

Climate Change: Potential Health Effects on Vulnerable Population & Malnutrition Food Security Challenges: A Case Study of Shakargarh

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ABSTRACT

Under nutrition evils effect approximately 800 million people or 12 % of the earth population was has been by now misery from chronic under nutrition earlier than to the food crisis of 2008. Undernourishment is a severe trouble in Pakistan that affect about 40 percent of its total inhabitants with no great advancement to direction of during the past few decades its decrease. The Intense undernourishment rate is 13 percent in Pakistan which is close to the world health organization (WHO) crisis point of 15 percent. The aim of research is to discuss climate change effect on health and also on food security. Researcher has selected 15 most affected area of Shakargarh i.e. Shakargarh I, Shakargarh II, Dhodha, Dhadwal, Masroor, Chakra, Baramanga, Kot Naina, Fate Pur, Pindi Kalan, Kanjroor, Kot Bhachna, Kot Dowaba, Chak Manak and Khurd. Annual Temperature data has accumulated from the Pakistan metrological department from Climate change scenarios of Pakistan (AR5) CCSM4 data for RCP4.5 Scenario Grid size 25KM. Data about Flood Affected areas in acres and Percentage of Agriculture Land damages is collected from office of the assistant commissioner Shakargarh. Primary Data has been collected through questionnaire 100 respondents from each area total 1500 respondents to analysis percentage of spread diseases in the affected areas. It is concluded that there is requirement to battle climate change for health causes as well as for the sustainability of human life.

KEY WORDS: Climate Change, Health Effects, Vulnerable Population, Malnutrition.

INTRODUCTION

Human health is directly exposed to climate change through changing in weather patterns such as high temperature, rainfall, increase in sea level and further everyday extreme events and indirectly exposed by climate change through variation in water, atmosphere and foodstuff value and changes in ecology, cultivation, manufacturing and resolution and the financial system. [1] [2] [3]. Health problem of children increased in developing countries due to lack of nutrition and food [4].

The Intergovernmental Panel on Climate Change (IPCC) represents that the average temperature of surface has increasing up slightly to 0.6 C. but in the 21 century it would reach approximately from 1.1 C to 6.4 C. According to IPCC, during the last 20 years the warmest years were 1995 and 2006 [5] [6]. In the context of temperature which directly relate to climate change projected by Inter-Governmental Panel on Climate Change (IPCC) will increase up to 1.4 to 5.80C at the end of this century [7].

Climate change effect on health

The World Health Organization has much given importance to climate change and its effect on health and is also appealing to the governments for attention on threats produced by climate change [8] [9]. Figure (1) The Intergovernmental Panel on Climate illustrates pathways of climate change having an effect on health, and its impact of environmental, social, and health issues.

Climate Change and Pakistan

In Pakistan, climate change is directly related to social, economic and environmental effects. Each year natural hazards like floods, drought and earthquakes that are cause of several damages of population. Pakistan is highly at risk by the climate change such as 22.8 percent of area of total area and 49.6 percent of population of total

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population [10]. In Pakistan recent floods and droughts are presenting the validity the phenomenon of climate change [11].

In 2010, flood badly affected the population of Pakistan about 14 million people became homeless and 16000 deaths were recorded. Several kinds of viruses spread and severe malnourishment drawback occurred in the flood areas [12]. Around 20 million people per year died from Dengue fever [13] [14]. In 2011 about 20,000 cases and 300 deaths from Dengue fever were reported officially in Pakistan. Lahore was the epicenter of maximum cases. 196 cases were reported in Sindh [15].

Climate Change and Food Security

Malnutrition is significant factor of communicable disease that cause morbidity and mortalities. Micronutrient plays a significant role to increase an effective resistant reaction against disease in developing countries [16]. Undernourishment is a mainly critical threat for diarrheal virus in children in developing countries [17] [18]. Climate change has focal effect on agricultural production; forcing farmers to apply and vary new form to changed climatic situation in the near future. Climate change ability raise for example higher temperature, changes in rainfall can affect agriculture and forestry [19] [20]. Under nutrition is wicked that affect approximately 800 million people about 12 % of the world population [21] [22].

