**Study on Vector Borne Diseases and Climate Change along an Altitudinal Transect in Nepal**

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**Background**

The effect of climate change is obvious. There is global consensus that the entire global community is increasingly imperiled by environmental threats like landslide, extreme weather or unseasonal weather conditions, floods, droughts, epidemics and killer heat waves beyond anything we have ever experienced. These catastrophes are self-generated. Despite the ubiquitous associations to humanity, environmental issues are still not high on the national agenda. The objective of this study is to assess the effect of climate change on the vector borne diseases along an altitudinal transects and recommend guideline to develop action plan for its prevention and control in Nepal.

**Methods**

The methodology of study was the mixing of descriptive retrospective and cross sectional study. Three different ecological regions with respect to their altitude from all the development regions of Nepal were selected for the study ranging from height below 500m, 500- 1500m and above 1500m. Both the qualitative and quantitative method was used for data collection. In-depth and key informant’s interviews were carried out with the health professionals and policy makers. Focus Group Discussion was carried out with the homogeneous and heterogeneous groups of female community health volunteers, local people and health workers. Questionnaire survey was also conducted with the elders aged above 60 years for Knowledge, Attitude and Practice survey. Climate data on temperature and precipitation was collected from Department of Hydrology and Meteorology. Time series log linear regression analysis was done to assess the relationship between climatic factors and vector-borne diseases. Judgmental and multistage random sampling technique was used. Fifteen Primary Health Care Centers were selected from five development region, three from each region based on altitudinal transect. Twenty seven wards were selected for Knowledge, Attitude and Practice study from western region.

**Results**

Most of the health workers had some knowledge about climate change and they were known about it compared to community people who don’t even heard the term "Climate Change". Most of the health workers were focusing on the need of strengthening of the existing health programs. They even said that the current health programs at the district level are not sufficient and need to be expanded with the availability of proper service and manpower. Health workers from Himalayan region also felt the importance of vector control officer in these regions as well because they presume that the problems of vector are alarming and they are at risk of malaria. Knowledge, Attitude and Practice surveys were conducted in three districts of different ecological regions from terai, hill and mountain. Only 1.73% of the respondents from terai, 28% from hill and 19.18 % from mountain region have knowledge about climate change. Their major source of information about the climate change was radio which is local radio stations. Time series analysis was also carried out between climatic parameters and malaria. Temperature (maximum and minimum), humidity and rainfall were taken as independent variables and malaria as dependent variable and were analyzed in the three cross section of Nepal from terai to mountain region. Occurrence of malaria was significantly associated with rainfall (p<0.032) and morning humidity (p<0.007) and other parameters were found insignificant in terai region. While in hill region, no significant association has been found between malaria and rainfall, even humidity, maximum and minimum temperature. Malaria was found significant with morning humidity (p<0.01). From both the topographical zone (terai and hill) showed significant association of humidity and malaria.

**Conclusions**

Relative humidity is major climatic determinants for the occurrence of malaria, which is highly dependent on seasonality and rainfall. Malaria was not found in mountain region, so no association could be ascertained in this region

**Keywords:** climate change; health programs; health workers; malaria; vector control; vector borne diseases.