We are already engaged with the COP process and have been asked to come back to a key player (John Kerry) with National Association Plans on how psychology can help, but this is just a starting point.

What should National Plans look like? There is no one template that is likely to be suitable for all associations, given very different starting points and

circumstances. Still, a comprehensive report from the American Psychological Association's task force on climate change provides an example of how this might be done, spelling out in depth how psychologists can contribute to research, advocacy, practice, communication and education (41).

On the basis of this chapter, there are a number of questions which might be useful for Associations to think about from a change perspective when developing their plans.

- What is happening already that is positive – and how can we build on it?
- How can we develop the capacity and capability of psychologists to contribute?
- Which people, organisations and stakeholders do we need to connect with?
- How can we encourage people to get involved and develop their own solutions?
- How can we make the "remote" more "immediate"?
- How can we support the development and adoption of new technologies?
- How can we best deal with those who stand to lose out from the changes that are coming?
- Can we help find a way of navigating through the transition period that 'goes with the flow' and builds on what people would like rather than what they need to sacrifice?
- How can we re-design living and working environments to encourage sustainability?
- What policies and frameworks make it 'easier' for people to make the right choices?
- How can we build on social identity theory to create a sense of "we-ness"?
- How can we encourage organisations and communities to take meaningful action?
- How can we encourage people to make environmentally friendly choices?
- How can we make sure we continue to pay consistent attention to work on this topic over a long-term period?
- How can we use climate change as a way of reshaping a 'better world'?

It might also be useful to develop an overall set of guiding principles which reflect the ethos and values of the psychology discipline, can facilitate systems transformation, and which if adhered to could make the difference between attainment and non-attainment of global targets on climate change. As a starting point for further discussion, we would suggest the following ten areas:

1. **Fairness**. This is an essential starting point. We know from research in organisational psychology that the level of people engagement in organisations is badly affected by any sense that people are not being treated equitably (41). People are very sensitive to injustice. In the area of climate change, this means the net zero transition needs to be fair and perceived to be fair. Movements such as 'Just Transition' and 'Climate Justice' are seeking equity in the transition from the current state to the desired state. This means that richer nations look out for poorer nations, that there is a fair distribution of resources to tackle climate disasters, that more developed countries help less developed ones - and that no nation loses out. The same principles apply at community level.
2. **Vision**. People need to understand why change is necessary. For leaders in particular, a strategic mindset is key, meaning thinking long term not short term; having a sense of purpose and meaning; thinking of the effect on others ('we' not 'I') and looking at the longer-term impact of personal and group choices. Key to all this is developing a vision, as appropriate in different contexts, which inspires and motivates people. As Professor David Uzzell said in a keynote address to the British Psychological Society in July 2021 (42): We need a vision that sees this crisis as an opportunity to re-think our priorities as a society and use the crisis as a springboard to actually better, more sustainable, just and happier lifestyles.
3. **Sustainable Mindset**. A broader focus than immediate economic benefit is essential for both individuals and entities if people are to welcome change. Surprisingly for some, a number of business organisations seem to be leading the way in this area, fundamentally reappraising their modus operandi and adopting sustainability and the 'ESG' agenda as a key corporate strategy. Whilst long term commerciality is a factor, in many cases this has been driven from examination of the ethical and purpose-driven ethos of the organisations and their governance principles rather than by external sanctions such as legislation or tax. Examples include Unilever, John Lewis, Airports Council International (Carbon

Accreditation Programme), Burberry (in the fashion industry) (43) and others including financial institutions and international consultancies. Carbon counting, reduction and pricing are some of the measures being used to track sustainable activity

4. **Awareness Raising**. Educating and training people about climate change and providing them with the skills to come up with their own solutions is a very powerful approach. Many people do not know what net zero means or what they need to do to contribute to its achievement. It is also important that people understand that change in this area is likely to be complicated, that there are bound to be trade-offs and compromises that need to be made, and that it is important to keep the long-term goal and bigger picture in mind and not to lose heart or faith
5. **People Involvement**. Change will be required at many levels and all the answers will not be known in advance. Educate, empower, train and develop people so they are interested in the topic and able to come up with their own solutions
6. **Learning Orientation**. Technology will advance and the socio-political environment will evolve. The changes needed cannot all be predicted in advance and a willingness to learn from our own and others' experience, change one's mind as new evidence emerges and to seize opportunities as they arise are all important. These are helped by encouraging values such as respect, consideration, empathy, learning and curiosity while working together to achieve these goals. Courage will also be needed to take the action needed.
7. **Action Focus**. A sense of urgency needs to be engendered. The window for action in climate change is small and the pace is still too slow. If targets are to be achieved, there will need to be a rapid increase in the rate of change and an acceleration of the deployment of the measures outlined in COP26 and other agreements and actions necessary to deliver the target numbers. It is generally better to start to take action now and learn by doing and experience rather than wait till everything is 'ready'
8. **Go with the Grain**. It makes sense to build on what people find acceptable and already support in principle rather than try to force them to do things they don't want. For example, the People's Climate Voice (44) shows the policies and approaches that are most likely to attract

support in different countries. Interestingly, the four policies that are the most popular globally are 1. Conservation of forests and land (54% public support) 2. Solar, wind and renewable power (53%) 3. Climate-friendly farming techniques (52%) and 4. Investing more in green businesses and jobs (50%).

