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Climate Change and Families:

UN Policy Brief on Climate Change and Families

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Climate Change and Families:
What does the literature say?

Introduction

Climate change is among the world's worst (hu)man-made disasters. The warnings of the adverse impact of burning fossil fuels were on the wall as long ago as 1854 when Eunice Foote (USA) then warned that carbon dioxide being emitted into the atmosphere would lead to global warming. As a woman scientist, Foote (1854) obtained virtually no recognition for her findings. John Tyndale (UK) making similar comments a few years later, achieved fame with various buildings named after him. However, he did not achieve the glory of Svante Arrhenius (Sweden) who was awarded the Nobel Prize for Chemistry (1903) for his work on climate change. Italian scientist, Antonio Stoppani, coined the term 'Anthropozoic' to describe the impact humanity was having on the earth's physical environment in the 1870s. However, like Foote's, his work was also ignored. Despite the alerts to the scientific community by Foote (1854) and others, substantive action to reverse its devastating impacts has been wanting throughout the past century. Climate change, a slow onset event, barely crept into people's consciousness until extreme weather events increased in frequency and intensity as the impact of extreme heat, wildfires, floods, desertification, and coastal erosions and became visible in more recent decades. (Oven et al., 2012).

Climate change has been discussed at length through the United Nations Framework Convention on Climate Change (UNFCCC), Conference of the Parties (COP) for several decades. The UNFCCC is a treaty on climate change which has been discussed yearly since its inception except for 2020 when Covid delayed its 26th appearance in Glasgow, Scotland. The UNFCCC meets yearly through the COP which is a forum in which government delegates meet to deliberate on policies and actions to tackle climate change. They are observed by a range of entities which include civil society organisations (CSOs), research institutes (RINGOs) and increasingly businesses who witness the discussions (except those held in camera to negotiate matters). The growing role of business is particularly evident in the latest COP, COP28, which has been criticised for having Sultan al-Jaber as President of the proceedings because he is the Chief Executive Officer (CEO) of the Dhabi National Oil Company (ADNOC). Dr al-Jaber has responded by displaying his commitment to the goals of the UNFCCC, his attendance at more than a decade of COP meetings, and his spearheading a $15 billion decarbonization initiative to support low-carbon solutions in his home country. The proposed site for COP29, that of Azerbaijan, is being opposed by many CSOs for similar reasons. Azerbaijan is another major oil producing nation. It has a poor human rights record, is a member of OPEC (Organisation of the Petroleum Exporting Countries) and is considered as having vested interests that would preclude reaching an agreement to actually realise the cessation of fossil fuel usage which many deem essential to meeting Sustainable Development Goal 12 (SDG12) (Thomas, 2023). Thomas' conclusion after COP28 is that 'urgency, action, and funds are missing'. This does not augur well for the future of tackling what has now become a climate crisis in the eyes of many CSOs.

The earth has natural carbon sinks such as forests, oceans, and soils to store carbon dioxide (CO_2). These emit and store billions of tons of CO_2 annually. By burning fossil fuels, human beings add to this amount daily and tip the balance in the direction of making the earth unable to deal with such emissions within its own natural rhythms. Hansen et al. (2013) calculated this as about 500 GtC fossil fuel emissions and 100 GtC joint storage in the biosphere and soil as sufficient to keep GHGs within the safe Holocene range. Tipping this balance leads to global warming and extreme weather events caused by (human or) anthropomorphic-induced climate change that triggers suffering, hardship and environmental degradation among people, animals, plants, and the physical environment. CO_2 will

remain in the atmosphere for hundreds of years, even if humanity stopped adding to it today. Such realities have concerned young people who are protesting at the lack of urgent action over this matter by adults (Thunberg, 2022).

Climate change affects everyone and everything on earth. It is a critical social issue requiring urgent resolution to protect people, plants, animals, and the planet, albeit each of these categories is differentially affected. Within the constellation of publications on climate change, very few focus on its impact on families rather than households or communities to consider specifically on how they can engage in mitigation and adaptation activities and shape policy and practice. This reality has produced a gap that this policy brief contributes to filling. Specifically, it considers the impact of climate change (now a crisis) on families and how they can mitigate, adapt, and contribute to reversing its deleterious effects within the context of the Sustainable Development Goals (SDGs), especially SDG12 (12, 12.3, 12.5., 12.8) and SDG13 (13, 13.3), and the policies to sustain these actions. The exploration of these two SDGs will be linked to SDGs 1, 2, 3, 4 and 5, as these shape not only family life and the power relations expressed within it, but also influence the seriousness with which families might respond effectively to the climate change conditions that impact upon their daily lives and the extent to which they can better utilise evidence-based, coproduced solutions by working alongside policymakers and environmental practitioners to alleviate their plight.

The impact of climate change on families and its members, is differentiated according to a family's geographic location, expectations, size, composition, socio-economic status, cultural framework and value orientation, the governance structures within which it is embedded, the services it can obtain, the community's infrastructures it can access, the resources held within the family and distributed individually among its members, and its standing as a community-based entity. Wealthier families consume more fossil fuels throughout their daily life routines and can afford mitigation activities to maintain their position. Poorer families and countries already overwhelmed by the severity of the climate impact upon them such as those living in Small Island Developing States, do not enjoy such privileges. Instead, they worry about their ability to withstand the onslaught they face and regularly raise this at every COP, but with limited success. Most discussions at COP focus on the national and international levels, not families. The micro-level discussions that occur consider individuals and households rather than families per se. This brief will contain recommendations for policymakers and practitioners so that they can engage families in co-devising family-friendly policies and practices that are locality-specific and culturally relevant to encourage adaptation, mitigation and prevention as they endeavour to build sustainable green energy futures in keeping with SDG12 and SDG13.

Adaptation as a public policy as a strategy for addressing climate change may worry families because they are uncertain as to what it might mean for them, and do not know what actions they can take without undermining their quality of life. Adger et al. (2009: 1), have suggested that to address this conundrum, scientists ought to take into account a society's 'ethics, knowledge, attitudes to risk and culture'. Although they do not refer to families, these values and skills are mediated through families. This justifies their involvement in addressing adaptation responses and solutions directly, more fully to understand the risks that such actions might entail. Family engagement is crucial to ensuring that prevailing values do not dissipate the urgency of adapting where circumstances warrant it. Without the direct engagement of families as actors who can facilitate adaptation measures, they might become sources of resistance to proposed changes. Psychologists such David Uzzell (2002) suggest that individuals suffer from a 'knowledge-behaviour gap' which can explain why individuals can know about the climate crisis but feel powerless to act. Individuals may be fragmented and isolated. However, family support can provide a collective forum for overcoming such feelings. Involving families in evaluating adaptive mechanisms also enables them to comprehend better the constantly changing picture of the climate crisis and their subjective reactions to it, to become effective partners in collaboration and address the consequences of climate change. Families are rooted in

geographic space, namely the locality of their community, and this grounding helps them to find locality-specific and culturally relevant adaptions across the climate change disaster cycle.

The United Nations (UN) defines climate change as long-term shifts in weather patterns and temperatures in particular geographic areas. These patterns can be natural if caused by solar activity or significant volcanic eruptions. However, since the 1800s, *human activities, particularly those embedded in production and consumption approaches using fossil fuel-driven energy sources have been the major drivers of climactic disequilibrium*. Burning fossil fuels like coal, petroleum, and gas, generates greenhouse gas emissions (GHGs) that act like a blanket that is wrapped around the Earth to trap the sun's heat and thereby raise global temperatures. Human activity that influences the climate is termed anthropomorphic and has initiated the epoch called the *Age of the Anthropocene* (Crutzen, 2006). However, the human origins of climate change is strongly contested among members of the public in the West and a range of politicians globally (Giddens, 2009).

The main greenhouse gases that are causing climate change are emitted by burning fossil fuels and include carbon dioxide, methane, and nitrous oxide. These come from using gasoline for driving a car or coal for heating a building, for example. Clearing land and cutting down forests also release carbon dioxide. Agriculture, transportation, and oil and gas operations are also major sources of methane emissions, often given off during flaring operations. Although destructive in their impact, methane lasts less long in the atmosphere. Energy, industry, transport, buildings, agriculture, and land use are among the main sectors pouring out greenhouse gases (GHGs). The widespread nature of fossil fuel usage requires a holistic, transdisciplinary approach to reduce utilisation by these sectors, as has been proposed by Dominelli (2012). She argued that practitioners, especially social workers, and community development workers have a major role to play not only in dealing with the impacts of extreme weather events, but also in educating individuals, families, and communities in the science behind climate change and supporting initiatives to decrease fossil fuel use in favour of green, renewable energy sources. Given that families are major sites of practice for them, they can engage effectively in micro-level discussions about the climate crisis.

Individuals and families across the globe are adversely affected by climate change. However, its impact is worse in some countries, and among particular families more than others. Families that are affected most intensely are those living in multi-generational families within constrained social conditions that are marred by poverty and other unfavourable circumstances including structural inequalities, particularly for women across the globe. Those living in certain geographic locations are also more adversely affected than those living in others. Families most negatively affected by climate change are those living in the Global South and in the Small Developing Island States (SIDS) such as Tonga, Tuvalu and Kiribati. Families living in Europe and North America, in contrast, have built infrastructures that are mitigating some of the worst impacts of the disasters arising from extreme weather events such as heatwaves, floods, droughts and wildfires (Ballester et al., 2022). Moreover, women and adolescent women who fetch wood and water for their families across long distances in the Global South and women post-disaster in the Global North also badly impacted, and often face sexual and physical violence while conducting their daily tasks (Parkinson, 2017).

Within this reality, the failure of the biggest polluters China, the USA, India, and Russia in that order (an alignment that ignores their military emissions which are also substantial), has meant that pleas to undertake transformative action to address climate change have been largely ignored (Carrington, 2012), a reality with some different actors since the 1970s. Yet, the impact of such inaction on the daily lives of families who often endure poor health leading to millions of deaths through both indoor and outdoor pollution is neglected in all policies including those of corporate polluters who prefer to deal with abstract generalities than micro-level disturbances related to climate impact and shift the blame for such catastrophic impacts on individuals (Monbiot, 2019). Moreover, those owing

a historical debt of paying for past pollution, i.e., the West (Carrington, 2021) have also dragged their feet over the years. This historical debt cannot be by-passed, but the ever-rising GHGs emitted by emerging economies and superpowers cannot be put aside either. The earth is indifferent to who is producing the emissions, only how much of these it can realistically absorb when its capacity to do so is limited. Meanwhile, the dialogue has begun to add to demands for $100 billion a year to right past wrongs, that of immediate compensation payments for losses and damages incurred by the countries least responsible for GHGs. Some researchers (Dominelli, 2012) have argued that tackling climate change also requires the free transfer of technological developments involving the green energy sector. Dominelli (2012) also suggests that profits for multinational firms may be generated by facilitating the sale of locally built products resulting from such transfers.

The Systematic Literature Review (SLR)

A dearth of refereed materials relevant to this specific policy brief was revealed by a systematic literature review (SLR) conducted to identify and examine refereed and grey (unrefereed) literature regarding family policy and climate change. This was based on strings formulated on the specific concerns expressed in the terms of reference (ToR). The brief begins with the findings derived from the SLR, considers the implications of these findings for policy and practice, and concludes with recommendations for moving forward in policy, practice, and future research.

The systematic literature review was conducted using keywords based on the strings specified below, using databases such as the Social Science Citation Index, the Web of Science, and Google Scholar. English-language articles dominate these databases, so they were supplemented by the author's knowledge of activities in other regions of the world. The search approach produced an extensive array of literature which was reduced by applying various filters within the strings, such as removing those that were irrelevant, duplicates and/or outside the scope of the ToR. Most were irrelevant because they dealt with the science behind the issue, technological solutions to the problems produced, and the role of physical scientists in finding solutions through their expertise. This process produced 2768 publications which was reduced further to 279 by reading their abstracts and analysing these in depth to draw out the relevant information for creating policy recommendations and practice guidelines that would enhance family engagement in achieving the goals and targets of SDG12 and SDG13. Of these, a few dealt with communities – usually in the context of applying technological solutions to retrofit housing, building flood defences, purchase and utilise drought-proof seeds, and similar suggestions. Several focused upon households, but households are not the same as families, even if one accounts for socially created families because the responsibilities and power dynamics within them are often considerably different. Eight publications mentioned families and climate change, and a handful addressed family policies and climate change. There were various articles on family policies and women's reproductive rights which examined other SDGs. These were read for potential insights despite being ruled out as non-relevant as there was no focus on either SDG12 or SDG13. Thus, there is considerable extrapolation from other collective settings in the evidence utilised for this paper which shaped insights into families' involvement in formulating, implementing, and benefitting from policy. This process ensured that direct and indirect implications for family policies were incorporated in the findings. The conclusion: families engage in all three activities. This paucity of literature highlights a gap this paper seeks to fill. The publications used are found in the references.

