

SECOND ASIA-PACIFIC REGIONAL MEETING for NATIONAL ETHICS/BIOETHICS COMMITTEES

Reducing Inequities through Solutions-Orientated Bioethics

22 -23 October 2019 / Wellington, New Zealand

AP-NEC Theme: Climate Change & Health

The health burden of climate change

(Hashim and Hashim, 2016)

This article presents a broad overview of the impacts that climate change might have on global health, while also looking at the different affects in different regions.

- The health impacts of climate change are less well known than the impact on meteorological phenomena and the environment. Nonetheless, extreme weather events can be expected to have a significant lead to deaths and injuries as well as a rise in communicable diseases. Climate change will also affect the requirements for health, such as clean air and water, sufficient food, and adequate shelter.
- The health impacts of severe weather events are a function of the following factors: severity; duration; surprise; and type of event.
- Particularly vulnerable subpopulations include children, pregnant women, older adults, impoverished populations, people with chronic conditions and mobility and cognitive constraints, outdoor workers, and those in coastal and low-lying riverine zones.
- AP-NEC countries with the highest level of long-term climate risk are: Myanmar, Bangladesh, Vietnam, Philippines, Mongolia, Thailand.

(Uji, 2012)

This paper was commissioned by the Human Development Report Unit as a technical background paper to inform the Asia-Pacific Human Development Report, "One Planet to Share".

- In the 1990's, the asia-pacific accounted for 84% of deaths caused by extreme climatic events, and 88% of people affected worldwide.
- It is estimated that the mortality risk of women during disasters is 14 times higher than that of men, and poor women, who constitute the majority in the Asia-Pacific, are particularly vulnerable.

(World Health Organization Regional Office for the Western Pacific,2015).

This report assesses health vulnerabilities in Pacific island countries due to climate change.

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- Pacific island nations face a triple burden of disease – communicable diseases, noncommunicable diseases and the health impact of climate change – that causes high morbidity and mortality.
- Key climate-sensitive health risks in the region include:
 - foodborne, vector-borne and waterborne diseases and zoonotic infections;
 - traumatic injuries and deaths;
 - malnutrition;
 - exacerbation of the morbidity and mortality due to NCDs;
 - disorders of mental health;
 - other diseases, including those affecting the respiratory tract, eyes, ears and skin.
- Climate change is also likely to cause social disruption, as island communities stand to lose their lands and livelihoods in the face of rising seas, more extreme weather events, and declining agricultural yields and fish stocks, and become increasingly dependent on migration, food imports and external economic support for survival.
- These impacts are, to some extent at least, modifiable through the urgent and effective implementation of adaptation measures aimed at minimizing these risks to health, as well as through strategies to arrest and abate, or mitigate, the process of climate change itself.

(McIver et al. 2016)

This paper presents a regional climate change and health vulnerability assessment and adaptation planning project in 13 Pacific island countries.

They identify the following climate-sensitive health risks as being of highest priority in Pacific island countries:

- Trauma from extreme weather events
- Heat-related illnesses
- Compromised safety and security of water and food
- Vector-borne diseases
- Zoonoses
- Respiratory illnesses
- Psychosocial ill-health
- Non-communicable diseases
- Population pressures
- Health system deficiencies.

(Sen et al. 2017)

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This paper is a call for action to address the health impacts of climate change in South East Asia.

- The mixed topography of South Asia leads to increased vulnerability to extreme weather events, such as flash floods, cyclones and heatwaves, causing food insecurity, displacement of people and exacerbated health problems.
- Adaptation strategies to climate change should have a clear focus on health.
- Community participation and decentralised initiatives to address the effects of climate change must be fostered.

(Ebi et al. 2017)

This paper examines the costs of climate change, and argues:

- That climate change will incur health-related costs, as well as those related to food security, particularly for the world's poor who are the most vulnerable to the impacts of climate change.
- That development must involve protections against climate change, and especially the strengthening of public health institutions in poor regions.