9. **Implement Plans**. Setting targets and declaring that they must be reached is not enough. Sadly, only too often specific implementation plans are lacking. Provide focus through measurement and targets, and ensure people get feedback. All players need to see the steps required for change, specific behaviours needed, and who is responsible for what. A change plan should also look at how to deal with the dynamics of change. Typical barriers are convenience, comfort, control and a 'can't' mentality. Typical enablers are awareness of the problem, understanding 'how to', and positive personal consequences. Lastly, keep plans specific and as simple as possible. Fundamental changes in mindset and attitudes won't happen overnight, and often develop after people have made small and successful modifications to their behaviour
10. **Courage to Act**. In the case of climate change, the future cannot be like the past or we will have failed. This means we will need to take calculated risks and move things forward without always being certain of the outcome. We need to stop procrastinating and waiting for others to act. So courage will be essential.

The formation of the GPA provides a unique opportunity for psychology to 'come of age' and start to make a co-ordinated, scientific, evidence based and ethically driven contribution to global challenges.

We are already running out of time. More action is necessary now. We need to remain focused, connect with those who need our help, work with others to provide a unique psychological perspective, and accelerate change. To do this will require us to share best practice and upgrade the skills and capabilities of our profession. We need to muster the knowledge, methodologies and systems thinking approach, to work collaboratively with other disciplines to help bring about the changes that are urgently needed.

There is no time to waste!

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Psychology in Action: Leading for the Climate Remarks Made for the GPA Panel

Sandra L. Shullman[1]

November 19, 2021

Our colleagues, Abdullah Shahid and Elena Villalobos-Prats[2], have laid out both the major challenges and our need, as psychologists, to find major ways to contribute going forward. We are all enduring a confluence of major crises, and climate is a significant part of all of them.

COVID has provided both the challenge and opportunity to bring together more psychology groups across the globe than ever before. While physically forced to isolate, we have been able, through technology, to make new connections and strengthen existing relationships, such as those built in our initial psychology summit on climate held in Portugal in November 2019.

For global psychology, we must build a strong way forward together. We need to work from a collective mindset that helps us get clear about both what we can do to address the climate and related challenges and how we can work together to achieve our goals.

For global psychology, it is critically important that we continue to develop a framework together that allows for shared goals with unique pathways to get there. Meetings such as COP26 and others work in such a way, and that is how the Global Psychology Alliance is designed and how we function. There is a naturally occurring tension between global and local needs, given both the common problems and yet unique contexts within which we work.

So we recognize the need for unity, to work as one globally to address the major global concerns/challenges/crises we face, while we also appreciate the individual and unique contributions of communities. We must and can

1 PhD, APA Past President

2 Presenters at the Global Psychology Alliance Online Conference *Psychology In Action: Leading For The Climate*. (November 18-19, 2021). Abdulla Shahid, MA, United Nations General Assembly. 'The health drive at COP26 and beyond; Opportunities for action'. And Elena Villalobos-Prats, MA, World Health Organization

model the way for coming together across differences and develop new and effective ways of working and learning together. While we all have many of the same challenges in front of us, our different contexts mean that we need different solution rollouts to make them relevant to each context. One real strength of our Alliance is that we are finding different ways of working, as we all need to do some of the same things (same goals) but in different ways. We must evolve and create new ways to work together.

This development of a common framework with shared goals and developing new ways to work across differences constitutes the primary leadership challenge for the Global Psychology Alliance and the Global Learning Leadership Institute going forward. Through effective leadership, with psychologists as learning leaders, we can learn from each other, make significant contributions, support ongoing efforts, and engage more impactfully with the United Nations, the World Health Organization and others. Those enhanced linkages can become one substantive indicator of our development as a global psychology community.

Above all, we must be good partners, good leaders, and good actors on the global stage. How do psychologists get involved with climate when people are not interested, and how do we begin seeing ourselves as psychologists who are leaders in creating this change? The growth of the Global Leadership Alliance and the Global Learning Leadership Institute makes me hopeful about what we can become and accomplish together in the future. Effective psychology leadership is about learning, focusing and engendering hope for the good of all.

Conclusion

Terri Morrissey[1], Brian Dixon[2] and Amanda Clinton[3] (editors)

Much has happened since the Lisbon Summit in November 2019. As the contributors to this publication have outlined in their presentations on the impact of climate change and the role that psychologists and psychological science can play as part of their professional organisations. Certainly, there is more to be done, to be understood, and to be disseminated. This publication takes initial steps to presenting a snapshot of some of these global efforts - ranging from the work of psychologists in Korea on dust storms to the initiatives of New Zealand psychologists in working with indigenous and disadvantaged communities most affected by changes in climate.

There is an urgent need not only to alert populations to the imminent threat of the climate crisis - but also to highlight psychologists themselves to the role that they can play in leading the way forward using psychological science and its insights on the role of human behaviour and its impact on the environment, as well as the way in which increasing temperatures influence individual health and well-being.

