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The imperative of climate action to promote and protect health in Asia

Executive summary

Climate change poses a significant threat on human health, especially with the progression of global warming, hazards due to severe heat spells, and heavy rainfall predicted to increase further. Asia and Oceania, which experiences the full range of global climate variations, has been identified as one of the most vulnerable regions in the world to the effects of climate change. A range of environmental factors have direct and indirect effects on human health: the availability of clean air, potable water, safe food, exposure to hazards, pathogens, and toxins, as well as several social, behavioural, and genetic factors determine the health and well-being of individuals and communities. Scientific and governmental organizations in this region have continued to explore the current and potential threats of climate change to human health. On the basis of the evidence that has been gathered, there is a need for further exploration of the topic, to ensure that adequate and timely strategies are used to prevent and mitigate the effects of climate change on human health. In its report on 'The Imperative of Climate Action to Promote and Protect Health in Asia', The Association of Academies and Societies of Sciences in Asia (AASSA) addresses how climate change has affected the spatio-temporal, socio-economic, and political variations within Asia and Oceania. AASSA recognizes that areas lacking technological advancement and development

require a different set of criteria and approaches to assess the health and well-being of their citizens. The COVID-19 pandemic has exposed the underlying vulnerability of this region to common diseases and their subsequent dire effects including deaths. There is a need for real-time and accurate data across Asia and Oceania, which requires the collection of both primary and secondary data and models with an appropriate feedback system. AASSA recommends a multi-sectorial framework to embrace a coherent approach. The health sector should be an active participant in discussions, action planning, and implementation on climate change issues in collaboration with other economic areas and activities.

The main objectives of this report are the following.

1. To emphasize that climate change is happening on a wide regional scale and escalating.
2. To emphasize the significance of climate change effects on health through multiple pathways.
3. To identify regional variations on impacts, solutions, science-based evidence, avenues for regional cooperation for mitigation, etc.

4. To fill knowledge gaps by suggested new research, increased transdisciplinary and inter-sectoral information sharing on the overlooked public health issues associated with climate change.
 5. To accumulate and use the evidence on the health impacts of climate change from the reports to emphasize the basis for coherent health policy development for climate change mitigation and adaptation strategies.
 6. To increase responsiveness to the health impacts of climate change as well as promoting actions that improve health while reducing greenhouse gas emissions.
 7. To clarify the public health issues associated with climate change that should be addressed through multilateral collaboration.
 8. To highlight the common needs for national planning, for example public awareness, development of health-care facilities, education and training, research and knowledge implementation, financial resources, and government support in policy development.
- heat stress from rising temperatures will increase heat-related excess mortality and morbidity;
 - an increase in the frequency of extremely hot days, leading to a higher risk of outdoor heatstroke;
 - exposure to night-time heat disrupts sleep, which results in mental and physical stress;
 - a rise in temperature and an increase in precipitation during the monsoon;
 - changes in the risks and the epidemic patterns of gastroenteritis, water-/ food-borne diseases, and certain viral infections;
 - shifts and expansion in the geographical distribution of vectors (for example mosquitos) due to higher ambient temperatures have resulted in the widespread incidence of VBDs (for example dengue and malaria) and increased mobility;
 - increasing risk of simultaneous disasters, for example sediment disasters, flooding, and storm surges, which have more pronounced impacts than a single event;
 - an increasing concentration of ozone, which will increase ozone-related mortality; and
 - increasing unreported mental health status among youth and certain groups of people who are seriously affected by climate change.

Impact and challenges

The relationship between climate change and health is complex, and it is imperative to understand these complexities to formulate policies that can mitigate the direct and indirect effects of climate change. The impacts of climate change on health will need to be better documented, especially in developing nations where the effects on health will be felt the most owing to the vulnerable population groups in these countries. Quantification of the magnitude and severity of these health impacts is greatly needed. Reducing poverty is a key step to be taken by policy-makers to promote the health of future generations in these countries. In certain areas, we have experienced some **health impacts of climate change**:

- excess mortality due to heat has increased, especially among the elderly;

These impacts are a few among many of the effects of climate change on human health. As millions of people's livelihoods across Asia and Oceania depend on natural resources, the damage caused is enormous. A higher temperature jeopardizes human health. At the same time, there are several **challenges in climate change** that are shared among countries in Asia and Oceania, but which vary

in their intensity and frequency, as described below.