(Huang et al. 2016)

This project comprises a collection of studies that collectively attempt to quantify the health effects of extreme temperatures in the Asia-Pacific region, identify factors which modify the health effects of temperature, and attempt to formulate local adaptation strategies for dealing with heat-related health risks and reduce vulnerability.

The results suggested that extreme heat events were associated with substantial burdens of morbidity/mortality in China, Vietnam and Thailand. The authors suggest that planned adaptation strategies are necessary to address the adverse effects of heatwaves.

(Munslow and O'Dempsey, 2010)

This article describes the challenges of climate change in developing regions in Asia.

- The authors argue that of the four major climate challenges (urban air pollution, waste management, floods and drought), air pollution and waste management can be mitigated by policy change and technological innovation, whereas floods and drought will be less easily addressed.
- They argue that floods and drought will affect worst low-income peoples who emigrate from the arid inland areas and immigrate into flood prone coastal areas, and

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that Asian countries need adaptation plans and better emergency response systems to deal with possible humanitarian emergencies.

(Sly 2011)

This article discusses the broad health impacts in the Asia-Pacific region. The authors break down the climate-sensitive disease burdens, adaptation strategies for the climate-related health burden, and other issues and challenges for all the major countries in the region.

(Thomson and Mason 2019)

This book provides a detailed overview of how climate information may be useful for public health action.

- The first chapter “health priorities in a changing climate” outlines the various health impacts that climate change is expected to have.
- Chapter nine provides an overview of how the changing climate is expected to impact health in the long term, and how long-term climate change projections are made.

(Papworth et al. 2015)

This article rejects the claim that “climate change is the greatest threat to global health” and argues that this claim risks diverting policymakers from taking action on global health now. They argue:

- Many health conditions are affected by multiple factors and it is difficult to attribute causation to climate change.
- Over the next 30 years it is unlikely the impacts of climate change will be catastrophic enough (in most cases) to exacerbate or magnify current health problems beyond the coping range of current adaptations. After that period, however, it is more difficult to be sure that human society will continue to advance sufficiently to cope with the impacts of climate
- The authors argue that since poverty is a primary driver of vulnerability to climate change, policymakers should focus on reducing poverty and inequality, and adaptation measures that reduce populations’ exposure to climate change and boost populations’ resilience and ability to adapt.

The authors argue that there needs to be a clear balance between the key factors affecting global health, including climate change, poverty and health inequalities.

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Politics of climate change

(Crowley and Nakamura 2018)

This paper explores the idea of climate leadership, and argues that in the Asia-Pacific region developed countries like Australia and Japan should assist their regional neighbours in implementing policies to mitigate or adapt to climate change.

(Seidler et al. 2018)

This paper looks at a group of six research projects awarded in three countries of South Asia to examine progress, research needs and potential mechanisms for improving implementation of climate change adaptation and disaster risk reduction.

They find weak institutional coordination between agencies charged with disaster response and those charged with climate change planning (as well as development planning more broadly).

(Patrick and Dietrich 2016)

This report discusses ideas for action in response to the challenges of climate change from an Ecohealth perspective, with a focus on Oceania.

- An Ecohealth approach provides a framework for health practice that acknowledges that human health is intrinsically linked to ecosystem health.
- They develop several proposals for how practitioners, policy-makers and researchers might apply Ecohealth principles in Oceania.

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Ethics of water

(Kallhoff 2016)

Kallhoff discusses four normative approaches to water ethics in terms of a human right to water, an ecocentric approach to the non-instrumental values of water, water justice, and water cooperation.

- She argues that water cooperation is the most promising approach to resolving tragic conflicts, as it is informed both by a rights-approach (considering human interests) and by an ecocentric approach (considering the interests of non-human animals), establishing water as a common good.

(Key 2017)

Key uses the Flint water crisis to talk about the importance of community-level ethics review.