Since the inaugural Summit in Lisbon, Alliance participants have spearheaded a number of key events to elevate psychology's contributions to alleviating the climate crisis, as have other global organizations:

- COP26 brought global players together and pledged urgent action to reduce carbon emissions, inclusive of representatives from the Global Psychology Alliance;
- The IPCC report continued its warnings and urged changes in behaviour and habits to reduce carbon emissions;
- The APA task force produced its deliberations and highlighted areas where human behaviour needed to shift, producing key recommendations for action in advocacy, education, and the role that psychologists could

1 BA. MBA., Director of 'This is…' Consulting
2 MSc. PGDipClPs., Director of Scientific Issues, New Zealand Psychological Society
3 MEd, PhD, Senior Director, Office of International Affairs, American Psychological Association

play;

- Government and Non-Governmental organisations hosted conferences, workshops and seminars aimed at both educating populations to the increasing risk and outlining actions that can be taken to ameliorate the impact of changes in climate and their effect on people and natural systems

All of these and more are sending a similar message. The question is: is anyone listening?

Over the two years following the first International Summit on Psychology and Global Health in Portugal, there have also been a number of world events that have impacted on the speed of progress. While COP26 was a welcome and much needed gathering, its eventual resolutions were watered down to appease some governments. The 2022 invasion of Ukraine is being used as an excuse by some governments to ramp up the production of oil and gas exploration, while, despite warnings from the US Climate Envoy John Kerry, the continued mining of coal is resulting in contamination of soil and water, loss of habitat, and poisonous emissions with disastrous impacts on human health . It sometimes seems that the urgency of the situation fades shortly after coming to the public eye and, in predictable cycles, human behaviour reverts back to habitual tendencies with little interest in long-term consequences.

There is a need to keep up the pressure, to keep highlighting the impact on the world's climate, and to continue to explore and fund research and development into new and environmentally friendly technologies, products, and services. Psychologists and psychological science have a crucial role to play in these processes, and professional organizations are one of the best means of bringing psychology to the forefront at all levels.

Too often absent from the strategic and decision-making table, it is time for associations of psychology together with individual psychologist practitioners, trainers and researchers to assert our expertise in the science of human behaviour; to make our vast repertoire of knowledge accessible and available to decision makers, and to translate that knowledge into practical ways in which we can influence policy and strategy. The Lisbon Summit was a first step toward advancing leadership in the field to further the impact of psychology on both a global and a local scale.

The essays in this publication are but a start, oriented largely toward organizational efforts following the Lisbon Summit. They highlight the potential and promise of psychology in addressing adaptation and mitigation in climate change action. They point to the role psychologists - together with our immediate communities and our international communities - can all play in impressing upon the world the urgency and importance of this vital issue. Critical, indeed, to the survival of humanity. If psychology is to make a difference, then psychologists and psychological associations need to continue to work together, to collaborate with other disciplines, and to share our knowledge and insights with those who need our help the most. This must be done with an emphasis on inclusivity and attention to the challenge at hand, rather than singular needs or borders drawn by history.

As we look forward to future Global Psychology Summits we must continue to endeavour to bring our knowledge to the widest audiences. We cannot afford to be complacent. This book is a call to action.

The editors would like to thank most sincerely all those who contributed to this book. We would also like to thank all the members of the Global Psychology Alliance for their arduous work since 2019 and their continued support and dedication to bringing psychology and psychological science to the attention of all those concerned about the future of our planet.

Thank you

Amanda Clinton

Brian Dixon

Terri Morrissey

June 2022

APPENDICES

Appendix 1. Lisbon Summit - Proclamation

INTERNATIONAL SUMMIT ON PSYCHOLOGY AND GLOBAL HEALTH
A LEADER IN CLIMATE ACTION
LISBON, NOV 14-16

PROCLAMATION

ISSUED BY PARTICIPATING ORGANIZATIONS

LISBON, PORTUGAL | NOVEMBER 14-16, 2019

"We, representatives of national and international psychological organizations in attendance at the Lisbon Inaugural International Summit on Psychology's Contributions to Global Health, are committed to ongoing collaboration in the application of psychological science to jointly advance progress on critical global issues, including the United Nations Sustainable Development Goals.

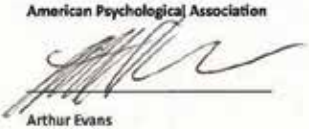
Our commitment of professional, scientific, educational, cultural, and applied resources will be directed to advancing those issues and Goals for which psychology offers the greatest contribution.

Our initial efforts will be focused on Sustainable Development Goal 13: Take urgent action to combat climate change and its impacts.

Our mutual work on applications of psychological science to climate change will also provide a framework and model for future collaboration focused on proposals to address critical global issues".

INTERNATIONAL SUMMIT ON PSYCHOLOGY AND GLOBAL HEALTH | LISBON, 2019 1

American Psychological Association



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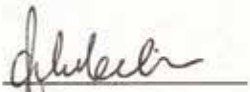

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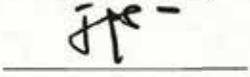
Asian Psychological Association



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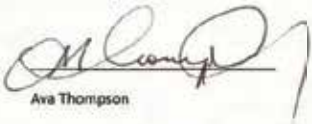

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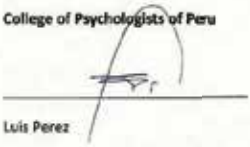

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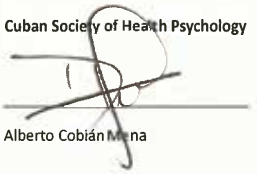

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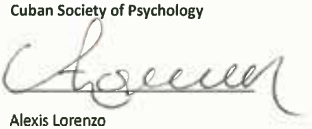

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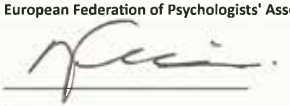

