World Academy of Science, Engineering and Technology
International Journal of Environmental and Ecological Engineering
Vol:12, No:02, 2018

Cost Benefit Analysis of Adoption of Climate Change Adaptation Options among Rural Rice Farmers in Nepal

Authors : Niranjan Devkota , Ram Kumar Phuya, Durga Lal Shreshta

Abstract : This paper estimates cost and benefit of adoption of climate change adaptation options available to the rural rice farmers of Nepal. Adoption of adaptation strategies, intensity of use of adaptation options, identification of labor and non-labor cost and finally per unit cost and benefit analysis of climate change adaptation were made. Multi-stage sampling technique was used to source respondents for the study and used structured questionnaire techniques to collect data from 773 households from seven districts; 3 from Terai and 4 from Hilly region of Nepal. The result revealed that there are 13 major adaptation options rice farmers practice in order to protect themselves from climatic risk. Among the given adaptation options, the first three popular adaptation options practiced by rice farmers are (i) increasing use of chemical fertilizer (60.93%) (ii) use of climate smart verities (49.29%) and (iii) change in nursery date (32.08%). Adaptation cost is obvious, based on that, the first three costly adaptation options are the alternative irrigation practice which incurred average cost of US $69.95 (US$ 1 = 102.84 Nepalese Rupees) followed by a denser plantation of local seeds ($ 20.69) and using climate smart varieties ($ 18.06). 88% farmers practiced more than one adaptation strategies on the same farm with the aim of reducing the effect of extreme climatic conditions. Total cost and revenue revealed that per unit total cost ranges from $28.34 to $32.79 whereas per unit total revenue ranges $33.4 to $49.02. Surprisingly, it is observed that farmers who do not adopt any adaptation options are able to receive highest income from per unit production. As Net Present Value (NPV) is positive and Benefit Cost Ration (BCR) is greater than one for every adaptation options that indicates the available adaptation options are profitable to the rice farmers.

Keywords : climate change, adaptation options, cost benefit analysis, rural rice farmers, Nepal
Conference Title : ICACCA 2018 : International Conference on Agriculture and Climate Change Adaptation
Conference Location : Mumbai, India
Conference Dates : February 22-23, 2018