(Novo 2012)

Novo argues that, given the importance of proper water management both for the environment and for human health, a commitment should be made to making available information pertaining to the amelioration of local population water health, safety and water use.

(Phung et al. 2015)

Phung et al. present a review of studies on the relationship between climate conditions, water quality, and water-related diseases in the Mekong Delta Basin.

- They find that only a few studies with this focus have been conducted in the Mekong Delta Basin, despite the Basin being an area that is especially vulnerable to extreme climate and hydrological events, as well as one that is predicted to be significantly impacted by climate change.
- Based on their limited findings, the authors make suggestions for future research in the Mekong Delta Basin.

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Researching in post-disaster contexts

(Alirol et al. 2017)

This article presents a review of the WHO Research Ethics Review Committee's involvement in the review of new and amended protocols amid the Ebola outbreak in West Africa.

- In future public health emergencies, the authors recommend:
 1. Internally consistent and complete submissions & in a language which participants are likely to understand.
 2. Collaboration between local and international researchers.
 3. Generation of template agreements for data and sample sharing and use during the ongoing global consultations on bio-banks.
 4. Formation of Joint Scientific Advisory and Data Safety Review Committees for all studies linked to an intervention or group of interventions.
 5. Formation of a Joint Ethics Review Committee with representatives of the Ethics Committees of all institutions and countries involved to strengthen reviews through the different perspectives provided without the 'opportunity costs' for time to final approval of multiple, independent reviews.
 6. Direct information exchange between the chairs of advisory, safety review and ethics committees.
 7. More Ethics Committee support for investigators than is standard.
 8. A global consultation on criteria for inclusion of pregnant women and children in interventional studies for conditions which put them at particularly high risk of mortality or other irreversible adverse outcomes under standard-of-care.

(Calain 2018)

This is another review of the involvement of the WHO's ethics committee in the West African Ebola Crisis. The WHO ethics committee is described as having challenged conventional thinking about clinical research ethics, by considering conditions that may justify the use of unproven interventions.

Calain identifies the following ethical questions which remain unanswered:

1. The specification of exceptional circumstances.
2. The specification of unproven interventions.
3. The goals of interventional research in terms of individual versus collective interests.
4. The place of adaptive trial designs and.
5. The exact meaning of compassionate use with unapproved interventions.

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Calain finds that:

- Firstly, the Ebola trials have shown that, provided that sound scientific standards of research are respected, individual and collective interests do not necessarily compete when it comes to treating catastrophic diseases and testing unproven interventions.
- Secondly, The accelerated process of research and development catalysed by the Ebola epidemic should become a benchmark for all catastrophic diseases. The current convention of phased clinical trials needs to be adjusted to actual risks, benefits, evidences and emergency circumstances.
- However, an increased flexibility in the choice of trial designs or emergency uses should come with reinforced safeguards, including attention to ethics oversight, the timely sharing of trial data, accountability and liability.

(Eckenwiler et al. 2015)

Eckenwiler et al. argue that ethical disaster research requires of researchers and RECs a particular sort of ongoing, critical engagement which may not be warranted in less exceptional research. This is understood through the concept of 'real-time responsiveness' (RTR).

- RTR requires researchers and ethics committees to be both *attentive* and *responsive*. The aim of RTR is to lessen the potential of research to create new vulnerabilities, or perpetuate or exacerbate existing ones
- This requires a faster ethical review but with ongoing open communication between the researchers and ethics committees.
- It also requires researchers and committees to be in dialogue with the community and open to issues they may raise.
- Further, the ethical case should never be considered 'closed', rather those involved should be perpetually poised to call for a revisiting of the study.
- Where RTR is too taxing on ethics committees, the authors recommend working with research consultants.

(O'Mathuna 2015)

O'Mathuna argues that while research ethics involves ethical principles and governance frameworks, it should also consider the role of ethical virtues in research.