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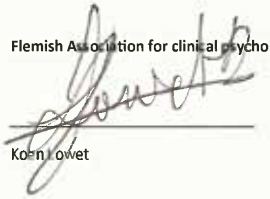

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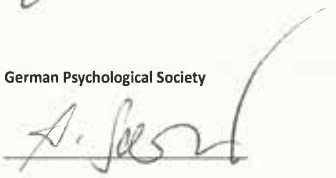

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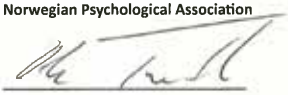

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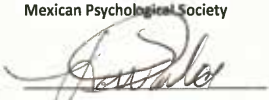

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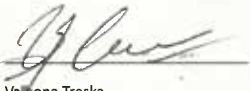

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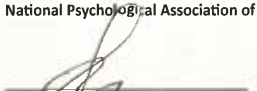

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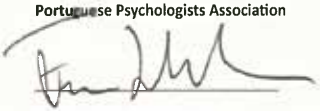

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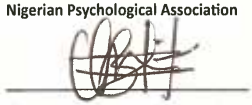

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Czech Psychology Network for Global Changes

Adam Suchý

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Amanda Clinton

Portuguese Psychologists Association

Sofia Ramalho

LISBON, 16TH NOVEMBER 2019

Appendix 2. Lisbon Summit Resolution

INTERNATIONAL SUMMIT ON PSYCHOLOGY AND GLOBAL HEALTH
A LEADER IN CLIMATE ACTION
LISBON, NOV 14-16

RESOLUTION

ISSUED BY PARTICIPATING ORGANIZATIONS

LISBON, PORTUGAL | NOVEMBER 14-16, 2019

WHEREAS there is overwhelming agreement among climate scientists that climate change poses a serious global threat, is occurring faster than previously anticipated, and is contributed to by human behavior;

WHEREAS despite the widespread acceptance of climate change science, human behavior has nevertheless not changed significantly enough to combat the deleterious effects of climate change. Research suggests that this is in part due to psychological factors: Climate change is a complicated, abstract, value-laden problem, which cannot be solved by individual behavior -- the worst effects of which are longer-term;

WHEREAS current research and public communications on the impacts of climate change have often emphasized the major physical damage caused by extreme weather, such as floods, droughts, hurricanes, and wildfires;

WHEREAS insufficient attention has been paid to climate-caused increased displacement, migration, and conflict among individuals and populations;

WHEREAS insufficient attention has been paid to climate change's disproportionate impact on already vulnerable groups with fewer resources, including low-income individuals and those who live
in rural and remote areas, people of color, indigenous and/or culturally diverse communities, women, children, older adults, and individuals with disabilities;

WHEREAS insufficient attention has been paid to the strong linkage between climate-caused extreme events and inequality, where psychology can play a role to raise awareness of the social construction of risks in research, policymaking and media communication;

WHEREAS insufficient attention has been paid to climate change- related major acute and chronic adverse mental health outcomes, including stress, trauma, and shock; post-traumatic stress disorder and other forms of anxiety; depression; and substance use disorder;

WHEREAS research shows that human behavior has an impact on climate change and that psychology as a science focuses on the study of human behavior, including the origins, consequences, and conditions that allow for interventions to modify it.

THEREFORE, BE IT RESOLVED that our psychology organizations will advocate for and support international and cross-disciplinary collaboration to help prevent and mitigate climate change and facilitate people's adaptation to its effects, utilizing many relevant psychological subdisciplines:

RECOMMENDATIONS RELATED TO KEY STAKEHOLDERS

We will encourage governmental, educational, health, and corporate leaders to move immediately to adopt norms, values, and policies to promote sustainable preventive and corrective behaviors at community, organizational, and individual levels;

We will continue to develop and publicize the psychological evidence base for behavior change, ensuring that public policy, organizational, and individual responses are informed by the science of psychology;

We will showcase and support to policymakers and others the role of psychology as a key science to understand and tackle climate change within an interdisciplinary approach to global challenges;

We will encourage our members to advocate for the rights of those most susceptible to the negative mental health impacts of climate change, for example, by encouraging policymakers to fully fund programs to aid those who suffer harm from severe climate change-related events;

We will highlight to policymakers and others the importance of psychological services and supportive interventions to help
minimize harm to mental health and well-being, especially among vulnerable populations, and for initiatives to increase community resilience;

RECOMMENDATIONS FOCUSED ON OUR MEMBERS AND THE PUBLIC

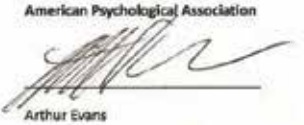
We will inform our respective members and the public about climate change, emphasizing scientific research and consensus on its causes and short- and long-term harms, and the need for immediate governmental, societal, community, and personal action;

We will encourage our members and other leaders to be vocal advocates concerning the necessary mitigatory, preparatory, and responsive adaptations to climate change;

We will promote awareness of the psychological blindness that leads to regarding inequalities as a social fate, instead of a political choice; and

We will support the development of a public awareness campaign to encourage individuals, organizations, and communities to adopt behaviors to help prepare for and recover from gradual climate change and acute climate change events.