As filtering materials through the family lens reduced the number of publications substantially, this paper includes materials from the penultimate filter, and it makes explicit whether a publication referred to family-relevant material such as individuals, groups, communities, gender, and similar terms. Within these caveats, this paper provides material that could encourage discussion in various events linked to celebrating the thirtieth anniversary of the International Year of the Family (IYF).

These events can provide opportunities for consciousness-raising about SDG12 and SDG13 and encourage families to engage with activities to prepare for, adapt to, and prevent further environmental degradation that will otherwise intensify the current climate crisis and impede the ability of families to thrive now and in future. To achieve this purpose, this paper indicates that action has to occur systematically and rigorously at the micro-, meso-, and macro-levels in families, communities, national societies and the international domain, using a holistic, transdisciplinary approach. Fortunately, the family has social capital whereby it links to networks occupied by others at levels beyond the microsphere of its own borders. Nonetheless, social capital is unevenly distributed within and between families and countries (Dominelli, 2019).

To this data were added insights gathered from the author's lived experiences including practice linked to green social work initiatives. These included discussions at UNFCCC COP since COP15 in Copenhagen in 2009; community workshops on climate change mitigation and adaptation held at the Universities of Stirling and Durham (Dominelli's former workplace); and specific engagement on climate change with schoolchildren and young people. These developments captured young people's activities on climate change as portrayed on websites linked to Youth Parliaments where these exist, in climate change committees and actions undertaken by young people including collective activist ones, and climate change-based research.

The United Nations (UN) is to be commended for taking climate change seriously and for its willingness to engage member states in addressing a serious contemporary social issue – climate change. In keeping with the spirit of the SDG framework, this publication upholds social and environmental justice and human rights within a transdisciplinary, intersectional perspective guided by green social work as originally developed by Dominelli (2012). This approach centres the differentiated experiences of the impacts of climate change to examine the roles played within family dynamics by gender, ethnicity, disability and age and the consequences of climate-friendly initiatives enacted within these social divisions. This paper concludes by proposing policies and practice guidance to support families, their individual members and their communities in mitigating climate change during daily life routines, adapting to its worst impacts and seeking preventative measures that will avoid future devastating consequences for the planet and all it contains. It is clear that wider social change is essential if power imbalances within families are to be addressed, that all SDGs carry family-relevant implications, and that multi-sectoral and transdisciplinary, holistic interventions are required. This article also requests that future research be funded to address the gap exposed.

The Strings used to Guide the Systematic Literature Review (SLR)
The strings utilised in the SLR were based on the following questions:

1. What physical and psychological impacts did climate change have on families experiencing natural and (hu)man-made disasters like climate change?

2. What types of families are affected by climate change and how do its impact differ according to social status, income level, location, family size, family types, and cultural considerations (including values and religious or spiritual affiliations)?

3. What is the impact of climate change on intergenerational relations and the responsibilities of each generation towards each of the other(s)?

4. How can climate change education and consciousness-raising promote intergenerational interactions between parents and child(ren) in both directions?

5. What do families and communities contribute to the achievement of the targets and goals of SDG12 and SDG13, especially in promoting sustainable living, recycling, reusing materials, and limiting fossil fuel consumption and production in the goods and services they purchase?

6. How do green social and community development workers assist families in leading environmentally sustainable lives?

Before discussing the results of the SLR, the paper focuses briefly on the family – its structures, composition, and size, as depicted in the sociology of the family literature.

Family Structures, Composition and Size

Types of families
The sociology of the family has defined family structures, composition, size, underpinning values, and the family dynamics prevailing within them. The family is a social institution with permeable group boundaries that change because these are drawn according to how a particular grouping is defined and which individuals are encompassed by the term. The major family forms are: the nuclear family which has increasingly become symmetrical once women joined the labour market and men became more involved in housework; and the extended family made up of various kin-based families living together either vertically or horizontally. An extended family is called vertical if composed of different generations living together, e.g., parents, grandparents, or horizontal if those of the same generation live together, e.g., cousins. There are variations on these two key types as these formations adapt and respond to changes and monumental upheavals in society. These include the following which are incorporated into the nuclear family – the matrifocal (mother) lone parent family, the patrifocal (father) lone parent family; the reconstituted or blended family which is composed of two families that have split up to form a new family, e.g., step-families; the same sex couple family (with or without children); cohabiting families with or without children; the living together apart family which rejects cohabitation; and grandparenting family of grandparents caring for their adult children's children. Vertical extended families with few offspring are called beanpole families.

There are also households which are subsumed by other terms. These include singledom, i.e., single people who live on their own – either through choice or death of a partner; an empty-nest family wherein young adults have gone to establish their own household; the boomerang family where children who have left home return to their parents, e.g., after completing university when unable to obtain a job that provides an income sufficient to establish one's own residence. And a family type more evident in non-Western countries, the polygamous family, whereby more than one spouse (usually wives for the husband) is permitted as it is deemed to provide greater stability to family members. Polygamous men who have more than one wife form relationships that are acceptable in other parts of the world but are illegal in Western countries. Countries where polygamy is acceptable include Burkina Faso, Mali, Gambia, Niger, Nigeria and Algeria. Islam, which allows men to have more than one wife, prescribes, that such men must treat all their wives equally, and this often limits polygamy to wealthy men (Dominelli, 1986).

Religion used to play a larger role in determining the specific significance of families, especially in prescribing the place of marriage in familial relationships accepted as legitimate. Until the late 1970s, women who had children outside marriage were stigmatised and their children labelled illegitimate. Secularism has reduced the sway of such ideologies, but not in secular China. Legislative changes have also affected families, especially in facilitating divorce where couples whose relationships have broken down can leave their marriages under conditions set by the law. Ideological shifts, e.g., around the value of equality for men and women, has resulted in women gaining greater freedom to make their own choices about the relationships and partnerships they will participate in (Giddens,

1992). Over time, greater freedom to choose has altered traditional family forms like a nuclear family composed of a married couple and their offspring, enabling women to decide when to enter or terminate a relationship.

Some authors have argued that the freedom to leave relationships has made the nuclear family more unstable than it used to be. George Murdock (1949) claimed that the nuclear family performed four key roles. These were: primary socialisation based on education whereby children were taught society's norms and values; economic stability which was achieved by pooling all family resources to provide for the needs of all members; reproductive capacity to create the next generation; and sexual expression for adults in a controlled and stable relationship. The impact of this control and extensive labour imposed on women was seldom discussed. Functionalist authors like Talcott Parsons ascribed two key functions to the family: socialising children; and providing stability for adults. However, there are other sources of change than those promulgated by Parsons (1951) who argued that the patriarchal family (not his term) in which a married couple followed a division of labour in which the man went out to work and the woman remained at home to do household chores and care for others, especially children, was preferable to other combinations. This defined a man as a breadwinner and protector of his family, and the woman as the housewife and carer of others. Educated women like Betty Friedan (1963) complained of the deadweight this division of labour imposed on their lives. These insights led to revolts by second wave feminists from majority and minority groups (Banks, 1981; Jayawardna, 1986). Consequently, the Western nuclear family composed of a couple married for life, has given way to serial monogamy as couples divorce their partner and establish a new relationship with another. This may occur more than once in a lifetime.

Family structures may be affected by war, which disrupts them as is currently occurring in Ukraine and Gaza where families have been separated, in theory, for their own good. However, attacks on civilian infrastructures have blurred family boundaries between combatants and non-combatants. Also, war has its own carbon emissions contributing to climate change. Despite these difficulties, family members from other countries have come to help those escaping armed conflict, although the resources attached to such assistance has not been applied equally. For example, the European Union passed the Temporary Protection Directive to enable Ukrainians to access the right to live and work within EU countries and obtain welfare benefits instantly. The privileges accorded to Ukrainian displaced people did not apply to other displaced people such as Syrians and Afghans. These families are often referred to as refugee families or displaced families and may associate with various other family types applying to them before the war. In the UK the 'Homes for Ukraine Scheme' allowed people with spare housing capacity to share this with displaced people from Ukraine. This shifted a cultural expectation of a typical nuclear family sharing their home with others who are linked to them through kin bonds and include relatives who may or may not have their own family grouping within it, as occurs in multigenerational family households. It also may include unrelated people who form a household to share a home for practical reasons such as to deal with bills, housing shortages, unaffordable houses or scarcity in housing. These people live together under one roof, rarely sharing blood ties, but may hold social and other interests in common. Generally known as housemates or households in multiple occupation, they do not normally consider themselves families.

Given the diversity of family formations, there is merit in having groups of people self-define the family type to which they belong. However, sociologists, e.g., Allan and Crow (2001), have identified the key family types described above. Yet, these typologies and their terminology can vary over time. For instance, single parent families are now a mother or woman-headed lone parent family or father or man-headed lone parent family. Other categories have expanded to cater for the dynamic and constantly changing and adaptive nature of families. Authors such as Small (2007) described at length the transnational family utilising kin-based family bonds to cross borders involving various Caribbean Islands, Canada and the USA, moving in many directions, to allow individual family

members to travel for work, education, or return to enjoy their homelands. Those returning home became termed returnees, i.e., those who returned to their place of origins after being absent for decades, often following retirement. Domestic workers who spend their lives abroad sending remittances 'back home' to support family members living there and leave their children to be cared for by other family members are another expression of the transnational family form. This occurs often in Southeast Asia, e.g., the Philippines. Others are arranged by senior members of a family (nuclear or extended) and are known as arranged marriages. The couple may live in an extended family home (often where the man's family of origins is located) or create their own, even in another country to become transnational families. Arranged marriages and overseas domestic labour may be difficult for women because they often lose the support networks attached to their birthplace and this can leave them feeling isolated and lonely. Other families are chosen by those forming them. There is a specific type of family formed by some women in prison and termed the 'pseudofamily' in the literature. Little has been written on this, but it seems a pejorative term as it suggests that this family formation is not a 'real' one. Yet, the relationships which are created within such settings are as real as any others to those participating in them.

Women's rejection of oppressive family control may carry implications for their willingness to assume further labour within the family. Responding to mitigating or preventing climate change may be caught in this tangle, unless women become agentic and empowered to engage in climatic activities of their own volition. This is likely to be strongly influence by their values about the significance about environmental degradation in their lives and those of their children, especially with regards to their health and entitlement to a safe environment. Women smallholding farmers, especially those in the Global South, are already engaged in and have accumulated considerable climatic knowledge and expertise in how their families may survive drought and floods.

Indigenous Families

The indigenous family is usually based on social bonds associated with a specific clan or tribe living close to nature. Indigenous families are usually excluded from the dominant sociological texts on the family. However, they are included here. Not only are they a crucial part of the world's population (forming around 5% of it), but in climate change terms, indigenous peoples provide the main family types that have an intimate, historical association with nature and care for it as its custodians. This means that they live in an interdependent relationship with their physical environment, following centuries old customs. Their traditional lifestyles have conserved critical parts of the globe such as the Amazonian tropical rainforests in Brazil, or the temperate rainforests of British Columbia, Canada.

Indigenous peoples have had to battle the main polluters – state and corporate, who have deprived and would continue to deprive them of their lands. This has cost many indigenous environmentalists their lives, e.g., Berta Cáceres in Honduras in 2016. There are many types of indigenous peoples, each with their specific culture, language, and traditions (Maracle, 1996). However, they hold much in common regarding their attitudes to nature. These include being linked to and caring for the land, understanding the flora and fauna associated with their land formations, respecting Mother Nature, having spiritual attachments with nature passed down through ancestral generations, and resisting colonisation. Colonisation, with its determined assaults on their languages, cultures, and family structures, was used by colonists and their governments to eradicate their very existence and destroy their sense of culture, identity and belonging associated with their sense of place or attachment to the land. These destructive colonising actions, endorsed by the colonial state, disrupted indigenous family lives, socio-economic relations, and health including mental ill health that children and adults have had to address subsequently (McQuaid et al., 2022).