1. There is insufficient awareness that climate change affects human health through various pathways. While direct health impacts, such as mortality from heat and flood, are well recognized, there is a lack of comprehensive understanding about direct and indirect health impacts because of their complex causal pathways.
2. Although there has been an increased awareness of the health impacts of climate change, mitigation and adaptation of health systems are planned and executed in a fragmented manner.
3. Unlike most fields of study and areas of influence within a country, the medical community seems to be largely detached from the imminent threat of climate-related health effects. The medical community must emerge as the leaders in the study, thought, innovation, and influence in decision-making of climate-related health effects and its mitigation as well as in adaptation initiatives and policies.
4. It is difficult to develop reliable models of the impacts of climate change because of insufficient retrospective climate and health data. This is further complicated by very high microclimatic variations including geographical variations within short distances.
5. The costs of buying climate and other meteorological data are very high for researchers and governmental bodies. It is, therefore, necessary for international governments to agree to free access of such data for research and surveillance purposes.
6. There is a shortage of appropriate personnel and human resources for disease surveillance, including environmental scientists, entomologists, environmental health experts, and climate modelling experts. Governments should encourage students to study these fields and show potential for growth, by offering scholarships, learning opportunities, and fellowships.
7. Some regulations and a lack of clear institutional strategies and mandates make it difficult to establish an integrated disease surveillance and early-warning system. It is important to assess the internal and external environments of health systems, focusing on policy implementation and making sure that adequate resources are available.
8. The difficulty in developing a coherent strategy across multiple sectors.
9. A clear gap is noted in the integration of common goals of climate change health policies at national and state levels. Most health policies at the state level are found to be flawed with vested development interests rather than improving health qualities. There is a need for better integration of policies and planning across different scales and levels.
10. Compared with the direct impacts, studies of the indirect impacts on health, especially quantitative assessments, have been very limited.
11. Policy-making should account for vulnerability in the health impacts of climate change. It is well recognized that the elderly is vulnerable to heat stress. Fewer studies have examined the influence of socio-economic status on health effects of climate change even though many are aware of health disparity.
12. Lack of implementation of the policies that are already in place to mitigate effects as well as amend and add policies periodically that consider

the unpredictable nature of climate change.

13. Life-threatening changes are expected to occur such as changes in the hydrological cycle, melting of land and sea glaciers, narrowing in glacial areas, rising sea levels, sliding of climate zones, and frequent extreme weather events.
14. Climate change also adversely affects health needs such as fresh air, clean water, adequate nutrition, and healthy shelter requirements. Climate change will negatively affect water quality and accessibility. In some regions, in countries where food is cooked with biomass, nutritional deficiencies can be seen more because of famine and lack of access to clean water as a result of desertification.
15. The rising air temperature will directly affect socio-economic (industry and agriculture), ecosystem, and ecological systems as well as human life, particularly in developing countries.
16. The decrease or disappearance of transportation potential directly and indirectly affects human health.
17. The impact of climate change on the human immune system has been well documented (undernutrition, psychological stress, and exposure to ultraviolet light). These pathways are likely to weaken the immune system and make populations, especially children, more susceptible to recurring infections, allergies, and development of autoimmune diseases as well as cancer.

Recommendations according to evidence-based data

Scientific evidence is essential for policy-making to prevent the health impacts of climate change. AASSA's report summarizes the policy suggestions and directions for adaptation and mitigation and clarifies the current research gaps. These actions should

also accompany social transformation towards sustainable development. AASSA's recommendations pertaining to human health can be summarized as follows.

1. Education and training

- Awareness-raising activities should be implemented at the social and individual levels as well as in various interest groups (non-governmental organizations and non-profit organizations) to prevent and minimize the negative effects of climate change on health.
- Training of human resources for climate change actions should be accelerated. Trained workforce capacity in the field of climate change and health should be increased and a common language should be established on health impacts.

2. Research and knowledge implementations

- Currently, there are several platforms across multiple sectors. However, there is always room for improvement in terms of comprehensive health impact assessment spanning different sectors, with the theme of health as a common denominator. Improving the multi-sectorial framework is warranted in every country and regional grouping to prepare a coherent strategy across multiple sectors.
- Effective health risk communication is also an important part of adaptation for climate change.
- Studies should be made on how to reduce the susceptibility of vulnerable groups.
- Databases should be developed to reveal the relationship between climate change and health.
- Continuous data collection and monitoring of infrastructure should be strengthened to examine the climate change process more actively and to develop action plans.

