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Organic Carbon Stocks in Various Land-use Types of Karst Landscape in Northeastern India

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***Abstract*:** Although karst landscapes cover about 20 per cent of the Earth's ice-free land surface, their potential for climate change mitigation is still widely unexplored. The present study investigated the variation in organic carbon stocks under different land uses of karst landscape in Meghalaya, India. The sampled land uses of Mawsmai village karst landscape were forest land (Mawlong sacred forest and Ramjadong forest), grassland and homegarden. There was a decline in total organic carbon stocks along Mawlong sacred forest (236 Mg C ha^{-1}), Ramjadong forest (158 Mg C ha^{-1}), homegarden (116 Mg C ha^{-1}) , and grassland (50 Mg C ha^{-1}). Land use history of Mawlong sacred forest represented by lower disturbance intensity as compared to that of the non-sacred Ramjadong forest had a positive impression on its total organic carbon stocks. Yet even Mawlong sacred forest had relatively low organic carbon stocks as compared to that reported for other comparable forests in literature indicating a potential negative impact of karst topography on forest carbon stock. Homegarden land use of the karst landscape was found to have the potential to store substantial amount organic carbon stock per unit area.

***Keywords*:** Carbon stock, Karst, Meghalaya, Land use, Sacred forest, Grassland, Homegarden