The International Panel on Climate Change present reports on observation of temperature trends in Asia which show that 1-3 C change in temperature occur annually which effects rainfall pattern [23] [24] [25]. In the Pakistan sea level also rising yearly in the 1900 s this have expansion of 0.6 to 0.10 C in the sea region and also decrease the perception in the beach front belt in Pakistan [26] [27]. The food starved population has rise up in Pakistan, in 1995 this was 23.7 million and in 2007 was 36.5 percent [28]. UNDP presents that recent flooding has added 2.8% population to the current poverty major count in Pakistan.

Malnutrition is high thread to Pakistan, 40 percent of total population facing this human killer problem and no observed for reduction of human killer problem from the past several decades also [29]. (Figure 2) is given by Source: [30] which describe the relationship among climate change and food security.

Objective of the Study

- ❖ To assess the effects of Climate change on human health
- ❖ To study the climate change force effect on food security
- ❖ To highlight issues related to climate Change in Pakistan

Pathways in Which Climate Change have an effect on Health, and its impact of Environmental, Social, and Health issues

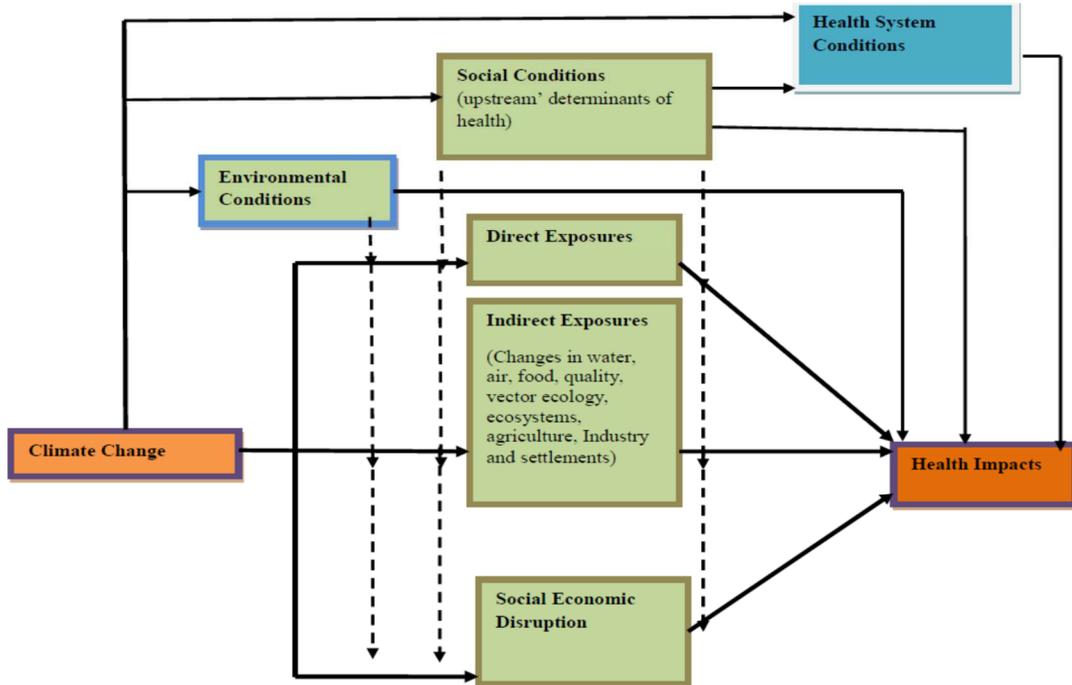


Fig 1
Source: Mechanisms of climate change affecting health (IPCC 2007)