American Psychological Association



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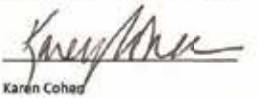

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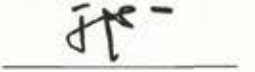

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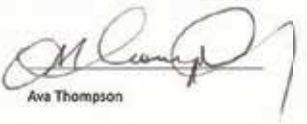

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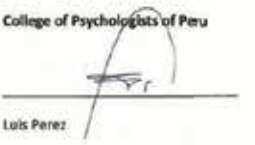

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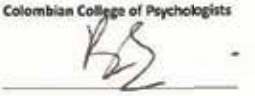

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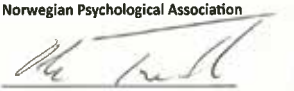

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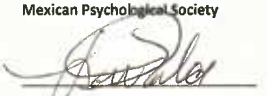

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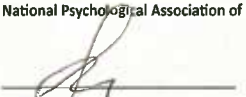

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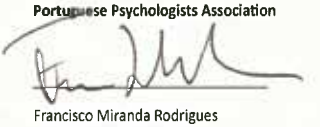

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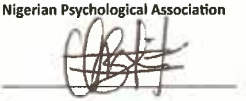

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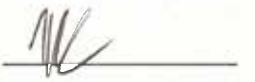

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LISBON, 16TH NOVEMBER 2019

Appendix 3. - 'Six month' National Plans from Lisbon Summit

These national plans and commitments were drafted at the end of the Summit. Some associations had had to leave the Summit at this point, so were unable to produce plans.

American Psychological Association	November: • Now - Debrief APA staff December: • Begin planning, staffing, & recruiting • Develop advisory committee for BOD • Reach out to APA divisions • Start planning for APA convention event (2020) January: • Convening of other interested nonprofits • Start compilation of funding sources • Explore possibilities with IUPsyS • Government advocacy • Resource support for social networks February: • Scope out an update to APA climate report • Brief & recruit COSSA & FABBS April: • Bring funding etc. together May: • Climate science meeting with PBS media producers (on video, Boston)

Association of Psychologists in Nepal	• Primarily health as well as mental healthcare should be provided to them • Mental health policy exists in Nepal but it is still not implemented • Action: Try to work out and update and use adequately according to demand of situation • Interested to work with other associations and collaborate Will: • Develop a targeted media/advocacy plan which continues our Psychology Week campaign also promote other aspects of psychology and CC • Put climate change on the agenda for our Nov 2020 conference in Brisbane • Explore how we can work in partnership with university/Gov/philanthropic trusts to commence research projects in this area • Collaborate with N.Z. colleagues for a joint conference with a focus on climate change • Explore how to integrate the outcomes of this workshop into our ongoing plans • A joint presentation on the outcomes of this workshop at International
Bahamas Psychological Association	
Brazilian Society of Psychology	• Publicize this meeting at our social media network (done) • Include at our next newsletter a notice (detailed) about this meeting • Invite members to write an article (to be published at our webpage) about the relation between psychology and climate change • Create a specific space at our webpage for info on actions related to psychology and climate change • Include in the planning for the next national congress, activities in the psychology and climate change area

British Psychological Society	Next 6 months: • Climate change feedback to members part of 2020 conference theme • Journal – special edition focused on climate change • Bring together academics working on this subject in the UK (mapping) • Link ē for Industry - signposting • Recruitment of Director of Knowledge • UK research • Psychologically informed policy International Interest/Collaboration: • Research: Academic Panel/Literature Review/Update of APA report, Interdisciplinary exchange, Grant funding externally, Grant funding internally, Psychology Catapult?
Canadian Psychological Association	• Bring proceedings from this summit to CPA's section on environmental psychology. • Support the section to develop a position paper on what psychological science and practice can bring to climate change discussion, legislation, policy and programs. To include: i. Upstream: education about good environmental choices and behavior ii. Downstream: helping people with mental health issues associated with real and anticipated climate change issues iii. To address: what are the factors that determine environmental behavior? How can we help people, individuals, communities, workplaces make good environmental choices and actions? How can Canada address policy and legislative goals when comes to helping country make better choices? • Propose environmental change symposium at CPA's annual convention. International: • CPA is prepared to assist on the collaborations development of a position paper.

Caribbean Alliance of National Psychological Associations	• Report on this event to our members • We are hosting a conference on disasters – this will be included • Examines current climate change initiatives in the Caribbean region & create a compendium of National members engagement & plans • Disseminate info to external members • Explore ways that climate change can be integrated into CANPA's strategic plans • Include climate change in website resources • Build partnerships with internal & external organizations
Chinese Psychological Society, Asian Psychological Association	
College of Psychologists of Peru	N/A
Colombian Association of Psychologists	• To introduce climate action in our strategic plans (May 2020). • To promote the discussion on climate change, mental health and psychology in the 11 chapters of the association (January 2020). • To organize regional symposiums on the topic (Jan – May 2020). • To contact other organizations working in Colombia on climate action to define means of collaboration (January 2020). • To introduce climate action in our mental health pilot program in the state of Arauca (February 2020). • To design and implement a media campaign on climate change developed by our communications team (February 2020).

