Short communication

Agriculture farming extension model for analysing climate change adaptation: A case study of Sri Lankan farmers

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Abstract. *Climate change and variability threaten the sustainability of agricultural and food production, especially in agrarian communities. In Sri Lanka, rainfall is expected to decline by almost 10% by the year 2050 and the largest increase in temperature can be experienced. Despite the potential risks of climate change on agricultural productivity, Sri Lanka does not have a dedicated policy to respond to climate change. Furthermore, there is a dearth of research done in Sri Lanka to provide an understanding of factors that shape farmers' adaptation to climate change and institutional link to the adaptive capacity of farming households. In this study we have taken secondary data from the World Bank and Central Bank of Sri Lanka to show how the farming population decreased and deforesting occurred due to the urbanization as well as to low education of the farming community. The results show that the majority of farmers who have climate variability adaptation strategies in place are largely influenced by indigenous knowledge. Women and low-income earners are less likely to employ climate change adaptation strategies in order to improve their agricultural productivity. The results have implications that agricultural extension officers service is needed to keep them in the industry and introduce new foresting schemes to carbon deposit and finally reduce the urbanization process.*

Introduction

Sri Lanka (SL) farming community is among the second most vulnerable country to climate change effects in the year of 2018, particularly flash floods and droughts. In Sri Lanka, rainfall is expected to decline by almost 10% by the year 2050 and the largest increase in temperature can be experienced. According to the census urban population is 18% and rural population is 82% but urbanization is rapidly taking place in Sri Lanka (Central Bank, 2018).

In this study we are focusing on urbanization effect to reduction of farming community and how it effects from climate change due to knowledge gap among farmers. SL has high potential to prosper in agriculture, but the present agricultural education system has not been updated for a long time. Therefore, Agri extension curriculum should be revised to accommodate the current challenges of climate change, the massive yield gap, the lack of innovation, the poor agricultural knowledge among farming communities, food insecurity, etc.

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Design, methodology and approach

However, little research has focused on the urbanization and climate change in Sri Lanka and the socio-economic mechanism was not studied with respect to present education gap among the farming community. In this study we have taken secondary data from the World Bank and Central Bank of Sri Lanka to show how the farming population decreased and deforesting occurred due to the urbanization as well as to low education of the farming community.

Findings

Sri Lanka employment in agriculture sector reduced from 42% to 26% from 2000 to 2018. But agriculture land usage increased from 37% to 44% during this period. Furthermore, GDP Share from agriculture sector recorded highest as 20% in 2000 and it was reduced up to 8% in 2018. Value addition was increased due to the government policy. Crop production index in year 2000 was only 95% and 2018 it was 130. Arable land percent of land area in the year of 2000 was only 14.5% and in 2018 its percentage increased up to 21% due to the end of civil war in 2009. Forest area in 2000 was 22000 km^2 and in 2018 decreased a lot up to 20,500 km^2 due to urbanization process taking place, and because of this carbon deposition decreased and favoured climate change (World Bank, 2018). Food security and climate change issues and assessment how food sovereignty contributes to addressing the climate change impacts the entire food systems, and food sovereignty within current development discourse by bringing global learning, experience, and scholarship together into a framework.

Practical implications

The results have implications that agricultural extension officers service is needed to keep them in the industry and introduce new foresting schemes to carbon deposit and finally reduce the urbanization process.

Theoretical implications

Formation of the farmers' group probably promoted dissemination of knowledge on climate change effect and its practices, as it will facilitate interaction and the exchange of ideas. Climate resilience agriculture is, therefore, an integrated approach rather than the simple provision of technology needed to be inculcated among them.

Originality and value

Drawing on the protection motivation theory from climate change, we propose foresting, value added agriculture and social appraisal model for agriculture enhancement for adaptation decision. Thus, there is a need to revisit the extension curriculum to consider all the stake holders, to include new agricultural practices, new extension techniques to reduce the food insecurity in a developing country like Sri Lanka.

References

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