Such treatment has affected indigenous, or First Nations people in Canada, Native Americans in the USA, Sami people in Europe, Māori people in New Zealand/Aotearoa, the Maputi people in Chile and

numerous other indigenous groups throughout Latin America, the Caribbean, and Asia. Some indigenous people have been wiped out in various unacknowledged acts of genocide (Smith, nd). This appalling history may carry consequences for how families will respond to requests from colonising governments (deemed so by them as decolonisation seems incredibly slow) formulating policies telling them what to do about climate change without fully involving them as coproducers. Indigenous families continue to follow their own traditions and insights and leave the majority government to pursue an erroneous underplaying of the urgency of taking climate action, resulting in the areas under government control becoming the losers. Indigenous families usually practice communal living and shared decision-making. While this paper celebrates indigenous contributions to safeguarding the planet, there are various opponents who turn them into targets for attack to undermine their resistance to many kinds of inappropriate development and appropriation of their lands. This is happening now, with the majority governments often supporting business trajectories.

Recently, some countries have taken positive steps to protect indigenous lands. For example, an area called Pimachiowin Aki, which covers 29,000 square kilometres of boreal forest east of Lake Winnipeg in Canada, was declared a World Heritage Site in 2017. In Kenya, the Il Ngwesi Conservation Area in the region of Laikipia has been reserved for wildlife programmes and eco-tourism. Recognising the centrality of indigenous knowledge about humanity's relationship with nature has become a crucial resource for those concerned with reversing the damage of modern fossil fuel-based modes of production and consumption. Valuing, respecting, and learning from indigenous people's cultures must become an integral part of any climate change strategy.

Family Roles and Functions

The family, as a social institution however defined, is often considered the basic unit of society, and involves couples with or without children living in houses that they share with others, depending on its composition. A couple without children is the smallest size of family. An extended family composed of many other couples with or without children living under the same roof may be very large. The types of families that prevail in specific societies are usually determined by their cultural values and these are associated with specific geographic locations. However, families are dynamic and constantly changing according to specific historical epochs. For example, in the UK, the nuclear family made up of a mother, father and children, has become much smaller than it was during the Victorian period when each woman had many more children than now. The size of family is also determined by the level of a woman's education, access to contraceptives, and the degree to which her reproductive life is subjected to male control, as is evident in patriarchal families. Patriarchal families are those in which male authority and decision-making dominate. In the West, despite its fragmentation and diversity, the Women's Liberation Movement depicted action taken by women for women to reclaim control over their lives, with black and minority ethnic women often following their own paths (Banks, 1981; Hill Collins, 1991). In Asia and other parts of the Global South, despite the prevalence of patriarchal authority, even within extended families following 'traditional family values' associated with men making decisions for women and controlling their fertility, the feminist movement also took hold and had its own priorities and actions (Jayawardna, 1986) including decolonisation and distinctiveness from white Western feminism (Mohanty, 2003).

The family is also responsible for socialising its members and providing the resources required by individuals within it to survive and thrive. Thus, the family has performative functions which are usually associated with raising children fit for living as 'good citizens' of a specific society. Typical families may be considered functional families who can be counted upon by policymakers to sustain and reproduce their society physically and metaphorically through raising children and caring for those requiring care including members with disabilities and older persons. Families often create social needs that involve an array of medical, health, social work, and social care practitioners in responding to them, although the family, especially its women members are drawn in to provide

unpaid care and supervise the medication regime within the home. Alongside these 'functional' families are dysfunctional families (Allen and Moore, 2017).

Dysfunctional families ought to be called 'troubled' rather than dysfunctional due to the pejorative meanings associated with the term. Moreover, if the caring practitioners fail, the state has a range of other professionals engaged in the criminal justice system to punish citizens who misbehave in calculated and/or unintentional ways – especially if their misbehaviour is an outcome of their suffering from mental illness. This paper will not deal specifically with so-called dysfunctional families as they merit specific consideration. However, from a climate change perspective, these families are also caught up in contributing to and being impacted by anthropogenic activities linked to using fossil fuels as are other families. Therefore, what is said about the diverse 'functional' families applies to them as well. With regards to climate *in*action, all families who ignore the urgency of reducing fossil fuel consumption, may be considered dysfunctional. The dangers of doing nothing to stem climate change are well-known (Action Aid, 2020). Therefore, a new term, *climate change dysfunctionality*, applies to large swathes of the world's population, regardless of family type, composition, or size.

Families, typically composed of diverse types, have different decision-making powers allocated to its different members. Patriarchal power vested in men, usually privileges men. Whether a family is nuclear or extended with different generations residing in one dwelling, individuals in each type will hold diverse physical and intellectual abilities, sexual orientations, income, status, cultural traditions, power relations, and governance structures. This gives family structures a rich diversity within countries and between them and differentiates their experiences according to the social and physical attributes that apply to them. Additionally, not all family members, regardless of composition or location are treated equally (Chuang et al., 2023). Treatment within the family depends on the resources available, socio-economic opportunities that are present, and cultural traditions which impact the possibilities for responding to the rhythms of daily life routines even during war (Baum, 2014). Among those who are less favourably treated in contexts of scarce resources and cultural differentiation are girl children, especially with regards to affirming their right to education (SDG 4) and disabled children who can become stigmatised, isolated and ignored within the walls of the family (Bridge, 2005), and older people unable to work or care for grandchildren. Women become responsible for meeting their needs, even if resources are lacking. Despite constraints upon intra-family resources, certain types of disasters, e.g., earthquakes and wars can increase substantially the numbers of people to be cared for. For example, disabled war veterans may find high quality adaptive therapeutic artificial limbs and devices including adaptations to the home beyond their family's low incomes. Financial shortages increase the work women have to perform to provide a decent life for family members requiring these items.

Ethnicity has its own demands. Citing the Covid-19 pandemic, Cross and Benson (2020), have identified how disasters adversely impact the living conditions of immigrant families who are often excluded from accessing services and may live in overcrowded multigenerational extended family households. Sasse (2015) also indicates how Russia's attack on Ukraine in 2014 led to internally displaced families being excluded from entitlements to welfare benefits and services, despite being of Ukrainian nationality. The discharge of substantial amounts of military ordinance during armed conflict increases women's caring work for the family by depriving them of homes, various built infrastructures including sanitation facilities, water, communications, and power supplies. Rebuilding a nation's deliberately destroyed communities requires resources to replace the infrastructures including housing that have been demolished and rebuild their degraded physical environment. Such infrastructural and environmental devastation should be defined as an environmental crime in itself (Al-Damkhi et al., 2009; Gilman, 2011; Dominelli, 2012).

War severely disrupts the daily routine of women's lives and adds substantially to the amount of housework they must do. The unequal distribution of domestic labour within the home, means the additional work imposed by climate change is borne largely by women. Environmental war crimes deny humanitarian norms (Leebaw, 2014), and exacerbate the prevailing conditions of inequality, inadequate access to services like education and health, as well as women and girl children having to accept less than their fair portions of food. Armed conflict is completely avoidable if people engaged in resolving disputes non-violently, as advocated by Mahatma (Mohandas) Gandhi. All disasters, however caused, carry enormous implications for people's health (Romanello et al., 2023). Caring for sick family members in situations where health facilities have been destroyed and medical staff and medicines are in short supply, adds further to the caring work women perform, usually as a 'labour of love' (Finch and Groves, 1983) within the family. Women's willingness to care for others within kin and other social relationships, however, may contain limits, as does the earth's capacity to absorb greenhouse gases. There is a danger that the exploitation of women can be exacerbated under the conditions of the climate crisis, especially given the expectations that women will care for their families and help them thrive, whatever constraints they may have to overcome. Such expectations may carry considerable implications for women's capacity by adding caring for the environment to their existing domestic workload.

Family Values

Humanity's concern with morality and virtue or values and norms has a long history. Aristotle, one of the early Western philosophers to grapple with this issue focused more on virtue than morality, although the nine values he outlined overlap with most of those we would recognise today. These were: wisdom, prudence, justice, fortitude, courage, liberality, magnificence, magnanimity, and temperance. Aristotle's typology would be recognisable to family members today in many parts of the globe. Family values include trust, integrity, love, loyalty to family members, respecting others, showing concern, support and care for others, benevolence, obeying authority, telling the truth, dependability, courage, fidelity, being humble, upholding a family's religious affiliations and linguistic patterns. Such values are shared across a society and are increasingly being adopted in diverse countries. Family values provide the foundation stones of the ways in which family members relate to each other. They are intended to ensure that each member of a family is principled, and behaves scrupulously, and responsibly. Families are essential to enabling individuals to feel accepted, that they belong to a particular culture, clan, and linguistic grouping. The family – usually the adults who hold power within it, and they are usually male and older, shape the overall structure of a family, its division of labour whereby individual members perform certain functions and roles ascribed to them. This is usually termed a 'patriarchal family' and tends to legitimate patriarchal values that accord men decision-making powers within the family. Values are principles that guide behaviour. They may have a religious basis and are culturally determined as they impact a family's ideals, beliefs, attitudes, and norms. Some religions also proscribe certain types of behaviour, e.g., Islam and Buddhism ask its adherents to refrain from consuming alcohol. Many religious institutions disallow sex before marriage, as do some secular ones, e.g., China. In Singapore, 'family values' demand obedience and respect for the others. Family values influence the valuing of the lives of individual members within the family. In patriarchal families, patriarchal ideals often reduce the value of women and girl children in the family hierarchy to its lowest ranks. Yet, they remain charged with caring for all its members across their lifecycles, sharing resources with them and cooperating to get things done.

Contemporary families draw upon notions of nuclear families and norms perpetrated in Western society as these have become aspirational elsewhere. Thornton (1985) identified the current key values for the nuclear family as: romantic love, choosing one's own spouse, equality in marital relationships, marrying when older, and having fewer children. Living away from any set of parents or in a neolocal location, having equal relationships between spouses, marrying and having children

later, are identified as critical modern Western values. Lai and Thornton (2014) argue these spread from the West to other parts of the world to shape developments within and among families there, e.g., China (Lai and Thornton, 2015).

Love, especially a mother's love for her children, is deemed unconditional and crucial to happiness within the family. In Western societies, children are expected to form strong bonds of attachment with their mother to enjoy physical and mental well-being. Thus, whatever bad behaviour the child may display, the mother might condemn the action, but continue to love the child. In other countries extended family members may become objects of attachment. Parents are expected to act in the 'best interests of the child', do no harm, and be held accountable for what they do or do not do. Such values are seldom discussed in terms of taking care of the environment. Nonetheless, these values can be used to involve the family in climate action and make caring for planet Earth a family priority.

Family values are essential socialising tools employed to teach children about ethical behaviour and morality, i.e., to recognise the difference between right and wrong, treat others with respect and dignity, observe the rule of law, and become a good citizen. These values guide moral, ethical, and good behaviour within a family, community, and society. Being a good citizen is a role that can include responding to those in need with empathy and compassion. Enforcing behaviour that is consistent with the values espoused by a particular family depends on those having power within it being able to exercise authority. Mothers are charged with socialising and teaching their offspring their society's dominant values, norms, language, religion, and culture, usually until they go to school. There, teachers and peer groups can also influence children's values, norms, and behaviours.

Case Study One: Collective Family Norms Surpass Individual Ones

Family values may be traditional and passed down through many generations of families or they may be modern and fit within looser family structures that value individual over collective values and structures. This ensures that values have continuities as well as display discontinuities by changing. Family loyalty will often mean supporting its members unconditionally, especially if it is a family or its members in need. This can be illustrated by young, adolescent, unmarried Nepalese women agreeing to be trafficked following the Nepalese earthquakes of 2015 when families lost breadwinners and their source of livelihoods. Young women were willingly sold to traffickers to enable the family to survive in the absence of any income source or breadwinner (Nikku, 2018).

Family values can also be linked to achievement, and leadership. These can cause tensions between parents and their children if parents have opposing opinions about their meaning and significance. Some parents have a family code of conduct to ensure that familial values and norms are observed. These rarely cover reducing fossil fuel usage or looking after the environment. Indigenous family values are environmentally-centred or *environcentric* and contrast with consumerist Western values which prioritise consumption over protecting the environment that sustains life. Fortunately, there are challenges to environmentally detrimental consumerist values even within Western thought, e.g., Green Social Work (Dominelli, 2012), and Fridays for Futures (Thunberg, 2022). Social justice and its current association with environmental justice are considered integral to tackling the climate crisis. Values and ethics change over time, and now matters of peace are being reconfigured to reframe military responses to conflicts because discharging military ordinance literally costs the earth as the destruction of lives and built infrastructures in Syria, Ukraine, and Palestine are demonstrating.

