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Impact of climate change on human livelihood and agricultural growth in Himalayan Country Nepal

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1. Motivation for the Study

Present-day concerns continue to grow about the adverse impacts on human life of climate change, which includes issues such as increased food insecurities. Climate change has many impacts on the overall ecosystem, directly and indirectly, however its impact on agriculture can be understood to be more direct as it is particularly vulnerable to these changes. Concern about climate change in Nepal may be particularly acute as the result of the observed early symptom of rapidly increasing average temperatures. Partly as a result of these temperature changes, Nepal has recently become a rice importer, where it was an exporter previously. Nepal now faces a food deficit in more than 27 districts in the hill and high hill areas. Productivity and quality of food production is also in question in Nepal as both of them are in deterioration. In reaction to these challenges, farmers are employing excess chemical fertilizer and pesticides, which has led to widespread soil contamination in particular and increasing pollution in general.

Amid this emerging crisis, the proposed paper, seeks to examine empirically over time the relationship between climatic variables such as temperature and precipitation and agricultural gross domestic product (AGDP), while controlling for the use of agriculture inputs (chemical fertilizer, pesticides, improved seeds, irrigation etc). In a paired qualitative analysis, the research will highlight the current trends of human habitat displacement and corresponding efforts at rehabilitation.

Coverage and Methodology

The study utilizes quantitative and qualitative data on impact of climate change and its impact in Nepal especially on human activities and agricultural production. Descriptively, the paper provides time-trend data – 1975-2010 – on the following variables: AGDP, use of agricultural inputs (chemical fertilizer, improved seeds, pesticides, irrigation, etc.),

annual temperature (maximum, average, and minimum) and rainfall. The baseline econometric model that we test is:

AGDP = f (rainfall, temperature, agro-inputs, irrigation, u)

For the qualitative analysis, we utilize real field level experiences and secondary references. In particular, we use five cases of village level climate impact and its consequences in order to exemplify the impact of climate change on human activities and life.

2. Expected Results

In the Quantitative Analysis:

Greater use of agro-inputs positively affects AGDP.

Rainfall has a positive impact on AGDP.

Temperature has negative impact on AGDP.

3. Preliminary Descriptive Results

First, from 1975-2010, temperature in Nepal has increased faster than the global average (more than double).

Second, the pace of temperature increase is more rapid in hill and high hill area areas compared to the plains (Terai) area.

Third, especially in the last decade, the displacement of habitat, especially in the Himalayan and Hill Area in Nepal is increasing.

Last, the costs of rehabilitation (financial cost, psychological cost, disorganization of regular life etc) are increasing at both the state and individual levels.

4. Summary and Conclusios

In its conclusion, the paper seeks to raise awareness of issues related to climate change with key stakeholders (government, central bank, other

policy-executing organizations, academia, international organizations, donors, industrial communities, user groups, environmentalists, pressure groups, journalists, general public and others) by proposing policy recommendations and strategies to lessen the negative impacts of these changes. There are few studies of this kind in Nepal; hence it would be a valuable addition to literature on environmental management and climate change as reference material for shaping Nepal's policy and strategy.