Coordinadora de Psicólogos del Uruguay	• MOU with UNESCO Regional Bureau for Sciences to contribute to the celebration (from CPU) of int'l days for science and peace February • Rapport on Summit outcomes published in newsletter March • Round table on "Psychology and Climate Change" in association with APA (same to be presented in 2020 Annual Meeting)
Cuban Society of Health Psychology	• We are working as an association to establish an educational national strategy to achieve new attitudes on ecological behavior in the Cuban population as a way to reduce the impact of the climate change and its consequences and increase the risk perception. • We have established different steps that obey to the different moments of our strategy, doing emphasis in the interdisciplinary approach. • The next international conference of Health Psychology will be an important space to share experiences and to adopt new decisions
Cuban Society of Psychology	
European Federation of Psychologists' Associations	Next 6 months: • Include climate change in policy influencing/advocacy prioritization for 2019/2021 activity period (by member associations meeting 29 Nov 19). • Map EU, European commission existing activity, objectives on climate change as relevant to psychology (by end June 2020 – present to member associations). • Harness interest from EFPA working groups related to initiative on climate change and develop objective in work plan (by end June 2020). • Present relevant work at Congresses e.g. ICP 2020. • International Interest/Contribution: • Explore EC/European philanthropic level grant funding for research work stream (by June 2020). • Link with other regional bodies (by June 2020).

Flemish Association for Clinical Psychologists	National Level: • Awareness: Members = web file (6 months), position paper (6 months), climate change task force (6 months), GA endorsement (6 months), climate training/climate change ambassadors (+6 months). General Public = position paper general press (6 months), web file (6 months), Counter fake news (6 months). • Representation: Political influence = position paper (6 months), climate change tour (+6 months), capacity building (+6 months). Building climate change network = position paper (6 months), toolkit research evidence (6-12 months) International: • Commitment to International Alliance on Psychology and Climate Change (IAPC • Coordination actions with the IAPC • Commitment to fund the IAPC
German Psychological Society	• Bring the issue into our membership by our existing subgroup on environmental psychology (end of the year) • Do research on our resources, research already done and activities done or planned (6 months) • Start a media campaign (3 months) • Develop ideas for education and implementation (April 2020) • Index climate change on our next conference in Vienna September 2020 (there is already a topic on it) (March 2020) • Get in contact/keep in touch with the European associations (i.e. of social psychology and others
Guatemala College of Psychologists	

International Association of Applied Psychology	• Taskforce/Special project • Webinars (communicate/sharing, training) • Social Network • 2 Special Issues: (a) International Review: Applied Psychology (b) International Review: Health and Well-being • United Nations: Climate change and mental health • Training: management, environment issues • Research projects • Psychology Week • Special track on climate change in Cancun Centennial Congress 13-17 Dec. 2020
International Council of Psychologists	• Build content in "Climate Change" section of Network of Psychologists concerned about Human Rights (www.humanrightspsychology.org) • Newsletter article on this summit • Newsletter article on climate change research/action ("storytelling") • Initiate Interest Group on climate change (interest groups = small collaboration to develop symposium or publication or research project) • Add CC to conference call for papers • Work with ICP UN reps and with multi-org "Psychology Coalition at the UN"
International Union of Psychological Science	

Jamaican Psychological Society	• Ensure that our members are apprised of the relationship between psychology & climate change • To align with organizations that are currently handling issues of climate change (e.g. ODPEM & disaster preparedness lab/unit at UWI, MONA). Both locally & regionally • Engage experts in Jamaica on the matter (Dr. Dennis Edwards) • Conduct 1 symposium/workshop on the issue • Populate website with basic info from Int'l Summit
Japanese Psychological Association	Within Association • Share-share the process & products of this summit with the executive board (Nov. 24); share the recap of the summit with our members • Identify-identify resources (money, knowledge, people, groups, etc.) that are already there; identify groups (committees, STG, etc.) that are willing to develop more on the issue • Develop-develop public interests, including raising awareness, advocacy to society, companies, governments International • Collaborate! (get out of the changing room)

Jordanian Clinical Psychologists Association	• We will have a meeting for our member to present and give more information about climate change and see what we can do and make plans. • In face we set a date end of Nov. 2019 to invite people e.g. psychologist, psychiatrists, and people from the public sector (government) and of course NGOs working in Jordan (media and others will be invited too). • From a group of climate change expertise and interests. • We aim to form a group of psychologists and other interested people to be trained in how to deliver information to public people in different places. • After training this group we will try to go out to public places, schools, clubs, etc. to give more information and education about climate change. • Special interest will go to who show more interest in climate change
Korean Psychological Association	Will in 6 months: • Schedule a symposium on climate change and psychology • Share what I have learned in this summit with members through e-newsletter Hope to in 6 months: • Find members who could be effective advocated • Find a journal (among 15) to have a special issue on climate change • Get connected through SN started from the Summit

Lebanese Psychological Association	Call for a general meeting to all LPA members and also other MH associations: • Introduce the subject and its relation to MH • Role of psychology • Input and impact on community health and citizenship building; it is a common concern, bringing people together • Committee of interest: define roles & actions; write in newspapers; TV program appearance; advocate (schools, hospitals, industries) • Raise this issue at a national scope Call for a meeting with MOH (Ministry of Health) • National training of psy. & NGO's • Partner with other ministries (education, etc.) • Day (official) of climate change awareness
Mexican Psychological Society	• We will analyze the most important behaviors that affect the environment. • We will make a video where we will show people how it contributes to the pollution and climate change. • Presidents of different international associations will be invited to mention a reflection phrase. • We will put it in Facebook
National Psychological Association of Ukraine	Our main goal is promotion contemporary knowledge about climate change and popularization of eco-friendly behavior. How do we do it? • New scientific knowledge about climate change (3 months) • To recap main ideas (1 month) • To start a media company with Ukrainian psychologists and well-known persons (5 months) • To create advice list on how we can change out non-ecological habits (6 months) About interest and contribution: learn more about successful experiences other countries Sweden, Norway, Australia, New Zealand

