

Livestock

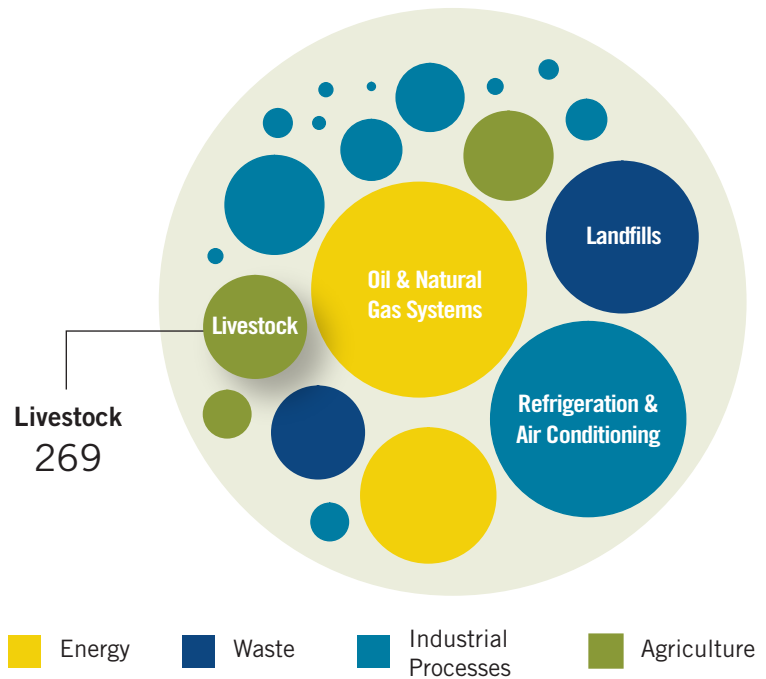
Emissions from Livestock Operations

Sector Description

Livestock operations generate methane (CH₄) and nitrous oxide (N₂O) emissions. The greenhouse gas (GHG) emissions mainly come from two sources: enteric fermentation and manure management. Methane is produced as a by-product of the digestive process in animals through a microbial fermentation process. Manure N₂O emissions result from nitrification and denitrification of the nitrogen that is excreted in manure and urine. Global baseline emissions from the livestock sector were estimated to grow from 2,202 to 2,729 MtCO₂e from 2010 to 2030.

Emissions Reduction Potential

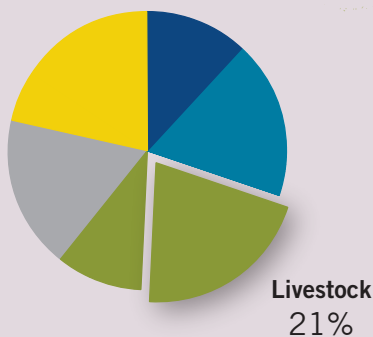
Assuming full implementation of current technology, emissions in the livestock sector could be reduced by up to 269 MtCO₂e in 2030. This accounts for 6% of the 4,615 MtCO₂e in global reduction potential in 2030.



