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**Sri Lankan Contribution to Climate Change by Enteric Fermentation of Large Ruminants:
An Overview**

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Abstract

The Sri Lankan livestock sector (LS) which is essential to rural households' food systems and means of subsistence, contributed to 0.6% of the GDP in 2020. The cattle industry has contributed <40% to the LS. The objective of the review was to determine how Sri Lankan LS, especially ruminants contributed to climate change (CC) by emitting greenhouse gasses (GHG). In the year 2020, in total there were 1 426 570 cattle, including neat cattle and buffaloes. Sri Lanka has experienced various impacts of CC as it is a tropical island in the Indian Ocean. The cattle industry is involved in CC directly and indirectly. Global warming (GW) is a predominant factor in CC. The emission of GHG in different ways is a root cause of GW. As a GHG, 17% of methane emissions in the atmosphere are accounted by the enteric fermentation of ruminants, especially by the large ruminants; cattle, and buffaloes. It is a complex process that occurs within the fore stomach (rumen) of ruminants where gases are released outside via a process called eructation. As a GHG, methane (CH₄) contributes to GW 28 times higher than carbon dioxide produced in large ruminants by enteric fermentation. In Sri Lanka, the majority of the local indigenous cattle and buffaloes are used to eat low-quality grasses, straws, and other roughage which significantly increases the emission of CH₄. A past study revealed that the CH₄ emission factor estimated according to the IPCC (2006) Tier 2 methodology for an improved dairy cattle is 42 kg /head /year while a local dairy cow is 52 kg /head /year and 65 kg /head /year for dairy buffalo in Sri Lanka and the values are lower compared to default emission factors given by the IPCC (2006). The expected temperature rise in Sri Lanka, which would be primarily caused by GHG, will be slightly less than the average worldwide. However, the highest emission scenario predicts a 2.9° C–3.5° C increase in temperature by the 2090s. Therefore, instead of focusing solely on production, it is important to investigate measures to minimize GHG emitted by large ruminants under local management conditions.

Keyword: Climate change, Enteric fermentation, Livestock, Methane