(Sumathipala et al. 2017)

This is a report of the Working Group on Disaster Research and Ethics (WGDRE).

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- It is argued that while clinical research should adhere to seven ethical principles, ethical virtues should also be considered. It is argued that this is particularly important to protect participants in disaster research.

(Bhatia-Lin et al. 2019)

This paper looks at the use of social media as a recruitment tool and outlines guiding principles for researchers and ethics committees.

- The authors argue that the following issues are crucial in research on populations affected by disasters:
 1. Scientific rigor and professional competence of the research team.
 2. Quality and adequacy of ethical review process.
 3. Undue inducement or compensation for participation, and therapeutic misconception.
 4. Unequal burden (the choice of the research is based more on the accessibility of the population than the relevance to the situation.)
 5. Public interest and distributive justice.
 6. Risks acceptable under ordinary circumstances may not necessarily be acceptable in disaster situations.
 7. Dissemination of results the country where the research was conducted.

(Tansey et al. 2017)

This is a qualitative study of interviews with ethics committee members to determine the ethical issues that members identify as being distinct in disaster and non-disaster research.

- Four ethical issues were identified as distinct to disaster research:
 1. The social value of disaster research, as well as the higher bar of justification.
 2. Greater vulnerability of participants.
 3. The need to maintain safety, confidentiality and data security.
 4. Greater challenges in achieving meaningful community engagement.

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Data sharing across countries

(Connor et al. 2010)

In this article the authors outline the need for climate risk management in public health.

- They recommend that:
 - Countries should make data, information and services freely available to the researchers and health community workers.
 - Strong South–South and South–North networks for research and implementation of climate risk management for public health should be established.
 - There by collaboration across all relevant disciplines
 - A public service platform within World Meteorological Organisation member institutions to encourage cross-sectoral interaction

(Del Corral et al. 2012)

This paper describes the role of the International Research Institute for Climate and Society's climate data library in enabling the public health community to access and use climate data to mitigate the public health effects of climate change.

(Overpeck 2011)

At present, about half of the international modelling groups are restricted from sharing digital climate model data beyond the research community because of governmental interest in the sale of intellectual property for commercial applications.

Climate data is needed to inform the decisions of policy-makers to develop climate change strategies. This creates a responsibility to curate climate data and share it more freely and usefully, especially to an interdisciplinary audience. International agreements are needed to eliminate data restrictions.

Institutional capacity is needed to produce, format, document and share the vast volume of climate data.

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Non-communicable diseases, nutrition and obesity

(Campbell-Lendrum and Pruss-Ustun 2019)

This paper presents an overview of the impact of environmental change on non-communicable diseases. The authors show that:

- Environmental factors have a strong impact on non-communicable diseases.
- Air pollution is responsible for 7 million deaths a year, making it the second-highest risk factor for non-communicable diseases after tobacco.
- The sources of climate change and air pollution are largely the same: for this reason, the authors recommend a range of policies that are expected to alleviate both climate change and air pollution.

(Clearfield 2018)

This is a literature review of articles linking climate change, food and nutrition security and NCDs in the Pacific region.

- Pacific island countries are particularly vulnerable to the adverse impacts of climate change and face an increasingly high burden of NCDs
- Climate change was identified as impacting agriculture, fisheries, migration and humanitarian food assistance. If not addressed, these four impacts could lead to impaired food and nutrition security and an increase in NCDs.

(Demain 2018)

This is a review of allergic respiratory disease related to indoor and outdoor exposures, and the impact on them of known and projected changes in climate.

- The authors identify that: climate change may increase exposure to aeroallergens and therefore allergic respiratory disease; and rates of asthma have increased in recent years. Whether the increased rates of asthma *were* due to climate change-related factors was not well explored.