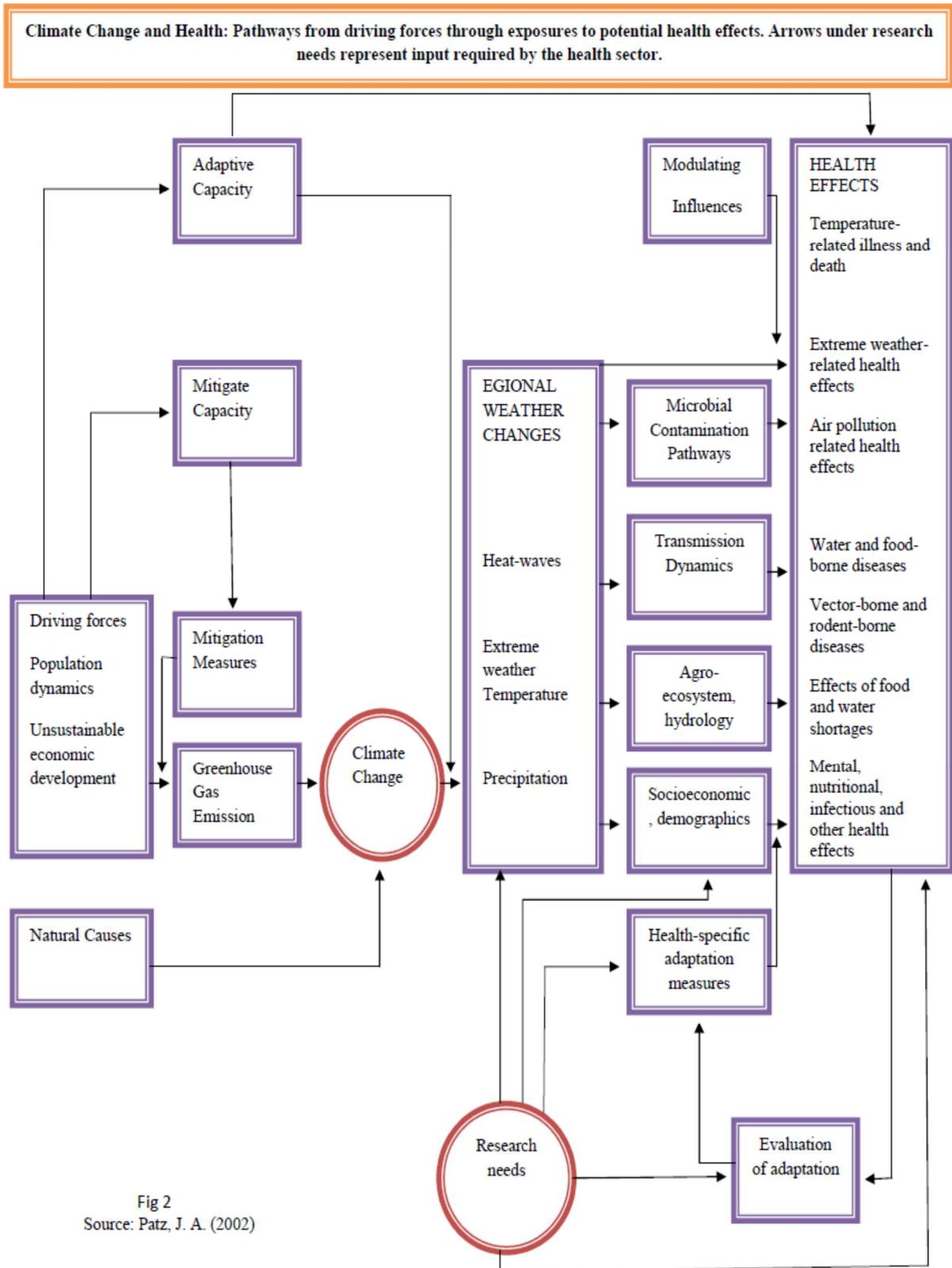


Fig 2
Source: Patz, J. A. (2002)

RESEARCH METHODOLOGY

The study has been conducted at Shakargarh. This is the mostly effected population by climate variation. In order to fulfill the objectives of this study, descriptive and exploratory types of research has been designed. Shakargarh is working as a tehsil subunit in the Punjab Pakistan. The locations coordinates of Shakargarh subunit is 32° 30' North site and 75° 23' East site and having area of 1260 Km. The Shakargarh is divided into 35 sub units for administration. It covers 703 towns, of which Shakargarh is the central command. The River Ravi is fall the south site, north site is Jammu Kashmir border line, West site is plain fields where grow different crops. Pakistan is agriculture country that intersected with rush beds [31].

Researcher has selected 15 most affected area of Shakargarh i.e. Shakargarh I, Shakargarh II, Dhodha, Dhadwal, Masroor, Chakra, Baramanga, Kot Naina, Fate Pur, Pindi Kalan, Kanjroor, Kot Bhachna, Kot Dowaba, Chak Manak and Khurd. Coordinate is taken by GPS. Annual Temperature data has accumulated from the Pakistan metrological department from Climate change scenarios of Pakistan (AR5) CCSM4 data for RCP4.5 Scenario Grid size 25KM [32]. Data about Flood Affected areas in acres and Percentage of Agriculture Land damages is collected from office of the assistant commissioner Shakargarh. Primary Data has been collected through questionnaire by Non-Probability Convenient sampling. Researcher has selected 100 respondents from each area total 1500 respondents to analysis percentage of spread diseases in the affected areas.

