Impacts of climate change on human health and agriculture in recent years

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Abstract-
Climate change is one of the biggest threat to the human health and agriculture in recent years. The average global temperature is rising due to the greenhouse effect. The major contributor to the greenhouse gas carbon dioxide is increasing at an alarming rate which led to higher productivity of plant due to photosynthesis but increased temperature offsets this effect as it leads to increased crop respiration rate and evapotranspiration, higher pest infestation, a shift in weed flora, and reduced crop duration. Also climate change impacts the human health severely these days due to greenhouse gases and global warming. People living in all islands, coastal regions, mountainous and polar regions are more vulnerable to the impact of climate change. This paper results in the impacts and prevention methods towards human health and agriculture due to climate change in recent years.

Keywords-evotranspiration;greenhouse gas;vulnerable;flora;climate change;diseases;Anopheles;Aedes; schistosomiasis

I.INTRODUCTION

Climate change is one of the biggest challenge to the world in present times. It is defined as significant changes in the average values of meteorological elements like precipitation and temperature, for which averages have been computed over a long period [2]. The past few decades indicate that significant changes in climate at a global level were the result of enhanced human activities that altered the composition of the global atmosphere [3]. The concentration of greenhouses gases such as methane (CH_4), carbon dioxide (CO_2), and nitrous oxide (N_2O) have been increased by 150%, 40% and 20%, respectively since 1750 [4]. Carbon dioxide emissions, which account for the maximum proportion of greenhouse gases [5], rose to 36.14 billion metric tons in 2014 from 22.15 billion metric tons in 1990 [6]. The average global temperature has increased at an average rate of 0.15-0.20 ◦C per decade since 1975 [1]. Climate change affects human health with those with the least resources being most vulnerable. However, little is known about the impact of climate change on human health and effective adaptation methods in informal settlements in low and middle income countries. Although global warming may bring some localized benefits, such as fewer winter deaths in temperate climates and increased food production in certain areas, the overall

health effects of a changing climate are overwhelmingly negative. Climate change affects many of the the social and environmental determinants of health - clean air, safe drinking water, sufficient food and secure shelter.

II. IMPACTS OF CLIMATE CHANGE ON HUMAN HEALTH

A. Natural Disasters and undistributive Rainfall Patterns

Increasingly variable rainfall patterns are likely to affect the supply of fresh water. The lack of safe water can compromise hygiene and increase the risk of diarrhoeal disease, which kills over 500000 children aged under 5 years, every year. In extreme cases, water scarcity leads to drought and famine. By the late 21st century, climate change is likely to increase the frequency and intensity of drought at regional and global scale.[7]

Floods and extreme precipitation are also increasing in frequency and intensity. [7] Floods contaminate freshwater supplies, heighten the risk of water-borne diseases, and create breeding grounds for disease-carrying insects such as mosquitoes. They also cause drowning and physical injuries, damage homes and disrupt the supply of medical and health services.

B. Assessment of Health Effects

Measuring the health effects from climate change can only be very approximate. Nevertheless, a WHO assessment, taking into account only a subset of the possible health impacts, and assuming continued economic growth and health progress, concluded that climate change is expected to cause approximately 250 000 additional deaths per year between 2030 and 2050; 38 000 due to heat exposure in elderly people, 48 000 due to diarrhoea, 60 000 due to malaria, and 95 000 due to childhood undernutrition.

C. Spread of Diseases due to climate change

Changes in climate are likely to lengthen the transmission seasons of important vector-borne diseases and to alter their geographic range. For example, climate change is projected to widen significantly the area of China where the snail-borne disease schistosomiasis occurs[8].

Malaria is strongly influenced by climate , mainly transmitted by Anopheles mosquitoes , malaria kills over 400000 people commonly under age of 5 years old in certain areas of African countries. Other type mosquito called Aedes actually a vector of dengue disease strongly influenced by change in climatic conditions. Climate conditions continue to increase exposure to dengue.

III. IMPACTS OF CLIMATE CHANGE ON AGRICULTURE

A. Climate change and agriculture

Agriculture is the most vulnerable sector to climate change, owing to its huge size and sensitivity to weather parameters, thereby causing huge economic impacts [9]. The changes in climatic events such as temperature and rainfall significantly

affect the yield of crops. The effect of rising temperatures, precipitation variation, and CO2 fertilization varies according to the crop, location, and magnitude of change in the parameters. The temperature increase is found to reduce the yield, while the precipitation increase is likely to offset or reduce the impact of increasing temperature [10]. As influenced by climatic variables when witnessed in Iran, crop productivity depends on adaptation abilities and crop type, climate scenario, and CO2 fertilization effect [11]. The net revenue of farmers is found to decrease significantly with a decrease in precipitation or increase in temperature in Cameroon. This factor and poor policy-making have led to low demand for Cameroon's agricultural exports, thereby causing fluctuations in national income [12].

B. Adaptation to climate change

Adapt to climate change are mainly modified farm practices, and are influenced greatly by the policy decisions suiting the climatic variability and climate extremes, along with social, political, and economic conditions [13]. The conventional intensification of agriculture causes huge economic losses, out of which almost 80% are caused by mismanagement of nutrients, which makes nutrient management an important aspect [14]. Carbon sequestration, or an increase in soil organic carbon (SOC), can be encouraged by no-till farming, cover crops, manuring, nutrient management, agroforestry, and soil restoration. Moreover, carbon sequestration can reduce 5-15% of fossil-fuel emissions globally [15].

IV. CONCLUSION

In this 21 st century climate change plays a very important role in determining the impacts on human health and agriculture. We need a stronger adaptation to prevent the impacts on human health like Malaria,Dengue,etc. That actually happened due to climate change. We need to implement some steps to overcome this impact like- a) cleaner energy systems ,promoting safe use of public transportation and active movement such as cycling or walking as alternatives to using private vehicles - could reduce carbon emissions, and cut the burden of household air pollution, which causes some 4.3 million deaths per year and ambient air pollution, which causes about 3 million deaths every year. Therefore, institutions at the international and national levels need to work in cooperation to deal with the challenge of climate change. Despite the availability of options for climate change adaptation in agriculture, inefficient institution and financing might hinder South Asian agriculture to tackle climate challenges in the future. Several technical measures along with the local knowledge contribute to adapting agriculture to climatic variability.

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