IMPACT OF CLIMATE CHANGE

Climate change, loss of biodiversity, plastic pollution, the spread of endocrine disruptors, obesity, poverty and social inequality as well as many other emerging risks and trends caused by human action, are shaping our environment, sometimes with disastrous consequences.

The speed, size and scope of the modifications that humans are making to nature – and that in turn are impacting us, are unprecedented. The magnitude of climate change and its many irreversible aspects are unprecedented. It is happening faster than the ecosystem can adapt, leading to disruption and higher volatility.

The projections of future morbidity and mortality for life insurance companies becomes more challenging while there is greater need for protection and resilience against shock events and trends.

The major impacts caused due to climate changes will be briefly discussed below.

- **Extreme heat**
  Extreme heat in combination with high humidity is predicted to lead to parts of the world becoming uninhabitable to humans, because our bodies will no longer be able to thermoregulate by sweating. Milder winters disrupt natural defense cycles, e.g. against certain insect pests.

- **Severe Weather**
  Several natural catastrophes such as windstorms, floods and droughts are known to be exacerbated by climate change. Apart from the physical damage they cause, their increasing frequency and severity will also lead to direct loss of life and have long-term detrimental impact on human well-being. Droughts can lead to famine and social unrest. Floods and storms can cause displacement of population groups, leading to increasing social pressure. Economic development can be stunted by these events, leaving fewer resources.
  However, the impacts also depend on some factors that are under human control, such as building standards and city planning, water management.

- **Air Pollution**

  Erupting volcanoes, earthquakes, wildfires, dust storms and meteorites are natural phenomena that can cause climate change and air pollution. Particulate emissions can drop on polar regions, darkening the snow and ice and leading to less sun reflection, which contributes to global warming. Warmer sub-arctic regions encourage plant growth, which darkens the Earth's surface and leads to more global warming. Wildfires can cause temporary large increases in outdoor airborne particles, and substantial increases in gaseous air pollutants such as carbon monoxide, nitrogen dioxide, formaldehyde, and acetaldehyde. Large wildfires can increase air pollution over thousands of square kilometers. Increased temperatures and heat waves are expected to lead to increasingly frequent wildfires, which will increase air pollution even further.

- **Infectious diseases**

  Climate change and shifts in ecological conditions, such as changes in temperature, precipitation patterns and extreme weather events, can promote the spread of pathogens, parasites and diseases. These include high-profile mosquito-transmitted diseases such as malaria, Zika and dengue fever. Many of them spread better under higher temperatures, and benefit from milder winters that no longer decimate them.

  The relevance of infectious diseases for life insurance is dependent on how effective societies are at coping with or countering the facilitating factors. Industrialized countries can provide public health infrastructure, and programs to monitor, manage, and prevent the spread of many diseases. The burden of climate sensitive diseases is much higher in poorer countries which are less capable of preventing and treating illnesses, from where they can spread to other parts of the globe.

- **Water and food security**

  Low water quality is a major source of global mortality and morbidity.

  According to the WHO, 1.8 billion people use drinking water sources contaminated with feces. Flooding and heavy rainfall (which change their patterns due to climate change) sometimes cause overflows from sewage treatment plants into fresh water sources or agricultural lands,

which may contaminate drinker water or food. In addition, this can also increase the number and prevalence of water-borne parasites found in drinking water.

Agriculture is at mercy of extreme events and unpredictable weather. The increase in frequency and severity of droughts, floods and severe weather is likely to drive yields down. The elevated CO2 levels and higher temperatures have an impact on the development of some species of weeds, insects and other pests, which could decrease the average crop yields.

Food safety is also likely to be affected by climate change. The increase in humidity and temperature favors the bacterial and fungal contamination of food, such as with salmonella or mycotoxin produced by molds. Anthropogenic activity also leads to risks for food safety due to contamination by pesticide residues and other pollutants in the food chain. For example, the toxic methylmercury load of fish increases by 3-5% for each 1 degree rise in water temperature.

- **Indirect impacts**

  Mental health, which was cited in 2022 IPPC report. There are many aspects to this, including stress resulting from having been exposed to extreme weather events, anxiety for future of the Earth, and despair about destruction of nature.

  According to Literature "Lawrance, E. et al. (2021) "The impact of climate change on mental health and emotional wellbeing: current evidence and implications for policy and practice", Grantham Institute", for every one person affected physically during a disaster, 40 people are affected psychologically.

Compiled by: Sanjeeb Khatiwada *(Actuarial Analyst at IME Life)*

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