(Venkatapuram, McKee and Stuckler 2012)

This paper reviews the declarations that resulted from WHO regional meetings held in preparation for the September 2012 high-level meeting. The authors identified four “ethical tensions” that must be resolved:

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1. Addressing human rights, such as:
 - the right to information to make informed choices about diet and activity
 - the right to bodily integrity (e.g. freedom from exposure to second-hand smoke)
 - the right to health
 - corporate rights (such as the right of pharmaceutical companies to exploit patents or express freedom of speech (through marketing).
2. Addressing social determinants of NCDs vs treating those already ill.
3. Funding: balancing the needs of local citizens with the obligation to provide foreign aid.
4. Deciding which diseases to prioritise. Should governments prioritise those for whom sufferers are in the most need, those who would benefit the most from government action, or those diseases which affect the most people?

(Franchini and Mannucci, 2015)

This is a review of the most relevant effects on human health of climate changes.

- It is noted that while studies in the past tended to focus on direct effects of climate change, effects can be both direct and indirect. The effects are divided into the following categories:
 1. Extreme weather events
 2. Impact on food production
 3. Diarrheal diseases
 4. Ambient air pollution
 5. Aeroallergens
 6. Infectious diseases

(Ghanizadeh et al. 2017)

This is a review of relevant literature in relation to the effect of climatic variables on cardiopulmonary function as an emerging health challenge.

- Their findings show that climate plays a role in the incidence and prevalence of cardiopulmonary diseases. Specifically, parameters like temperature, humidity and air pollution can affect cardiopulmonary health.

(Li et al. 2018)

This study projects temperature-related mortality for acute ischemic heart disease, and ischemic and hemorrhagic stroke with concomitant climate warming in Beijing, China.

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- The authors project that the temperature-related mortality associated with ischemic stroke will increase dramatically due to climate warming.
- However, projected temperature-related mortality associated with acute ischemic heart disease and hemorrhagic stroke should remain relatively stable over time.

(Muttarak 2019)

This article discusses the impact that climate change may have on malnutrition in the Asia region.

- Around half of all children under five years old worldwide who are classified as undernourished or overweight or obese live in Asia.
- A rapid nutritional transition that has occurred with rapid economic development has led to both under- and over-nutrition in the Asia region.
- Malnutrition involving both undernutrition and obesity may occur in the same individual, household or region as adults receive low-cost high-calorie food inducing obesity, while children receive nutrient-poor foods leading to undernutrition.
- As climate change worsens food security, it may worsen the double burden of malnutrition.
- Muttarak recommends encouraging parental education as well as universal education to tackle the problems of under- and over-nutrition and climate change adaptation.

(Raiten and Aimone, 2017)

This article discusses the relationship between climate and environmental change and nutrition.

- The authors argue that in many low-income countries, climate and environmental change will exacerbate pre-existing malnutrition, as the affects of climate change weaken access to affordable, nutritious foods. This can be expected to simultaneously exacerbate undernutrition and overnutrition.

(Rataj, Kunzweiler and Garthus-Niegel 2016)

This is a systematic analysis of Post-traumatic Stress Disorder (PTSD), injury, anxiety and depressive disorders caused by weather extremes in people in developing countries.

- The authors find a causal relationship between extreme weather events and both injury and psychological morbidity, although, “especially for PTSD very few reference data were available”, and the recorded rates of all studied morbidities following a disaster varied greatly.
- The authors note that overall very few studies are conducted in the Global South, very little on extreme weather events, and particularly few on psychopathology. Furthermore, the

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setting of low-income countries as well as the post-disaster context result in various methodological insufficiencies in the literature.

- No studies on droughts or heatwaves were identified, and *none* of the identified studies were on populations in Africa (all were in Central/South America and Asia).

(D'Amato et al. 2015)

This is a report of the World Allergy Organisation, which raises the importance of climate change's effect on respiratory diseases.

- It looks at both changes in climate and air quality, and argues that their effects will impact not only those with current asthma but also increase the incidence and prevalence of allergic respiratory conditions.

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