Family values and norms are strong bonding mechanisms and passed on intergenerationally (Attias-Donfut, 2000). Families rely on guilt, shame, and embarrassment to enforce good behaviour among members. The values considered so far have been linked to the family's role in producing a law-abiding and responsible citizen. However, some families challenge the family's role in this regard, either deliberately or accidentally, by offering role models that portray dissolute behaviour, glorify hedonism, licentiousness, lying, looking after 'number one' (the self), criminality and violence. While these are not the subject of this publication, their existence cannot be denied. Also, the reader should not assume that dissent is not a prerogative for a good citizen. Resistance may be critical in challenging taken-for-granted behaviour within families. Young people in the Fridays for Futures Movement are resisting family and state indifference in tackling climate change. The Fridays for Future Movement exemplifies collective peer pressure superseding that of parental pressure.

Family Values and Unequal Family Power Relations

Family dynamics may follow hierarchical or egalitarian relations. Hierarchical relations usually allocate decision-making and resource distribution to one member. Structural inequalities are replicated in these redistributive patterns with women, children, members with disabilities and other marginalised groups within the family faring worst in not receiving an equitable share of resources (Cutillo, 2000). Patriarchal relations favouring men as decision-makers are found in most countries. Matriarchal or matrilocal relations favouring women occur in five. Those practising these are: Khasi Tribe in India; Mosuo in China; Minangkabau in Indonesia; Akan in Ghana; and Bribri in Costa Rica.

Authors like Thurow (1996) argue that hierarchical age-based disputes across generations are inevitable when the flow of resources is from younger to older age groups, a phenomenon he anticipated to increase among generations in future years. Thurow's (1996) static depiction of different generations ignores the agentic qualities integral to both groups, as Connon and Dominelli (2022), have argued for young people and Walker (2000) for older people. And, public policy can shift significantly intra-family relationships. Thurow's (1996) view ignores asymmetrical transfers of resources within the family (Foner, 2000), usually from older generations to younger ones.

In some countries intergenerational transfers are key to family survival. This is exemplified by Italy. Here, the pension income of an older member of a multi-generational household in poor areas of the country is redistributed to cover food, rent and other key expenditures that benefit the entire extended family. The pensioner is often a woman. Cutillo (2020) estimates that 7.4 million Italian households follow this practice. The trend is likely to be challenged as pensions decline as a proportion of earned pre-retirement income and become insufficient to maintain multigenerational families. In the Anglo-Saxon world, recent transfers are exemplified by the 'bank of Mum and Dad' providing the down payment on an offspring's house (Sweney, 2023). These intergenerational flows indicate how intergenerational solidarity within families assumes many different forms. Such redistribution is possible only in families with enough assets or wealth to facilitate such exchanges.

Discrimination on the basis of gender, ethnicity, disability and old age is illegal in many countries, including those in Western Europe like the UK, the Nordic countries, and Canada. In the US, gender discrimination is prohibited by federal law in activities concerning the federal government. Yet, across the West, age disparities occur at both ends of the age spectrum and young people are often granted greater decision-making powers as they age. One interesting exception to this pattern is Scotland, where young people aged 16 are entitled to vote in all elections and have done so since 2015. It was introduced in 2014 for the referendum on independence from England. The writings of Eichhorn and Hübner (2021) have shown that these young people's level of voting in subsequent elections was maintained at higher levels of participation than those who obtained the vote when older. Moreover, families' socio-economic status determined these young people's engagement in wider political activities, and this can disadvantage those from poorer areas.

Family values rooted in environmental concerns enable family members to consider how to transcend legal obligations linked solely to the environment. For example, if the nation-state does not prioritise proactive action curtailing individual and family use of fossil fuels, especially not driving individual cars for short journeys during daily transportation to school or work, or not lowering indoor heating by one degree to reduce energy consumption, individuals and families are free to make decisions about reducing their consumption of fossil fuels without state interference. Many of those who can afford to consume fossil fuels do (Oswald et al., 2023), while significant proportions of others do not. Yet, the impact is likely to impact those with fewest resources most. Family responses vary according to whether they have the resources to spend more of their finances on consuming fossil fuels and the values they hold about caring for their environment. Thus, a one size fits all approach to family policy is inoperable. Families with extensive resources will have to be encouraged to work on reducing their GHG emissions for the wider good. Higgins (2012) argues that *ecocide*, or destroying the environment should become a criminal offense, enforceable internationally. For him, this would involve creating an earth jurisprudence and defining ecocide a fifth crime against peace.

On a more positive vein, those owning family firms can incorporate values linked to reducing fossil fuel consumption in their business plans. If they do so, this can impact beneficially on the corporate sector and reduce GHGs that often cause ill health among a family's more vulnerable members, especially children (Zhang et al., 2023). Steffen et al. (2018), argue that countries that have high levels of family business ownership, e.g., Italy, are well-placed to integrate care of the environment into their corporate social responsibility strategies. These authors argue that family firms can embed a range of SDGs: 1, 2, 3, 4, 5, 12, 13 and 17 in such work.

The Impact of Climate-induced Disasters on Families

Climate change is a complex and cascading hazard that combines natural and (hu)man-made hazards with social vulnerabilities to produce disasters of varying severity and magnitude. Disasters linked to extreme weather events include floods, droughts, wildfires, hurricanes (typhoons), tornadoes, storm surges, soil erosion, and landslides. Each of these are costly in lives lost, environmental degradation, and socio-economic disruptions. Such outcomes increase pressure among some actors, especially those in the NGO and voluntary sector to lobby for action to mitigate the deleterious impact of climate disasters by reducing social vulnerabilities (Raju et al., 2022: 1) and using scientific technologies including satellites to identify these hazards before they become dangerous to respiratory health (Sofiev et al., 2009). Raju et al., (2022: 1) argue that, 'Vulnerability is…a product of social and political processes that include elements of power and (poor) governance…in ways that are often deliberate and anchored in social and political structures'. As these processes are socially constructed, they must be deconstructed and transformed to eliminate the suffering caused in family and individual lives. Examining vulnerability as a socially produced construct can assist the formation of strategies that reduce the impact of the factors contributing to it. This becomes particularly crucial with regards to socially defined attributes that are the sources of structural inequalities like gender, age, ethnicity, and disability. Families can support SDG12 and SDG13 actions to mitigate vulnerability.

The damage experienced by families caught up in disasters vary according to location, type, social status and positioning, cultural norms and values, and engagement in local and national governance structures. Sociologists have identified key family types without considering how climate change will impact these, nor what strategies are likely to be most effective in mitigating them. Indeed, it seems that whether the families caught up in disasters are nuclear, extended, lone (single) parent or childless families, they are left to draw upon their own strengths, resources, and social networks to survive and thrive. However, there are examples of where family members will support others within their kinship or extended family (including socially extended ones as in flat shares) and neighbours

during a disaster. They will share what little they have salvaged with others, e.g., food during a flood. Such avenues of support indicate that bonds, whether kin or socially created ones become invaluable to those in diverse family types and sub-divisions between them in disaster situations. Thus, neighbours who survive floods will help those in need without asking whether a family is a same sex family, a nuclear family of two parents and children, an adoptive or foster family, a vertical or horizontal extended family, a lone (single) parent family headed by a mother (matrifocal), or headed by a father (patrifocal), a reconstituted family, a serial monogamous family or a polygamous one. They are responded to simply as families in need, even though previous tensions may resurface once the emergency is over.

Each family type has its own specific experiences of disasters that are further affected by geographic location, disaster type, disaster response, family composition, size, resourcing, connectivities (social capital), governance structures, and other socio-economic and cultural factors. Specific research on each of these different factors affecting familial experiences in different types of disasters is lacking. There are a few articles that discuss gender and ethnicity in relation to Covid-19 which argue that gender, age, and ethnicity impacted badly on individuals (not families so much). Individuals in the categories of women, old age, and black and minority ethnic (BME) groups fared worse than similar categories in the majority groups. Also, intersectional studies, i.e., those that looked at all three attributes simultaneously are even more rare. These findings highlight critical research gaps that require specific investigation, not only in past disasters, but also in those that are yet to come. Particularly important in this regard is that of exploring the differentiated and intersectional experiences of extreme weather events and climate-induced disasters on women-headed families with children, families with disabled individuals in them (parents and children), and older people, especially women-headed families where women often live alone. Research in violence against women in bushfires exposed gender as critical in establishing vulnerability (Parkinson, 2017).

Intergenerational Relations within Families and their Impact on Climate Change Decisions

Relationships between parents and their children or grandparents and their grandchildren are deemed intergenerational because they cross generational divides. Important in these interactions are the power relations which determine the extent to which children and young people are consulted or engaged in decision-making and enabled to exercise their own agency as decision-makers in matters about resource distribution within the family and climate change concerning them (Connon and Dominelli, 2022). Such engagement can range from consultation (Arnstein, 1969) to independent decision-making (Jupp-Kina, 2010). Intergenerational relations can be hierarchical, i.e., those in which adults make decisions, as occurs in adultism, i.e., power relations wherein adults know best and hold agency and power over children and young people. Some young-person-centred activities may occur through consultation and engagement across the generations, while ultimate decision-making power remains in adult hands. Egalitarian ones in which family power is shared and decisions made jointly in discussions in which young people exercise agency; and those where young people make their own independent decisions as *protagonistas* are less common (Jupp-Kina, 2010).

Case Study Two: Young People as *Protagonistas* in the Fridays for Future Movement

In climate change discourses, young people have raised their concerns about adult inaction in protecting the environment and ending the use of fossil fuels. Under the example of Greta Thunberg, initially a 15-year-old schoolgirl who went on a school strike in 2018 to protest adult inaction on climate change, millions of schoolchildren followed suit globally. They went on to form a movement called Fridays for Futures, which is now estimated to have millions of young people

participating in it. The following figures are estimates because local organisers do not necessarily report these numbers. However, the first one in August 2018 is deemed to have attracted 27,000 young people from 150 countries. A year later, 3.8 million young people in 3,800 cities joined the strike which now continues every Friday. In 2020, 6 million schoolchildren in 150 countries were estimated to have joined the school strike. By 2023, it involved young people in 7,500 cities globally, demanding an end to fossil fuel usage.

Although it is difficult to estimate numbers, publicity for collective action by young people has fallen off recently. Many parents are concerned that climate activism is impacting negatively their children's education. The BBC deems Greta Thunberg to have lost 251 weeks of school since she started her public protests at age 15 in 2018. However, the youngest climate activist was 12-year-old Severn Cullis-Suzuki who travelled to the 1992 Environmental Conference in Rio de Janeiro. Severn was the daughter of well-known environmental scientist, David Suzuki from Vancouver, Canada.

In terms of their effect on intergenerational relations and policymakers, Greta Thunberg and the Fridays for Futures Movement in the UK have succeeded in getting the Scottish government in Holyrood to declare a climate emergency on 28 April 2019; Wales declared one in the Senedd on 29 April 2019, and the UK government in Westminster declared a non-binding one because it was not voted upon on 1 May 2019. The UK was the first country in the world to do so. By 2022, 39 countries had declared climate emergencies. Yet, in the UK in 2023, PM Rishi Sunak's government declared a moratorium on achieving the 1.5℃ target temperature rise by 2030, following the increase in fuel prices attributed to the Russian-Ukrainian War. The UK took this action alongside other European countries aiming to mitigate their dependency on Russian oil. Since then, the Scottish gas and oil field, Rosebank, which was not to have been developed was sold to a private company, Equinor and Ithaca Energy, with a license to drill and make profits from fossil fuel extraction. This is a powerful example of where the protests of young people who largely support leaving 'Scottish oil in the soil' have been disregarded by adult policymakers pursuing their own agenda of guaranteeing fuel security. This argument that has granted licenses to exploit previously untouched oil fields. But neither supporters nor opponents are convinced that sending this fossil fuel to Europe to be refined and then sold on the open market will achieve the objective of providing cheap fuel that does not cost the earth to financially hard-pressed families barely surviving a cost-of-living crisis in the UK (Stop Cambo, 2023). Such responses indicate that adults' responses to the agendas set by young people are transient and of uncertain duration. This is not what those supporting the Fridays for Futures Movement want. Nor is it what the planet requires (Osaka, 2023). Any transition to net zero must take account of all the energy needs of specific communities and demonstrate how families with limited incomes will have their fuel needs met, and how families with extensive resources can refrain from using them. Collective action in devising community based and owned solutions to the climate crisis can be exemplary and trend-setting, as illustrated by the Isle of Eigg in Scotland (Olivieri, 2020) which is depicted in Case Study Three below.