- As there are various health effects of climate change, developing specific and systematic surveys and monitoring programmes for heat-related health outcomes are required.
 - Meteorological information, warnings and alerts, and information on prevention and adaptations should be provided through cooperation with relevant ministries and agencies in the nations and regions.
 - Geographical heterogeneity in health effects should be considered. A country is vulnerable to natural disasters because of its climate and topography. As such, policies for climate change adaptation in that country should consider natural disasters.
 - Conduct mapping of vulnerability and health impacts to understand which populations are under the risk of what threat and implement interventions to safeguard against the acute and chronic effects of climate change on human health. Pay more attention to translating the health impacts to economic costs in the policy-making process.
 - Ministries and government departments that are entrusted with the health of their people should mobilize existing infrastructure to identify and implement early-warning components of the effects of climate change on health.
 - Technological innovations to counter climate change, alleviate its health risks, and aid in adaptation should be explored. This is best done nationally and regionally by focus group discussions of concerned experts. Cooperation between all parties should be developed and capacity should be increased. Interdisciplinary and cross-sectoral studies should accelerate.
- 3. Integrated healthcare facilities, services, and implementation**
- The health sector should be an active participant in discussions, action planning, and implementation of all actions on climate change issues led by other sectors (for example food systems, air pollution, etc.).
 - It is crucial to ensure health is integrated across the climate change spectrum of initiatives and interventions, and to mobilize existing infrastructure to identify and implement early-warning components of the effects of climate change on health.
 - Immigrants and asylum-seekers as well as other vulnerable groups, such as the young, women, and the elderly, should be followed up with a good monitoring programme.
 - Stress the immediacy of policy implementation by creating a rapid response team that can effectively implement disease monitoring and surveillance, disaster evaluation, response and adaptation, and proper communication of risks and measures to vulnerable populations.
- 4. Government support in policy development**
- Although individual action plays a crucial role for adaptation to climate change, political will by governments is demanded to transform societies. Decision-makers should focus their attention on protecting human health against the high-level impacts of climate change.
 - While providing solutions to the negative effects of climate change on health, solutions covering global health risks and all segments of society should also be produced.

5. Financial aid and adequate resources

- Almost all adaptation and mitigation initiatives and policies have emphasized climate change as a major threat to public health, but very few and limited budgets have been allocated for health sectors.
- Ensure a sustainable and healthy recovery from COVID-19 that reduces carbon emissions and protects human health.
- Investment decisions made after COVID-19 stimulus plans will shape energy systems and the public's health for years to come. Thus, post-pandemic economic recovery plans should prioritize renewable energy expansion and improvements in energy efficiency.

The full report of “The imperative of climate action to promote and protect health in Asia” can be downloaded from the AASSA or IAP websites by scanning this QR code or by following the Web URL links:



http://aassa.asia/achievements/achievements.php?cate_idx=&bbs_data=aWR4PTE4MyZzdGFydFBhZ2U9MCZsaXN0Tm89NDlmdGFibGU9Y3NfYmJzX2RhdkEmY29kZT1hY2hpZXZlbWVudCZzZWZyY2hfaXRlbT0mc2VhcmNoX29yZGVyPQ==||&bgu=view&pageNum=&cate=
<https://www.interacademies.org/publication/imperative-climate-action-promote-and-protect-health-asia>

AASSA

Who is AASSA?

The Association of Academies and Societies of Sciences in Asia is a non-profit international organization with science, technology, and innovation (STI) interests. It consists of scientific and technological academies and societies in Asia and Oceania. It was launched in 2012 through the merger of two organizations, i.e., AASA (Association of Academies of Sciences in Asia, founded in 2000) and FASAS (Federation of Asian Societies and Academies of Sciences, founded in 1984). Its current members are 32 national academies and societies of sciences from 30 countries and one regional academy of engineering and technology. The principal objective of AASSA is to act as an organization in Asia and Oceania which plays a major role in the development of the region through science and technology. AASSA serves as a forum to discuss and provide advice on issues related to science and technology, research and development, and the application of sciences and technology for socio-economic development.

Vision

To promote initiatives, networking in Asian and Oceanian academies and societies of science to address global challenges through science and technology.

Mission

To strengthen the capacity of Asian and Oceanian academies and societies in their efforts to reduce hunger and poverty; to improve health & education; to combat against climate change through sustainable development, ensuring inclusivity and equitability. And to provide evidence-based science policy advice.

AASSA, the Association of Academies and Societies of Sciences in Asia, consists of the following national academies and academic bodies in Asia and Oceania.

Academy of Sciences of Afghanistan
National Academy of Sciences of Armenia
Australian Academy of Science
Azerbaijan National Academy of Sciences
Bangladesh Academy of Sciences
Chinese Academy of Sciences
Georgian National Academy of Sciences
Indian National Science Academy
Indonesian Academy of Sciences
The Academy of Sciences of Islamic Republic of Iran
Israel Academy of Sciences and Humanities
Science Council of Japan
Royal Scientific Society, Jordan
National Academy of Sciences of the Republic of Kazakhstan
The Korean Academy of Science and Technology
The National Academy of Science, Republic of Korea
National Academy of Sciences of the Kyrgyz Republic
Academy of Sciences Malaysia
Mongolian Academy of Sciences
Nepal Academy of Science and Technology
Royal Society of New Zealand
Pakistan Academy of Science
National Academy of Science and Technology, Philippines
Far Eastern Branch of the Russian Academy of Sciences
Siberian Branch of the Russian Academy of Sciences
Singapore National Academy of Science
National Academy of Sciences of Sri Lanka
The Academy of Sciences of the Republic of Tajikistan
The Science Society of Thailand under the Patronage of His Majesty the King
Thai Academy of Science and Technology
Turkish Academy of Sciences
Academy of Sciences of the Republic of Uzbekistan
Vietnam Academy of Science and Technology
ASEAN Academy of Engineering and Technology

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