Area of Study

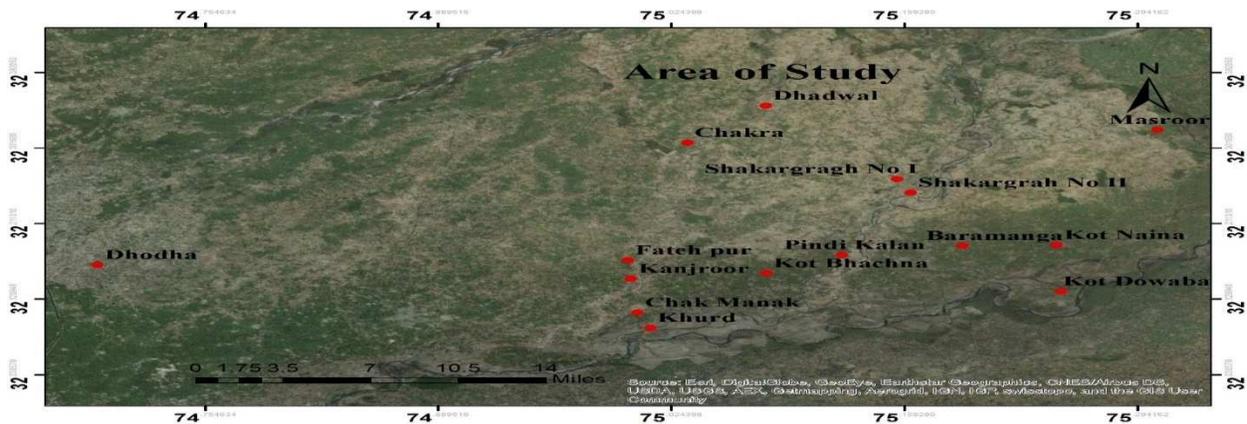


Fig 3

DATA ANALYSIS

Annual Mean temperature of Shakargarh

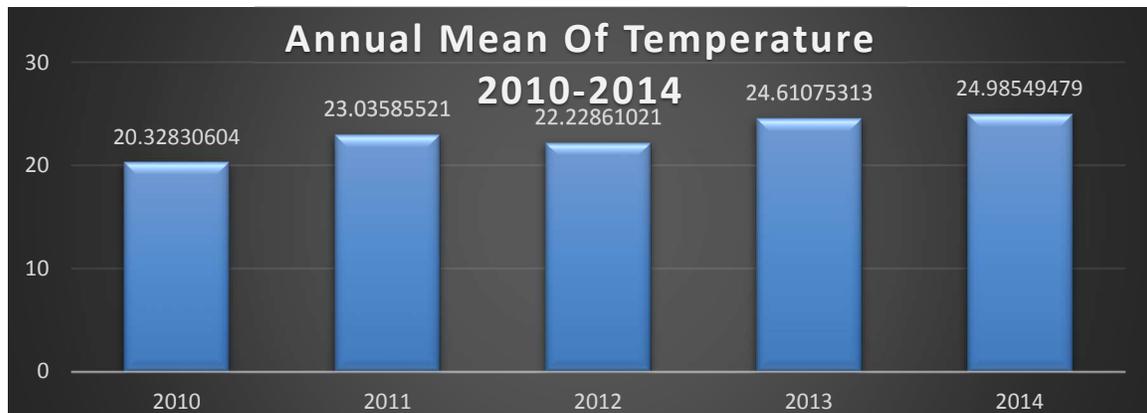


Fig 4

Annual Projected Mean Temperature of Shakargarh

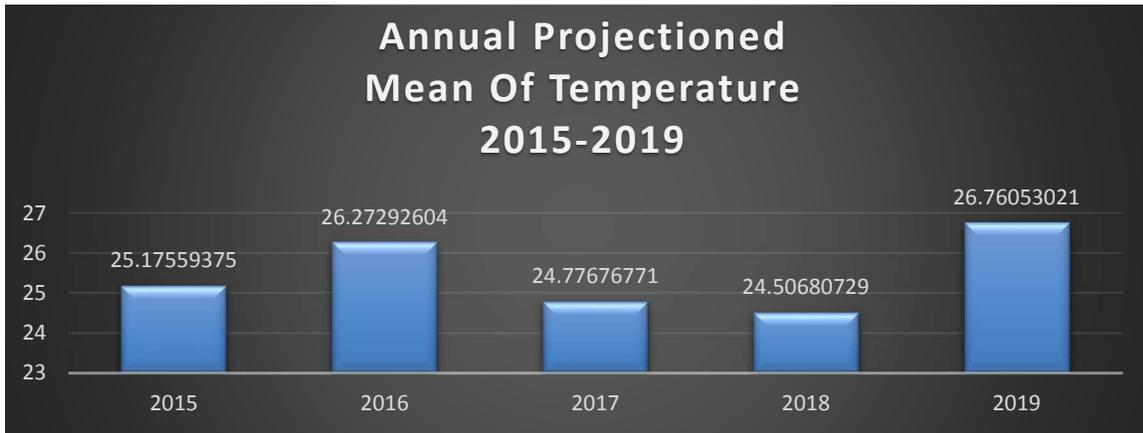


Fig 5

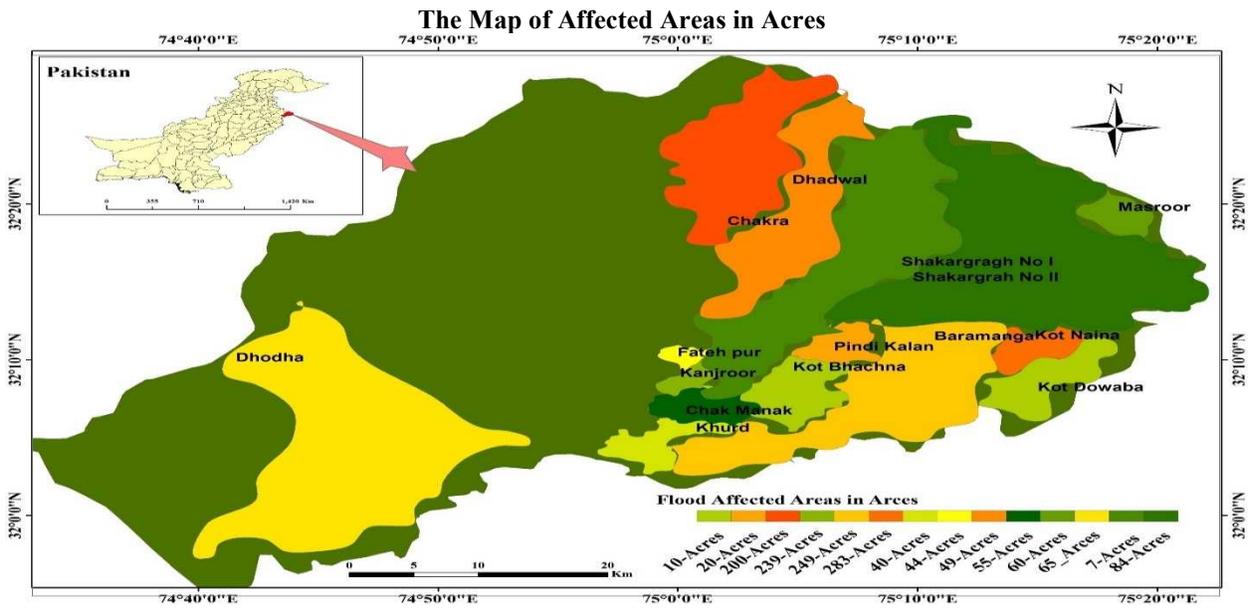


Fig 6

The Map has shown how much Areas of Shakargarh is affected by the flood

The Map of Agriculture land damages Areas in Percentage

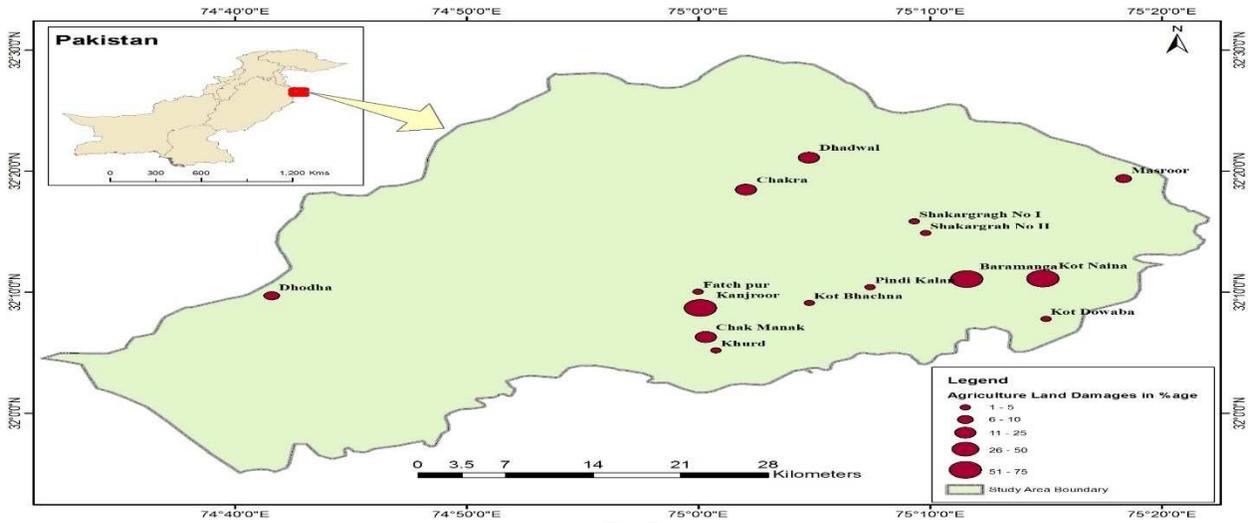


Fig 7

The Map has shown damages of Agriculture land in Percentage

Map of Skin infection in Flood Affected Areas

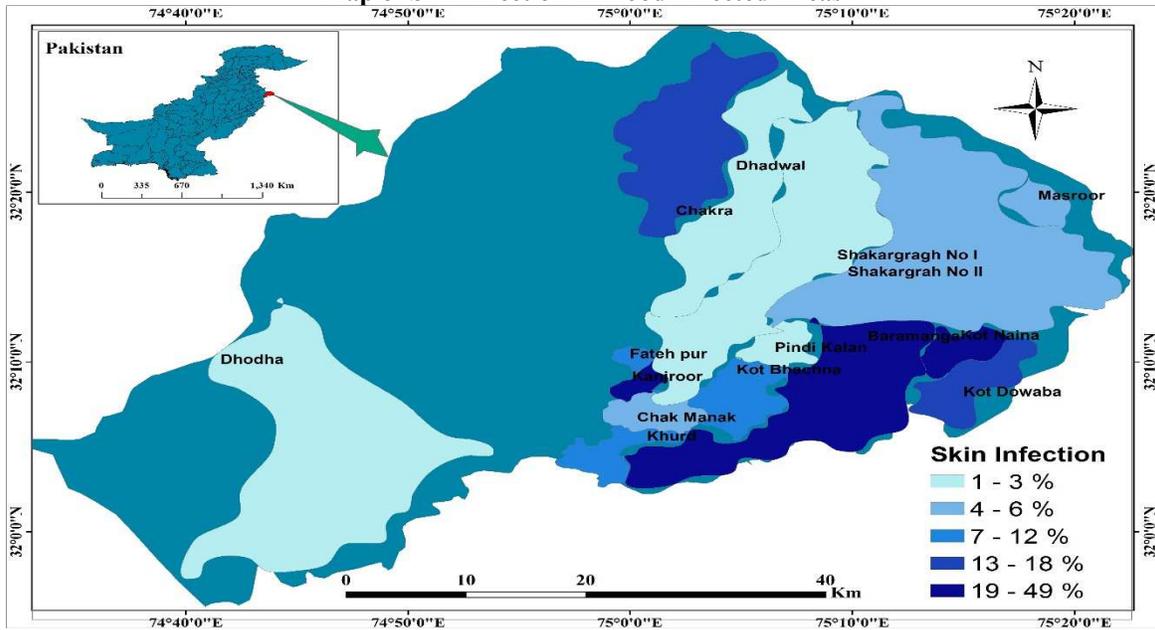


Fig 8

Map of Diarrhea in Flood Affected Areas