Case Study Three: The Isle of Eigg: A Self-Sufficient Renewable Energy Community

Eigg is a small remote Scottish island with a population of about 100. It is self-sufficient in energy production and consumption which is owned, run, and managed by residents. They have achieved this status by accessing European Union and other funds to supplement their own and buy out the island's previous energy suppliers. They then devised the legislation and rules to ensure that energy was supplied, used, and paid for on an equitable basis. Collective ownership and decision-

making also ensured that residents were involved in making the decisions that would impact them. Consequently, these residents consume the lowest priced renewable energy in the UK.

Climate Change Education: Engaging in Intergenerational Dialogues

Climate change education has not been adopted as a key curriculum topic in many schools across the world. However, there are some that have set examples of good practice. Schools in countries like Bangladesh have encouraged schoolchildren who are taught about cyclones, storm surges and ensuing floods to discuss what they have learnt about such events with their parents and to help them draft safety plans prior to a flood and help them reach safety in evacuation centres when a flood disaster is imminent (Wadud, 2016). Young teenagers at the Alva Academy in Scotland have used their learning in Geography classes to understand a range of disasters and prepare strategies for recycling, reusing clothes, avoiding single use plastics, reducing food waste, cutting down on meat eating, and promoting walking and cycling. A small group of them attended activities in the Green Zone in Glasgow where they engaged in university-based activities such as building terrariums and commenting upon various exhibitions and taking lessons back with them to school.

Case Study Four: Intergenerational Dialogues Involving Schools and Researchers in County Durham

In Durham, England, university academics linked up with a number of schools. Again, these were mainly associated with Geography to teach children about climate change and engage with them in producing publicity materials including videos. In COP27, under the auspices of Durham County Council, this group went on to partner with other organisations such as the North East Environment Network (NEEN) which reconstituted itself as Outdoor and Sustainability Education Specialists (OASES) to support the ECO_2 Smart Schools grouping to endorse eco-friendly schools and reduce expenditures on fossil fuel usage. They also have a community eco-friendly function of educating their communities to protect the environment and plants and animals living within them. During COP27, ECO_2 Smart Schools organised a conference of schoolchildren on International Youth Day which enabled them to join 3000 young people in 100 schools in 8 countries to share experiences, aspirations and hopes for tackling climate change and having a more secure future. They also produced a leaflet on their activities there. In 2023, they hosted a conference at COP28 with the overall theme of Energy, the focus of this COP. They also split the conference into two groups – those under 11-years old and those older than 11 to encourage dialogues to occur within each age grouping. These initiatives exemplify intergenerational interactions in which adults, including academics, have facilitated (not controlled) such activities and enabled young people to achieve much more than they could have done on their own. This has also included university scientists sharing climate change information with young people to underpin their endeavours with robust evidence for their claims. The young people were empowered to show leadership and act in support of tackling climate change. They also took innovative actions locally, nationally and internationally.

Rousell and Cutter-Mackenzie-Knowles (2020) have argued for a more strategic orientation to climate change teaching to hear the voices of young people and their suggestions for action. The discipline wherein such lessons might be based will vary with each school, but geography classes seem to be popular. Ensconced within an interdisciplinary, participatory, and creative approach, this disciplinary

foundation is anticipated to give young people the space to create their own agendas and reshape adult priorities about their curriculum on climate change, what it contains and how it is taught. Moreover, such dialogues will enable young people to address the complexities, uncertainties, and precarities of the social and physical environments that they cover when they are taught about climate change. Such dialogues will also enable young people to explore the views of climate change deniers who amplify their negative messages on social media, while climate scientists warn them about developing sustainable patterns of human consumption, reducing waste, recycling materials, avoiding contributing to environmental degradation, and ensuring that the amount of detritus discharged into the earth's soils, air and waters remain within the earth's capacity to cope (McNeill & Engelke, 2016). Exposure to binary explanations and discussions about their realities have not empowered young people who have demonstrated that they are capable of taking decisions on how to protect their futures, they have empowered themselves. Rousell and Cutter-Mackenzie-Knowles (2020: 203) stated:

> 'Affective connections can then be made between diverse experiences and information about climate change, including place-based encounters with social and ecological systems, scientific data, time-lapse photography, digital simulations, maps, fictional narratives, and other forms of affect-driven educational interactions'.

Family-based Contributions to the Sustainable Development Goals (SDGs): SDG12 and SDG13

The Sustainable Development Goals (SDGs) have followed the Millennium Development Goals (MDGs) and will run from 2015 to 2030. The MDGs had 8 major goals, and some progress was made in relieving poverty and increasing education among school-aged girls. There are 17 goals in the SDGs and 163 targets within them. The SDGs have goals embedded in the three pillars of sustainable development. These are: economic growth, social inclusion, and environmental protection. The SDGs are crucial to creating a world that enjoys the absence of poverty, eliminates diverse inequalities, cares for the planet, safeguards people's health, and enables people to live in peace, justice, and prosperity in a sustainable planet in which 'no one is left behind' as envisaged by the 2030 Agenda. Social and environmental justice, therefore, can be supported by actions undertaken through the SDGs. However, progress thus far has been disappointing (Menton et al., 2019).

The SDGs aim to build upon and consolidate MDG initiatives which ran from 2000-2015. Like the MDGs before them, the SDGs continue with concerns such as poverty (SDG1), hunger (SDG2), health (SDG3), education (SDG4) and gender equality (SDG5). To these, the SDGs have added several specific aspects focussing upon the environment. The SDGs are also embedded with a framework of social justice that is associated with environmental justice and human rights (Glasser, 2018). These provide the social and cultural norms, and values that promote resilience and sustainability. This view is challenged by Menton et al. (2019) who argue that as described, the SDGs cannot achieve their goals because realising the necessary transformative changes requires action to focus on sustainable degrowth and intersectional decolonial environmental justice.

The value orientation of the SDGs provides an opportunity to address power asymmetries within the family and facilitate the realisation of women's equality in some areas of their lives. Women can contribute substantially to the realisation of the SDGs because they are more aware of ecogrief (solastalgia) including among their children and concentrate on providing safe and healthy food and physical environments in which children can grow up. Responding to the challenges set by the SDGs is crucial to family well-being and a key responsibility of women who care for all family members regardless of its composition (UNWomen, 2023). Yet, women themselves are doing badly in securing gender equality in any aspect of the SDGs. The UNWomen (2023) Report reveals that by 2030, extreme poverty will be endured by 340 million women and girls, and around 25% of the world's

women will face moderate or severe food insecurity. This reality is unlikely to shift in favour of women's equality by 2050 without policies and practices that compel action to be taken to advance gender equality. The likelihood of this happening is negligible as even the targets advocated and endorsed under the Beijing Platform for Action 1995, have yet to materialise in any substantive way. Even UNWomen's (2023) latest report suggests that it will take 286 more years to achieve equality. Such inequality has a major deterrent effect on empowering women in their familial roles, including their capacity to take autonomous action on the SDGs.

Crucial to complying with the objectives of the SDGs, especially in achieving sustainability, is understanding, and managing risks; and aligning strategic actions with global challenges for peace (SDG16). Moreover, SDGs are considered as endorsing business opportunities to provide for socio-economic growth and development (Van der Waal and Thijssens, 2020), necessary to provide families with the goods and services required to maintain daily life. However, this growth must not be achieved at the expense of the environment (Dominelli, 2012; Menton et al., 2020). Action under the SDGs could enable families to make robust contributions favouring innovative and sustainable initiatives that promote sustainable production and consumption (SDG12) and are compatible with environmental justice at local, national, international levels (UN, 2023). Working within families facilitates learning about teamwork, developing trust across different generations, providing a foundation for understanding others, working in partnership with them (SDG16) and committing to the health and well-being (SDG3) of the wider community. A significant addition to this mix is that of encouraging activities favouring the realisation of SDG goals among businesses (SDG8). SDG8 targets economic growth and well-paid employment opportunities for those supporting families. SDG12 and SDG13 (discussed at length below) are also relevant to companies, particularly large multinational ones because SDG12 addresses issues of consumption and production which are critical to any business plan that wants to respond sensitively to and avoid environmental disasters; and SDG13 which is about climate change itself. Also relevant for businesses whether in industry, innovation or infrastructures are SDG9 (industry, innovation, and infrastructures), SDG11 (sustainable cities and communities), agriculture (SDG2 under food production to end hunger) or the retail sector which has responsibilities under SDG12 to reduce GHG emissions not only through manufacturing products or growing food, but also through leisure activities and building housing and other built infrastructures.

During the Covid 19 pandemic, black and minority ethnic (BME) families and immigrant families experienced disproportionate deaths and suffering. This differed from the experiences of majority families in the West, often because BME family members had to go out to work in essential services to earn a livelihood and thereby support their families (Cross and Benson, 2020). This reality exposed them to higher levels of coronaviruses and other immune suppressing viruses which endangered their health. Even in furloughed Britain, black and minority ethnic groups faced higher rates of deaths and disease, because they worked in coronavirus spreading settings, e.g., transportation, portering, and cleaning which were deemed essential services and wherein workers were required to continue working, when others were paid for remaining at home (ONS, 2020). Being in poor health may pre-empt taking robust climate action in all families, and compounded if already ill.

Green Social Work Perspectives in Promoting Family Welfare and Well-being Before, During and After Disasters Like Climate Change

Green social work provides a new paradigm for disaster interventions and humanitarian aid. Based in social work practice which has engaged in disaster responses for decades, initially dealing with the impact of one of the largest (hu)man-made disasters – poverty (SDG1) when 'Lady Bountiful' tried to inculcate middle class approaches to life among working-class people and immigrant families in Victorian Britain (Smith, 2001). It has now begun to engage with another (hu)man-induced disaster:

climate change. Green social work was defined by its founder, Dominelli (2012: 8) as a part of social work practice that:

> 'intervenes to protect the environment and enhance people's wellbeing by integrating the interdependencies between people and their sociocultural, economic, and physical environments, and among peoples within an egalitarian framework that addresses prevailing structural inequalities and unequal distribution of power and resources'.

Green social work differs from ecological (McKinnon and Alston, 2016) or environmental social work (Besthorn, 2002) in four key respects (relevant SDG in brackets):

1. Placing the spotlight on fossil fuel based socio-economic patterns of production and consumption and arguing that firms end these environmentally harmful practices in favour of alternatives based on renewable energy sources (SDG12).
2. Arguing that the earth and all it contains has rights and that humanity has a duty to care for the planet and all it contains (people, animals, and plants) so that it can take care of all living things and itself. This reciprocal relationship between people and the planet creates the basis of sustainability expressed as the preservation of the planet and its resources into perpetuity (Dominelli, 2012) (SDG16).
3. Arguing that resources and technologies ought to be shared equitably, and that companies can make profits through the sale of individual items made from these. This idea underpins green social work's notions of transdisciplinarity, solidarity and interdependence across diverse families, societies, and their experiences (SDG16).
4. Engaging with individuals, families, and communities in identifying and solving specific problems through co-engagement and coproduction (SDG17).

Green social workers, drawing on their green perspectives can utilise all 17 SDGs in their attempts to provide real-life coproduced solutions to community-specified problems (Glasser, 2018), although they may focus on certain ones for specific purposes (Dominelli, 2018). Green social workers involve individuals, families, and communities from the word go. They focus on facilitating problem identification through two-way dialogues wherein individuals discuss their controversies and seek consensual solutions to the problems they identify. This may be time-consuming but produces better results in the long-run because those who are engaged will feel they 'own' the proposed solutions and feel a greater commitment to adhering to them. Additionally, green social workers are skilled at helping communities develop consciousness-raising exercises and training to alert residents of the hazards and risks facing them and to co-develop guidelines that advise them on actions that can mitigate the risks occurring throughout the disaster cycle (pre-, during and post- disaster) and how they can prepare themselves effectively to act once a disaster occurs (Dominelli, 2018b).