Aotearoa New Zealand Psychological Society	6-month plans: • Offer workshops for psychs and health professional in (Auckland trialed yesterday), Dunedin Friday 25 Nov and Wellington 26 Nov i. Review workshops – plan 2020 series. • Plan NZPsS conference symposium on climate psychology for August 25-28 2020 in Dunedin, NZ i. Invite keynote & guest speakers ii. Invite attendees, participants • Join, take active role (of Climate Psych Task Force) in international network for info/resource sharing • Lobby our Govt. & Ministry for the Environment for funds, support, resources for Climate Psych. Under implementation program of our Zero Carbon Act (2019) • Increase "reach" of our Climate Psych Task Force to members & other psychologists International: • Collaboration with Australian colleagues. Plan & proceed or joint conference • 2020 conference – speakers, attendees • Collaboration: research, action plans, policy development (e.g. NZ & overseas colleagues re "Zero Carbon" Act), OCEANA network
Nicaraguan Association for the Development of Psychology	
Nigerian Psychological Association	
Norwegian Psychological Association	

Order of Portuguese Psychologists	• Advocate for psychology and psychologists on climate change (Summit resolution) i. Audience with minister of environment and climate action (Nov 19 – Jan 20) ii. Meetings with all political parties (Nov 19 – Jan 20) iii. From parliament (Nov 19 – Jan 20) • Meetings with environmental org. (Mar 2020) • Nudging and BI in public policy applied to climate action (Apr 2020) • E-learning professional development training for psychologists (May 2020) • Climate action signature to the 5th national congress (Jul 2020) • In our specific forum with universities discuss a joint action for curricula and professional training in this topic (Dec 2019) • In our "white book" for the future of the profession in Portugal include a strategic position about climate action (May 2020) • Commitment to deliver the results of the summit to the S.G. of UN with initiative for diplomat
Order of Psychologists of Albania	• First level – let's talk about climate change costs (nobody has talked about it) • Second – media campaign • Third – raise awareness. Try hard to change people's mentality and attitude • Collaborate with other bigger associations to support us in training and the education of Albanian psychologists in this issue
Pan-African Psychology Union	
Psychological Association of Namibia	• Empower the committee on International Relations and Professional Growth to incorporate climate change on its agenda. • Present an open workshop on the role of psychology on climate change (by April 2020). • Forgo alliances with other psychology associations and share the effects of climate change in Namibia and SADC regions and PAPU (by May 2020).

Psychological Society of Kenya	N/A
Seoul National University	
Serbian Psychological Association	What we will do: • Inform members through website about the summit • I will write a report for the members • Organize lecture for psychology students on the topic: Psychology and Climate change (as well as a presentation at Serbian Psychology Congress) • Inform media in our country about the Summit and talk about the role of psychology in preventing climate changes International Interest: • We would like to get assistance and guidelines on good practice models from APA and other associations
Spanish Psychological Association	Objective: Increase knowledge and awareness skills • Create a task force on climate change with experts in field (1-3 months) = review current research; report with reviewing results; produce materials for out media/journals; starting point for info. And future training (workshops, online training). • Common platforms with other professions (3-6 months) = common goals, knowledge sharing, common actions and politics • Commitment from regional associations (1-2 months) • Once organized (proposals and lobbying; 6-12 months) = behavioral + attitude change – government, industries + enterprises, individuals (public, by choice) • Immediate proposals (1-2 months) = COP goes green (recycling and optimizing resources); special issue on climate change; appearance in national congress; add topic to journals and congress • Budgeting and approval by EC

Swedish Psychological Association	• Take the subject to the National Committee of Psychology (Monday) • Blog about this summit on our web (Sunday) • Climate change as a theme in our congress (May) • Produce information material for psychologists, decision makers, and the public (during Spring) • Yes, we are interested in working with other associations
Uganda Council of Psychologists	• Convene meeting of psychologists • Convene meeting of psychologist together with existing players in environmental management (Gov't, NGOs, industries) • Both meetings identify gaps for immediate address • Conduct tours of these problem areas • Use media to educate communities on environmental change management • Produce brief notes for integration in National Development Plans (NDP) in line with UN Sustainable Development Goals • Conduct trainings • Recommend for action • Recommend to education institutions for incorporating in curricula
Zanzibar Professional Counselors Association	N/A

Notes from Interest Areas at the Lisbon Summit

A series of discussions were held throughout the summit to identify the key areas of international cooperation that were necessary to support a global response to climate change.

These were eventually distilled into six areas and participants were asked to consider 'why' the area was important, 'what' needed to be done and 'how' this could be achieved. Flip chart notes from each group are summarised below.

Science

Why?

- We really don't know how to evoke behaviour change
- Need to frame problem in behaviour not tech
- Credibility: frame in science
- What research needs to be done to combat climate change?

What?

- Systematic review
- Cross-cultural and cross-generational
- Human factors of behavior change
  I/O and HF Problem
- How to evoke behavior change
- Why do people tune out/internal drivers
- Big data, open science

How?