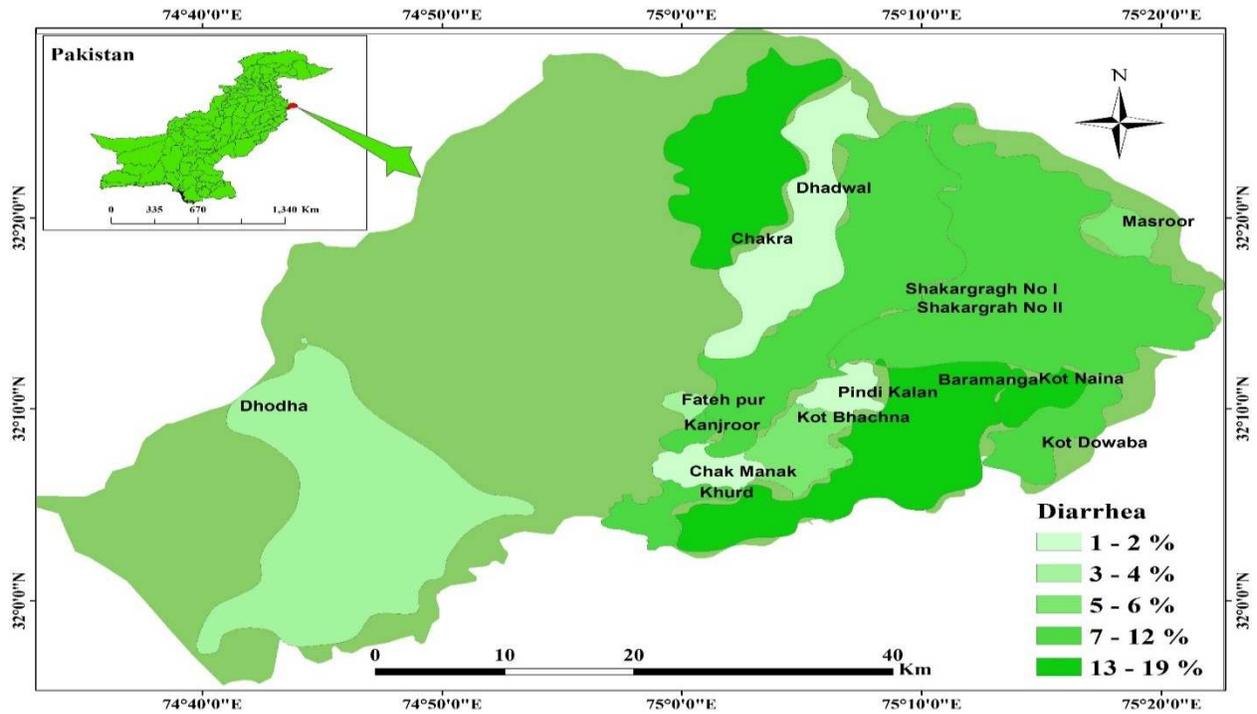


Fig 9

DISCUSSION

Changing in climate is harmful for human and environment [33]. Fig 4 and 5 has shown annually mean temperature is increasing every year. Climate variation such as tropical cyclone extended heat waves common tropical cyclones; flooding and drought are the unusual modified experiences in this deltaic area. It is raising sea level because of fast melting glaciers in the north region [34]. About 1405 area of Shakargarh is affected due to flood (fig 6). 75% of Agriculture land is destroyed by the flood (fig 7). Climate variation has affected food systems in many ways series through outcome on yield production that modifies in precipitation directly because of flooding [35]. Water borne diseases is caused by unhygienic condition of drinking water [36]. Disease spreads is becoming at the worrying stage, diarrhea and skin diseases are very common in affected areas (fig 8 and 9).

CONCLUSION

All things are measured resultantly the effect of climate variation on human health is clear. In the face of disaster and natural resource scarcity, human health is to suffer. Moreover, a lot of diseases for example, dengue, cholera and malaria are identified to be perceptive to climatic issues. Hot weather makes an extra favorable atmosphere for mosquitoes and other disease transport as bug and; so, raises the probability of infection break out from the heaps. Pakistan as other developing countries, really continue exposing to the effect of climate change. Pakistan has agricultural support economy, situated in arid & semi-arid zone, with intense reliance on irrigated cultivation hill highly in danger to climate change. Floods and droughts are in turn revealing country to the peril of socio-economic sufferers. Considering the prediction for future, water quality, food security, rising heat pressure and increasing rate of natural disasters, the direct inference of Climate Change for human health is frightening.

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