Green social work perspectives have spread to social work and disaster interventions across all regions of the world, and influenced earlier approaches to environmental issues, so that by 2019, Alston et al (2019), for example, started including insights from green social work in their writings. Others have indicated what a massive impact green social work has made in specific areas where practitioners have championed it, while others lament the failure of traditional social work academics to include it in their curricula. While these insights are in the literature, there is a lack of knowledge of the existence of the handful of curricula that cover the tenets of green social work (Papadimitriou, 2020). Moreover, most of these authors seem unaware of the 12-month MSc Programme on Disaster Interventions and Humanitarian Aid which has been run at the University of Stirling in Scotland since 2021. This Programme has several exit points: a postgraduate (PG) Certificate with 80 credits; a PG Diploma with 120 credits, and the MSc with 180 credits. Also, this Programme offers two modules of Continuing Professional Development (CDP) which are run as two

times five-day workshops in early June, but which are also available through bespoke arrangements for practitioner groups that would like these offered at other times. CDP modules attendees can receive an attendance certificate only, or they may choose to complete the assessed assignment for each module (20 credits each) and obtain credits which for use towards the MSc Programme. This Programme was coproduced with practitioners and students and covers the SDGs and Agenda 2030.

Findings and Discussion

Sustainable Development Goal (SDG) 12

Nation-states each have a duty to prevent, reduce and control environmental harm alongside a duty to mitigate transboundary environmental risk. These may involve reaching out to notifying others, consulting with them, and conducting environmental impact assessments where needed (Birnie et al., 2009: 137). Sustainable Development Goal (SDG) 12 has the overall target of ensuring sustainable consumption and production arrangements, and thus has considerable transformative potential in altering how families think about meeting their basic daily needs (Dominelli, 2012) and moving away from fossil fuel-based production and consumption arrangements. However, SDG12 has no gender specific indicators to monitor the reduction of gender inequalities in production and consumption patterns within family structures, so women are not considered as specific beneficiaries of policies that focus on sectorial production and consumption patterns, whether the energy consumed comes from fossil fuel or renewable energy sources. Yet, SDG12 aims to uphold the three pillars of sustainability defined in the Brundtland Report (1986) as the economic, social, and environmental pillars that facilitate development to eliminate poverty, realise gender equality, and redistribute wealth. Achieving such transformation necessitates collaboration between producers and consumers to ensure that the environment is not jeopardized in producing the goods and services needed to reach sustainability. Such collaboration is essential given that globalisation has ensured trans-border trade through complex, interdependent supply chains. These supply chains can cause considerable environmental harm (Amos and Lydgate, 2019) if producers do not understand the issues consumers face and vice-versa. Additionally, they must centre care for the environment instead of deeming it a side issue. The indicators of SDG12 are: 12.1.a which seeks to endorse sustainable production and ensure that consumption is environmentally and socially sound. Researchers have suggested that verifying goods through independent eco-friendly certified labelling schemes could be a way of making marketed goods and services feel more trustworthy. Indicator 12.1.b aims to reduce energy consumption and CO_2 emissions through that pathway. Indicator 12.2 tries to achieve higher levels of sustainable production. Moreover, improvements to the environment carry significant implications for physical and mental health (Romanello et al., 2023). However, these authors' comprehensive report, *Countdown*, ignores the family by focusing on individuals, and occasionally households and communities. It would be helpful if the 2024 iteration of this report could encompass family activities that go beyond women caring for sick people or administering medical regimes in the home.

Overall, SDG12 seeks to enable governments to describe and account for the transboundary impacts of domestic production and consumption. This approach is known as a global target, national action (GTNA). By holding governments accountable through reportage, SDG12 tries to prevent individual countries from avoiding their responsibility to reduce GHGs by outsourcing their production of goods and services overseas. This could allow the external firm to carry the consequences of the GHGs emitted while producing for others (Amos and Lydgate, 2020). SDG12 argues for sustainable forms of production and consumption that do not leave environmental degradation in their wake to protect people and the planet from the ravages of burning fossil fuel when creating the goods that families require to lead normal, everyday lives. Outsourcing production, a habit popularised by wealthy countries to transfer GHGs offshore, thereby imposing the consequences of air, water, and soil pollution to local communities in the low-income country that accepted the contract to produce

goods for wealthier countries. Such practices can also pre-empt the holding of Westerners accountable for their consumerist lifestyles and indifference to the link between fossil fuel-based production, consumption, and environmental degradation. Understanding these links and eliminating profligate consumption (consumption for its own sake) is key to ensuring that family members and nations will adopt steps to care for their environments and ecosystems and extend their understanding to granting the environment the right to exist for, in and of, itself. This approach to consumption is advocated by green social work which has highlighted that the tenets of modernity and industrial production are conceptually wedded to the idea that nature is to be exploited to meet (hu)man needs and assumptions of 'man' controlling nature (Dominelli, 2012). The flaws in this argument, increasingly evidenced by extreme weather events, reveal that nature sets its own rather different agendas, and that indigenous approaches to living in harmony with nature provide wise ones to follow (UNEP, 2017). Indigenous families hold nature in deep respect, and associate nature with their powerful identification with specific locations that underpin their sense of belonging.

Nature's extensive power demonstrated through natural hazards that wreak havoc with built infrastructures created by humanity suggest that simply managing the environment through disaster risk reduction and risk management strategies are insufficient to mitigate the risks posed by natural hazards. (Hu)Man-centric adaptation strategies are likely to be found wanting. The Anthropocentric approach to nature and its bounty must change to ensure that families survive now and thrive into the future as regardless of the origins of GHGs, they burden Earth as a whole.

The earth has limited capacity to absorb more tons of CO_2. Although the amount is contested, the IPCC estimates it as 500 billion tons (Pearce, 2014). Where they arise from is immaterial. But SDG12, like the others, has no sanctions to impose on those violating its tenets. Another of its weaknesses is that there is no common definition of sustainability or sustainable development. Despite not being mentioned by Amos and Lydgate (2020), families are keen to learn about the implications of outsourcing for: 1) their livelihoods; 2) reducing additions to GHGs; and 3) ensuring a steady supply of goods and services essential to daily life. Sustainability Impact Assessments are one way of assessing the environmental effect of producing and consuming goods and services. Such assessments could integrate insights across SDGs, these currently remain limited (Farber, 2009; Menton et al., 2020). While Shahbaz et al. (2022) do not refer specifically to SDGs, their message regarding the implementation of sustainable household consumption patterns is relevant to SDG12. They consider energy, food, and water usage and link it to waste production to highlight the centrality of linking sectorial approaches with household ones. This can be extended to engage households as specific families and their members. Families have critical roles to play in reducing and eliminating waste. Policymakers and practitioners can harness their energies to this purpose.

Some countries use a transformative approach to realising SDGs, and others simply tick boxes. Amos and Lydgate (2020) argue that Germany is an example of the former and the UK of the latter. The European Union (EU) utilises other mechanisms to uphold boundary requirements. These include: trade restrictions on environmental degradation through the imposition of EU environmental regulatory requirements on imported products; consultations to avoid harm occurring through projects having environmental impacts beyond national borders; sustainable development clauses in EU trade agreements, and Sustainability Impact Assessments in Free Trade Agreements (Amos and Lydgate, 2020). These authors also claim that Italy cloaks SDG12 in a domestic light. Its SDG12 policies focus on biodiversity, managing natural resources sustainably, protecting its cultural heritage, reducing pollution, promoting domestic industrial production, upholding corporate social and environmental responsibility, endorsing sustainable tourism, reducing waste, ensuring sustainable food production and supply chains, becoming more energy efficient, and utilising renewable energy. One issue remains: how to enforce the achievement of these laudable aims. Canada has linked achieving SDG12 goals to its Clean Growth Strategy, public procurement processes, demanding that

forestry and mining follow sustainable procedures, enforcing chemical and hazardous waste management policies, achieving zero waste, and promoting circular economic strategies, and strategic planning for cities (Amos and Lydgate, 2020).

Moreover, SDG12 can supplement the plans proposed through the nationally determined contributions (NDCs) which aim to reduce GHGs under the mechanisms in Article 4 of the 2015 Paris Agreement. Despite these initiatives, biodiversity loss and environmental degradation have proceeded apace (Habibullah et al., 2020). This more flexible approach contrasts with the Kyoto Protocol which also failed to achieve its objectives. It seems that the glue required to hold together the activities of all UN member states in reducing the climate crisis remains elusive.

Families get trapped in the production and consumption terminology that is conducted in financial terms according to ledgers and balancing books rather than discussing how daily needs can be met without costing the earth. Budgetary approaches to social problems discourage engagement in public debates around SDG12 and how the goods and services that families use daily are produced and consumed, and what happens to the GHGs emitted through their production and consumption.

The UN has an extensive history of initiatives aiming to define, identify, and realise sustainability, especially with regards to development and caring for the environment in the context of humans consuming the earth's resources (Jackson, 2007). An early one of these occurred in 1972, when the Club of Rome considered a simulation of limited natural resource availability on a planet. This exercise, which investigated what would happen in the context of economic and population growth, using a scenario of a sudden, irrevocable decline impacting upon population and industrial production in 2072. The report, *The Limits to Growth* (*LTG*) (Meadows et al, 1972), highlighted how uncontrolled population growth and the rapacious exploitation of the earth's resources would spell calamity for humanity and the planet. On the positive side, sustainable development was sought to avoid such a catastrophe from becoming real. More discussions and agreement on sustainability occurred during the 1992 Conference on Environment and Development (Earth Summit).

Participants called for the reduction and elimination of 'unsustainable production and consumption patterns' and articulated these in The Rio Declaration on the Environment and Development. A 10-year programme of action was introduced during the 2002 World Summit on Sustainable Development held in Johannesburg, South Africa. These activities were developed further during the 2012 UN Conference in Rio de Janeiro. Here, they spoke of the 'protection of the natural resources and respecting sustainable consumption and production' as critical to the achievement of global sustainable development (Gasper et al. 2019). This idea is central to SDG12's goal of responsible production and consumption. However, family inputs remain ignored in the abstract economic statistics discussed. Achieving SDG12 requires every individual, family and community in the world to care about the planet and maintain its ecosystems, biodiversity and natural resources in perpetuity (Dominelli, 2012). Without this, the existence of humanity and even earth itself may be jeopardised. Khaw-ngern et al. (2021), declare that water management, waste management, sustainable services and products, sustainable supply chains and synergies with circular-based renewable energy systems must be embedded in a sustainable future for the use made of the earth's resources. To meet daily needs among families, natural environments must not be degraded by governments, multinational firms, families, or others. Toxic materials must not be dumped in the environment anywhere (UN, 2022). Khaw-ngern et al. (2021), ask people to follow the nine 'Rs'. These are: rethinking, reducing, redesigning, reusing, repairing, refurbishing, remanufacturing, recycling, repurposing recreating a sustainable relationship between humanity and the earth's resources. Responsible production and consumption are necessary to transform a linear, exploitative economy into a circular one that can provide sustainability and continuity across generations (Johnson et al., 2022). Caring for nature will also ensure its availability for recreational and therapeutic purposes.

Sustainable Development 13 (SDG13)

Extreme weather events including droughts have reduced snow cover in various mountain ranges across diverse continents. Meanwhile, floods, landslides, wildfires, soil erosions and storm surges have devasted countries in different parts of the world. In Europe during 2021, even Germany experienced severe flooding which carried heavy economic costs. Other European countries were similarly devastated, and these floods killed 220 people (Fountain, 2021). Meanwhile, wildfires consumed large swathes of Canada, Mediterranean Europe, and Siberia. De Welt (2021) argues that humanity is poorly placed to deal with disasters of such magnitudes. Also, peatlands in Scotland, northern England, Russia, and other countries are drying out, adding further to environmental degradation that can also disrupt water supplies for drinking. This has enormous consequences for human, animal, fish, birds, insects, and plant life.

Sustainable Development Goal 13 (SDG13) focuses on climate action and the production of low carbon plans. A key objective is to adapt to climate change through mitigation endeavours that reduce its worst effects, maintain rises in temperatures to below 1.5°C by the end of this century, and engage in preparations to devise low-carbon development plans. SDG13 aims to take urgent action to combat climate change and its impacts on society and the planet. Included in this SDG is 13.3, which targets improving education, raising awareness of climate change in communities, enhancing human and institutional capacity on climate change mitigation, adaptation, reducing GHGs, and supporting early warning systems (EWS) including the use of phone-based applications that alert people to impending floods, heatwaves and other climatic eventualities that threaten their health and well-being. The targets encompassed by SDG13 seek to facilitate adaptation to extreme weather events, an issue that has been discussed for some time (Chambers, 2020). The discussion covered in SDG12 applies to meeting the goals set by SDG13.