- Advocacy (funding)
  Government
  Philanthropic
- Create academic panel (global)
- Update APA report with global flavour
- Map of universities, research centers, etc
- Interdisciplinary workshops/conferences

Catapults
UN conference
Sandbox Summits

Building a Social Network

Why?

- Sharing accurate and useful information to change attitudes and behaviors toward climate action
- Sharing access to resources E.g. research funds support strategic connections
- Building synergies, collaborations (between people from regional to global)
- Empowering people
- To inform and to influence public opinion and help establish the role of psychologists

What?

- For members
  1. Assess the current situation
  a. What info exists?
  b. What resources?
  c. Needs and challenges?
  2. Identify international lead agencies to liaise with national/regional groups and conveners of networks for climate action
  3. Determine appropriate/effective platform(s) for networking
  4. Establish systems/mechanisms for control of content, quality, usefulness, etc
  5. Sharing climate psych research
  6. Counter misinformation (members, public, media, policymakers)

How?

- Establish steering group responsible for implementing this
- Identify lead agencies
  Funding
  Platform/site/medium
  People (coordination, IT, ideas)

Standards/rules/guidelines

- Timeframes
  Announce as soon as possible
  Consult associations (3 mo. – end of Feb 2020)
  Responses from associations (6 mo. – end of May 2020)
  Trial platform (9 mo. – end of Aug 2020)

National Toolkit

What?

- Awareness tools ("how to")
  Conference (e.g. special session on climate change)
  Publications (e.g. special issue on climate change; news)
  Indexing (e.g. "climate change" as term)
  Promotion/Media (e.g. celebrity film, campaign; awards; pledges)
- Training/skill building
  Culturally, developmental framework
  Basic facts of climate change, prevention and resilience
  Prevention: successful behavior change and disaster prevention
  Disaster response: to increase resilience, hope, efficiency

Why?

- Equip psychology to be effective (raise awareness, train, skill-building)

Education (for psychologists)

Why?

- Urgent necessity to create awareness on the risks and consequences of climate change
- Lack of relevant knowledge (scientific and factual) among psychologists
- Usefulness on psychology's input in this matter (in terms of knowledge about behaviors, emotions, attitudes)
- Translate scientific data into terms the public will understand

What?

- Assessment of what is done, what is working, and the situation (gaps and existing resources)

- Plan for relevant programs of education
  For young psychologists and experienced psychologists
  Low intensity and high intensity

How?

- An international committee of psychologists on climate change
- Coordinating body- action plan
- Create committee of interest
- Coordinate with national, regional and international associations
- Online guidelines
- Digital platform
- Separate levels
  Attitudes
  Prevention
  Crisis intervention
  Behavior change

Public Policy

What?

- Representation (psychology at the decision-making table)
  How/do we have the expertise yet?
  Need to educate
  Link up with the other environmental groups to be educated about issues and how psychology can be helpful
- Adaptation [Diversity framework/approach]
  Anticipatory – resilience strategies, help with coping
  Aftermath – recovery (doesn't need to be within climate policy, could be MH policy)
- Prevention/Behavior change
  Informed by psychological knowledge
  Draw on health psychology/change health, behavior
  How to use behavioral principles to influence behavior
  How did we get changes in seat belts, smoking, diets
- Psychologically informed policy

How?

- Communication
  Framing messages
  Building support for public policy changes
  Messages that would facilitate this work
- Build [economic] case for psychological interventions and informed policy
  Toolkit should include body of evidence
- Build capacity of psychologists to be a resource
  Educating psychologists about the role of psychologists and how their skills are relevant
  Helping psychologists develop skills to help

Why?

- Necessary for success in climate action
- Opportunity to achieve climate change goals by focusing on human behavior
- The easy stuff as be done, we need new strategies

One World (one world-our world)

- One Psychology
- One Humanity
- Multilevel
  Consumers, producers, society, policy, law, etc.
- Interconnected
- Inclusive
- Sustainable
  Different needs
  Ownership
  Buy-in
- Doing it for ourselves
  From individual
  future/groups/society
- Packaging is vital

Decrease blame and “them vs us”
Individual and collective responsibility

- Alternative narrative
  Product
  Messaging
  Education
  Research
- Strategy
  Behaviour change modification
  Psychosocial dimensions, perception
  Interrelationships: perceived climate change and vulnerability

The Editors

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Global Summits in Lisbon in November 2019 and in Bogota in June 2022 and is an active member of the Global Psychology Alliance.

Brian Dixon is a clinical psychologist who lives and works in Ōtepoti/Dunedin, a southern city in Aotearoa New Zealand. Brian has a long-standing interest in the role of psychology in environmental protection and community advocacy. He sees his most important professional interest as being in his role as co-convenor of the Climate Psychology Task Force of the New Zealand Psychological Society. In his capacity as the Society's Director of Scientific Issues, Brian attended the Global Summit in Lisbon and represents the Society on the Global Psychology Alliance where his contribution is mainly focused on the profession's international collaboration on climate psychology matters. Having escaped from the constraints of earlier government and university careers, Brian now enjoys his clinical consultancy work as the main source of funding of his quest to see more psychological and Indigenous knowledge applied to the climate emergency. Brian is a Fellow of the New Zealand Psychological Society and a long-standing Foreign Affiliate Member of the APA.