The following targets are encompassed by SDG13. It does mention women and has one indicator for them, 13.3.1 which examines progress achieved in (i) teaching global citizenship (ii) mainstreaming sustainable development in education in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment. SDG13 also attempts to:

- Engage women, young people and those living in marginalised communities in activities to grow capacity to plan and effectively manage climate change, especially in LDCs (Least Developed Countries) and (SIDS) Small Island Developing States which are impacted most by climate change.
- Strengthen adaptive capacities to grow resilience regarding climate-based hazards and natural disasters across the world.
- Integrate into a whole, strategically planned climate change measures and national policies.
- Improve climate change education, raising awareness about climate change and growing institutional capacity to mitigate and adapt to the impact of climate change, and devise early warning systems (EWSs).
- Mobilise developed countries to provide USD $100 billion annually by 2020 as agreed under the United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP) to address the needs of developing countries regarding in mitigation and ensure transparency in fully implementing and operationalizing the Green Climate Fund through its immediate capitalization.

These aims can provide important points for conceptualising macro-level initiatives and involving an extensive range of stakeholders in their implementation. However, none of the five bullet points

above are aimed specifically at families, although families could potentially become involved in the realisation of each one of them.

Engaging Families in Climate Action

Families can become involved in climate change activities spontaneously under their own steam, as members of communities directly impacted by the climate crisis, or through national policies targeting family members as climate change champions. The actions they could engage in might overlap if there is no one coordinating initiatives between them. Lack of coordination could waste scarce resources, so it is important to avoid duplication of efforts.

Coproduction in community projects provides one avenue for enabling families to achieve carbon-reduction objectives and participate in climate action to repair existing climate damage and eliminate further environmental degradation. Policies for reducing climate change must lower GHG emissions, mitigate, adapt to and/or prevent its adverse impacts, develop, produce and promote the production of goods and services using renewable energy, and encourage the consumption of renewable energy-based goods and services. Policymakers face a formidable challenge given that GHGs have augmented by 50% since 1990. Action is essential to ensure that the challenges of the current adverse effects of the current global climate crisis are addressed and that the impacts of this crisis do not become irreversible (Solomon et al., 2009). However, the political will to achieve much has not been forthcoming, and COP28 is another in a long line of disappointing commitments to reduce fossil fuel usage as a matter of urgency. Historically, there have been climate 'deniers' who have asserted that climate change does not exist and the 'greens' who want transformative action to be taken immediately (Giddens, 2009). Now, the deniers take to social media to declare anthropomorphic-induced climate change as 'fake news'. Yet, climate change is having devastating effects upon the economy causing not only loss of incomes and livelihoods globally, but also food loss and agricultural failures leading to starvation, poor health outcomes, and death (Vicedo-Cabrera et al., 2021). Moreover, climate-induced starvation is also facing terrestrial plants and animals, and marine species (Creswell et al., 2009). To stem such impacts, SDG13 aims to reduce CO_2 emissions by 45% compared to 2010 levels by 2030. Additionally, it targets reaching 'net-zero' by 2050. 'Net zero' refers to eliminating GHGs or reducing them as close to zero as possible. Estimates of costs vary substantially, ranging from USD $100 billion to $500 billion. Consequently, the Global Commission on Adaptation stated in 2019, that the best form of adaptation was 'reducing emissions'. Again, these discourses say nothing about the role of families in achieving these ambitious targets, although it is difficult to conceive their being reached without the support of every family regardless of size, composition, geographical location in the world or cultural traditions. However, some families would have to confront and reduce substantially their excessively high carbon footprints. For example, individuals in the richest one percent of wealthy households consume more than double the fossil fuel used by the poorest half of humanity (Oxfam, 2020). According to this Report:

> 'Over the past 20-30 years, the climate crisis has been fuelled and our limited global carbon budget squandered in the service of increasing the consumption of the already affluent, rather than lifting people out of poverty. The two groups that suffer most from this injustice are those least responsible for the climate crisis: poorer and marginalized people already struggling with climate impacts today, and future generations who will inherit a depleted carbon budget and a world accelerating towards climate breakdown' (Oxfam, 2020: 2).

By 2030, the UN intends to reduce significantly the deaths, injuries, internal displacements and homelessness caused by disasters. This includes climate-induced mental ill health among young people (Cunsolo et al., 2021; Vergunst and Berry, 2022). This will require nation-states to implement new policies around decarbonisation and greenhouse gas emissions and may require academics and

researchers to conduct additional research to provide the data necessary for making such decisions. Coproduction of these policies with families will be essential in developing locality-specific, culturally relevant policies. These new plans should be included in each country's nationally determined contributions (NDCs) under the Paris Agreement. However, some NDCs are inadequate and will not contribute substantially to altering the climate crisis. Furthermore, some SDGs may contradict others. For instance, banning the use of pesticides may reduce crop yield and increase hunger, especially in low-income families. But it might protect soils and water in a particular area. In such situations, knowing when a tipping point is about to be reached might ensure that such an eventuality is avoided, and a disaster averted. For example, knowing the point at which a dam might be breached by flood waters will put a strong emphasis in obtaining a sufficiently large pump or enough of them to prevent that point from being reached. Such risk reduction measures will protect families from some predictable flood dangers (Zachariah et al., 2022).

Adaptation strategies require appropriate funding, and this is not possible for many countries. As each nation-state becomes aware of the hard choices it faces in reducing the adverse impacts of climate change, more funding must become available (UN, 2022). It is also cheaper in the long-term (Stern, 2006). Adaptation measures require active management to address the constantly changing nature of the climate crisis, risks that individuals, families, and communities can tolerate and where a tipping point lies (Wise et al. 2014). A key concern of policymakers is to minimise social vulnerabilities to contemporary and future climate-induced disasters. Vulnerabilities can occur in agricultural production that fails to retain agricultural productivity and becomes unsustainable due to poor environmental responses, and the failure of ecosystems to adapt naturally because what humans throw at them supersedes their capacity to cope (UNFCCC 2021).

Within the European Union (EU), one adaptation strategy has been to replace high emission fossil fuels like oil and coal with low-emission ones including natural gas, hydrogen, and nuclear power. Each of these sources of energy have a role in using low-emission energy sources. However, some families are worried that some of these alternatives contain other risks of concern, including unreliability of supply (NREL, 2011), and difficulty in safely disposing of radioactive waste. Renewable energy sources can form a high proportion of the energy supply in a in diversified energy economy. These sources are also expected to reach high-energy efficiency for end-users. Utilising carbon capture systems can reduce the release of GHG emissions into the atmosphere (European Commission 2012). Moreover, not tackling climate change now will allow the earth's temperature to continue rising and many urban dwellers living in low-lying cities such as Manhattan, New York; London, Dacca, and others may become liable to flooding if additional adaptation measures are not implemented in good time (Chan et al. 2022). Moreover, lack of foresight in reusing materials often add to global waste and landfill sites (Mohee and Simelane, 2015).

Businesses are responsible for a significant proportion of GHG emissions, and along with nation states, individuals, families, and communities, they must also take responsibility for reducing their use of fossil fuels. By not doing so, they add to the heating up of the earth's temperature. Many are concerned that transitioning to new energy sources will cause job losses. However, this is disputed. Mont et al. (2018) argue that climate action measures will produce 4.9 million new jobs in China, a further one million in the USA and 1.3 million in India. Continuing to pursue a fossil fuel-based economy means that new industries remain undeveloped. Nation-states based on fossil fuel economies like those in the Middle East may experience significant job losses if they do not prepare for the transition to renewable energy sources (Montt et al. 2018). Such scenarios are contested, e.g., the IPCC (Intergovernmental Panel on Climate Change) is less inclined to see growth (Onencan et al. 2016) than the OECD (Organization for Economic Cooperation and Development) (2017).

Ascertaining the future economic costs and benefits of adaptation measures are difficult as these depend on the level of GHG emissions in future, response of the climate system to these endeavours, their effectiveness, and the geographic locations in which these occur.

Women and children are more likely to experience the adverse impact of climate change. UNWomen has calculated that they are 14 times more likely to die than men in any disaster. Additionally, women are particularly active in agriculture where approximately 25% of all economically active women work. Being engaged in agricultural workplaces women on the front line facing the consequences of climate change including heatwaves and disastrous crop failures. It also exposes them to greater risks of heat exhaustion during droughts and drowning during floods. Traditional cultural practices often limit their access to resources such as capital financing, irrigation equipment and other farm technologies which increasingly cover computers, drones, and artificial intelligence robots (Akkem et al., 2023). A problem regarding the use of such technologies is that poor farmers and those with smallholdings, are unable to access such technologies and this can exacerbate existing structural inequalities including the exclusion of women who are disadvantaged in accessing capital markets (Osgood and Peters, 2017). These constraints have deleterious effects on women's resilience or ability to cope with climate change.

Some predictions of climate change impact highlight steep drops in wheat production, for example, a 49 per cent drop in South Asia and a 36 per cent in sub-Saharan Africa by 2050 (Nelson et al., 2009; Nuico, 2016). Limited crop outputs will reduce incomes and the availability of food and affect women and children severely. When food is scarce, women and girls are likely to eat less than men and boys who often eat first. Moreover, women and girls are responsible for fetching water and fuel, often over great distances and these add to the burdens they carry on behalf of the family. On the positive side, as carers of the natural environment and the resources it provides, women have become adept at managing scarce resources and mitigating climate risks, often doing so with more success than men (Osman-Alasha, 2009). While women have a right to obtain all the resources and materials required to adapt to climate change, they may find themselves excluded from participating in local decision-making structures which will deprive communities of their insights developed from extensive experiences of looking after their families during a climate crisis (Osman-Alasha, 2009; Medina and Bruno, 2016). Such exclusions highlight the importance of conceptualising women as agents of change who have much to contribute to the common cause of tackling climate adversities. Women have resilience and extensive strengths including within their local social networks that they draw upon to manage risk and adapt to climate change. This enables women who invest much of their energies on family survival to ensure that its members adapt as much as possible.

Conclusions

Families have incredibly significant roles to play as implementers of the SDGs, especially those linked to the goals and targets of SDG12 and SDG13. This is because families are critical in the lives of most of the world's population, given their functions in supporting SDG implementation by:

1. Providing psychological support to deal with emotions and the traumas climate change can generate, and social support through social capital and social networks to access further resources to mitigate impact whether kin-based or external to the family.
2. Socialising the next generation through intergenerational relationships, consciousness-raising about climate change, and education – both formal and informal.
3. Providing family members with food, other resources including financial, housing, health care and other non-governmental services that transcend generational divides to ensure that family members receive material provisions within its capacity to fight climate change.
4. Acting as environmental lobbyists and protectors. This will be a new role for families.

5. Demanding public policies that endorse and support renewable energy usage and sustainable physical environments by providing the necessary resources such as funding and enforcing sustainable, green methods of production and consumption; endorsing their involvement in such activities to meet the goals of SDG12 and SDG13; reducing their carbon footprint; and enhancing their physical and mental health, especially if these endeavours are linked closely to nature, including enjoying nature-based recreation.
6. Promoting sustainable food production and animal, bird, and insect friendly environments.
7. Demanding Family Impact Assessments of all policies and practices linked to climate change.
8. Receiving support to comply with SDG12 and SDG13.

Each family's co-engagement in lobbying for environmental sustainability to end the climate crisis will bring rewards to the family and its members in feeling they have contributed to solving an extremely worrying social crisis and meeting their own goals of raising children in a clean, healthy, sustainable physical environment. Politicians and practitioners working with families should ensure that they conduct a Family Impact Assessment of their policies and practices across all SDGs, but especially for SDG12 and SDG13. Also, to avoid exploiting further women's unpaid work, policymakers should make funds available to pay women for their knowledge, skills, expertise, and engagement in ending the climate crisis. Where they to do this, they could 'invest in family-oriented policy and programme design, implementation and evaluation' as advocated by former UN Secretary General, Ban Ki-Moon in 2014. Although he was not referring to climate change, his words are applicable to it as well.

Recommendations: Actions to be Taken by Families

Global solidarities
By forming links with other families in countries adversely affected by the climate crisis when they have done little to contribute to its evolution, families can help each other strengthen their own commitments and adaptive capacities in addressing climate hazards and natural disasters across the world. They can also make joint demands of policymakers and practitioners and feel empowered in transforming discourses about the climate crisis and securing damage and loss compensation.

Working with local politicians, e.g., councillors, members of parliament or representative assembly, families can insist that local and national policies integrate measures that confront climate change strategically and plan sustainably for future generations. To realise the important aims of SDG13, families are encouraged to engage in education about climate change and insist that this is covered in the school curriculum from the beginning to the end of a child's education. Moreover, they can seize SDG13 as an opportunity to work intergenerationally to raise human awareness and grow institutional capacity on mitigation and adaptation to reduce GHGs and eventually prevent further anthropomorphically induced climate change. Besides engaging involved in co-developing and co-producing early warning systems (EWSs) and ensuring that people understand what these are for and how to act appropriately when an EWS is sounded, whether this is to evacuate to avoid being trapped during a flood, or ensuring that family members at both ends of the age spectrum have a supply of cold drinks and fans to keep them cool during a heatwave. During cold spells, the issue is one of keeping warm. Babies and older people are most likely to suffer from hypothermia, but those in low-income families, unlikely to afford expensive fuel will suffer more (Liss and Naumova, 2019).

SDG relevant actions
Each SDG has goals and targets that can reshape climate change and begin the process of mitigating its worst impacts. For families who rely on having a decent climate and enjoying environmental surroundings in which to raise children in healthy conditions that enable them to grow and thrive, addressing current impacts, reversing as much adverse damage as possible, and preventing the further burdening of the planet's waters, soils, air and physical ecosystems becomes a top priority.

Acting to promote transformative change in ending the climate crisis places sustainable, green energy at the centre of production and consumption processes as required by SDG12 and SDG13.

For SDG 12, families can support renewable energy-based patterns of production and consumption. They can utilise their power as consumers to refuse to purchase products made by burning fossil fuels, refuse to buy products with palm oil and soyabeans grown in tropical forests as these contribute to environmental degradation, follow the 9 Rs - rethinking, reducing, redesigning, reusing, repairing, refurbishing, remanufacturing, recycling and repurposing, recreating the relationship between humanity and the earth's resources, encouraging children to walk to visit friends and go to school, walk or cycle to work wherever possible (not commuting), and using heating, lighting and cooking materials wisely, efficiently and minimising waste production.

For SDG13, families can undertake actions that will enable them to plan what they can do to reduce the waste of resources including food and water, avoid single-use plastics, recycle clothes, and repair electrical appliances. These actions will reduce the use of fossil fuels to replace such goods. Families in the West can also form links or twinning arrangements such as adopt-a-family in a low-income country or a small island developing state by forming relationships with women and young people in local marginalised communities that are affected by climate change. This would enable them to use social media and internet technologies to share stories with each other about how they might help one another tackle climate change within families, but also to engage with policymakers in their own communities to firm up their commitments to substantial endeavours to tackle climate change that will make a difference to their lives at least locally.

Actions to be Taken by Policymakers

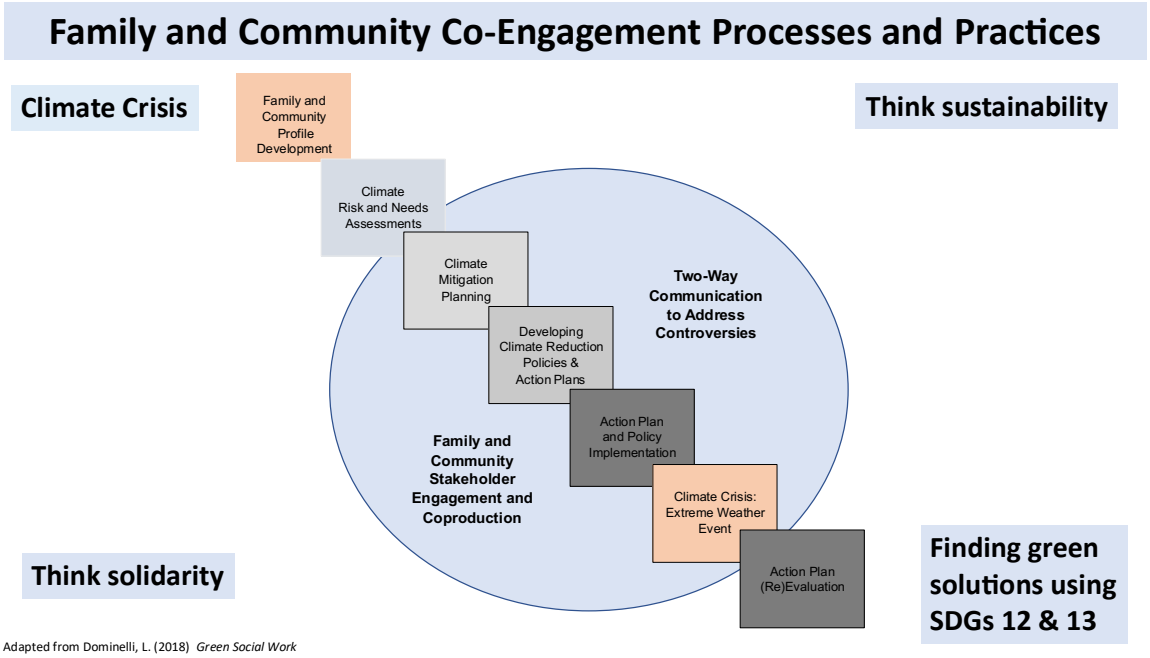
Moreover, when families are lobbying policymakers and talking to their elected representatives, they can emphasise their desire to see the funding that the West has promised accumulated and distributed to transform the realities of those suffering adverse climatic impacts. The $USD 100 billion promised yearly to enable low-income countries to undertake meaningful mitigation actions constitute a critical part of such funding. Families can also lobby policymakers for funds to facilitate the full and transparent operationalisation of the Green Climate Fund. These actions should be implemented as quickly as possible. However, how to prevent the largest polluters from dragging their feet will remain a major challenge. When responding to families and the diverse arguments put forward by their members, policymakers need to ensure that they acknowledge the agentic qualities that are held by each individual and family meeting them. Policymakers must also be aware that different family members will have different needs based on a variety of factors that are familial, e.g., compositional, geographical, and individual, e.g., gender, age, ability and other social attributes. These require differentiated responses: one size does not fit all.

SDG17 focuses on developing a global partnership to increase cooperation and collaboration on achieving the goals and targets of the SDGs and Agenda 2030. Cooperation as collaboration is an essential underpinning of all the SDGs if the critical social problems these identify, e.g., poverty, hunger, education for girls, health services for all but especially expectant mothers and their babies, equality between the genders, the elimination of climate change caused by burning fossil fuels, decent environmental surroundings on land, in the oceans, and in urban and rural areas are to be realised. This requires every family to contribute their specific talents and resources, but also to find ways of uniting in solidarity with other families across the world to share the burden of tackling the adversities that humanity, and the ecosystem face to achieve sustainable development objectives for all. To do this, families require the security that is offered through their nation-state. This commits a nation-state to: eliminate fossil fuel usage to prevent adding further to the climate crisis, maintain economic prosperity, and create new jobs, preferably those linked to renewable energy technologies.

Nation-states must harness not only the energy of families and communities, but also the innovation and entrepreneurial flair for developing and retaining renewable energy produced goods and services. Doing so will enable them to eliminate additional contributions to climate change (SDG13) and respond to the climate emergency that has arisen under fossil fuel-based models of production and consumption (SDG12). Moreover, by moving towards alternative, renewable energy forms of production and consumption, and they can act as custodians of the earth's bounty, not its exploiters. Companies that are SDG12 compliant can receive environmentally friendly certification.

Moving away from the climate crisis trap together requires collective action initiated with a useful process of co-engagement and coproduction that seeks to resolve the wicked social problems engendered by the climate crisis through resilient and sustainable approaches. This process is depicted in *Figure 1, Family and Community Co-Engagement Processes and Practices*. It depicts how the climate crisis can be addressed by family and community stakeholders including policymakers, practitioners and entrepreneurs who dialogue with each other to address their opinions including controversial ones to conduct joint profiles of their communities, identify the range of families living within them, undertake risk and needs assessments to mitigate the impact of climate change upon their livelihoods, food production, manufacture of products, creation of health and educational services, construction of housing and other infrastructures including communications, power, sanitation and transportation, jointly devise policies and action plans to coproduce jointly owned solutions to the problems they seek to address, implement these policies and action plans and then evaluate them in light of further developments including further extreme weather events.

Figure 1:



Adapted from Dominelli, L. (2018) *Green Social Work*

The recommendations for policymakers and practitioners also traverse different SDGs given the way that they build a holistic picture to protect the planet and all within it from the ravages of climate-induced impacts on people, plants, animals, other living things and their ecosystems. These include:

- Engaging with families and their members including children and young people as agentic decision-makers in partnerships that will initiate transformational changes to improve the

health, well-being, and livelihoods of families whether they involve older people, adults, adolescents, young people, and/or children, living locally or overseas (in global solidarity).
- Valuing indigenous families, their extensive knowledge of agriculture and living in harmony with nature.
- Making available the resources required to eliminate poverty and hunger as foreshadowed in SDG1 and SDG2 alongside facilitating easy access to health care (SDG3) and educational provisions (SDG4) that will meet the needs of all genders, especially women.
- Replacing reliance on fossil fuels with renewable energies and creating jobs in that sector.
- Promoting further research to explore new energy sources, e.g., night energy such as that being experimented upon in by Ned Ekins-Daukes (2022) in Melbourne, Australia.
- Funding youth workers and families to support young people in their communities to develop their capacities and grow as adult citizens having a say in and contributing to society utilising their talents and interests in safe, sustainable climate change-free environments.
- Encouraging future research in climate change risks and the differentiated experiences and contributions arising from codesigning, co-collecting data with families, individual family members and their communities, co-analysing and co-disseminating findings.
- Engaging artists to work with families, policymakers, and practitioners to portray families' lived experiences of climate change and how its impact can be reversed.
- Ensuring that sectorial policies refer to families specifically and consider what a family with its diverse forms and membership can do to support the implementation of co-proposed changes. While this applies to all SDGs, it is particularly important for SDG12 and SDG13 where food, energy and water consumption coalesce with waste production and elimination.

Guidelines for Practitioners, Including Green Social and Community Development Workers

Practitioners have their feet embedded in communities and deal with families and their members daily in their everyday routines. The are well-placed to encourage them to engage in tackling the climate crisis. This can involve them in undertaking the following:

- Organise discussions on climate change, its impact on family lives including overseas ones.
- Help families understand risk and how to mitigate extreme weather events.
- Encourage families to resist *climate change dysfunctionality* by assisting them to take action that prevents future additions to GHGs at the local, national, and international levels.
- Educate families in the importance of SDGs in all aspects of their lives, but especially SDG12 and SDG13 because they will enable them to reduce waste, move away from fossil fuels usage, enhance their health and well-being and protect physical environments everywhere.
- Explain Agenda 2030 to families and the solidarity of 'leaving no one behind' (globally too).
- Involve families in environmentally friendly income generation schemes for their livelihoods.
- Support women's empowerment so that they can share work burdens related to housework, caring for people, and caring for the environment with other family members.
- Facilitate family enjoyment of nature for recreational purposes.
- Advocate with families on the importance of enforcing regulations that protect the environment – air, water, soil and holding companies accountable for their decisions.
- Train families in how to lobby politicians so that their voices can be heard, and they are seen as agentic people capable of exercising their democratic rights and holding them accountable and make demands, e.g., asking for family and local access to EWSs.
- Assist families in co-drafting policy documents to transform their lives so that they are more resilient and can live sustainably to thrive now and in future.
- Enable families to demand research that they are co-involved in at all stages from identifying the research problem to carrying out the research and receiving training to do so.

Overall, this policy brief provides a stepping stone in processes aimed at facilitating the exercise of the full agentic capacities of families and their members. Family members capable of expressing their voices, agencies, and decision-making rights can participate fully in designing and developing measures to mitigate vulnerabilities to climate change and the numerous risks associated with this phenomenon. Families and their members should be directly involved in all collaborative processes, beginning with determining the agenda, collecting data, analysing data, disseminating findings, and acting as change agents. Following this action path is very relevant to upholding the words that Andrew Thomas (2023), speaking on behalf of the International Federation of the Red Cross and Red Crescent at the end of COP 28 in Dubai on 13 December 2023 articulated:

> ‘We therefore remind the world that words are never enough. We need action, a great leap forward in action.’

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