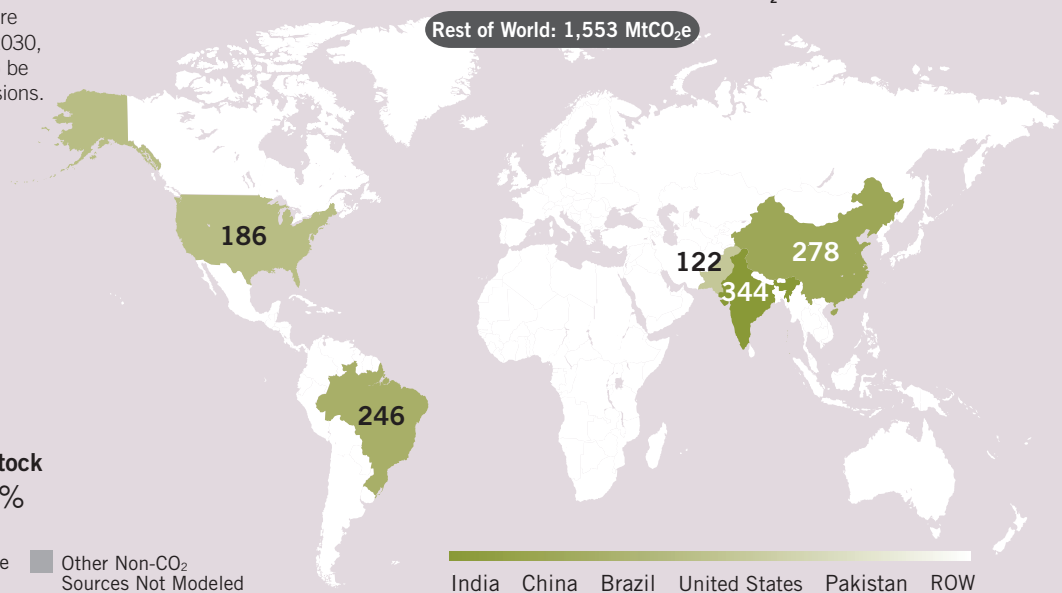
Projected Emissions in 2030

Global Non-CO₂ Emissions

The Livestock sector baseline emissions are estimated to be 2,286 MtCO₂e in 2010. In 2030, emissions from this source are projected to be 2,729 MtCO₂e or 21% of total non-CO₂ emissions.



Emissions from Top 5 Emitting Countries (MtCO₂e)



Legend: Energy (Yellow), Waste (Dark Blue), Industrial Processes (Light Blue), Agriculture (Green), Other Non-CO₂ Sources Not Modeled (Grey)

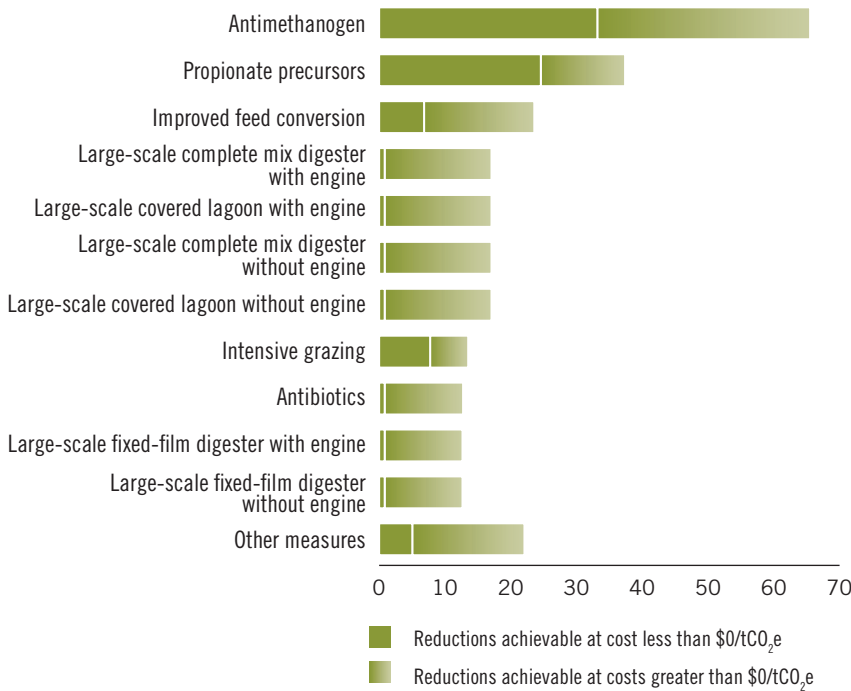


Key Points

- The livestock sector accounts for 21% of baseline non-CO₂ emissions in 2030.
- The largest low-cost reductions in emissions resulted from implementation of strategies to improve feed conversion efficiency, incorporate feed supplements, and increase the use of small-scale anaerobic digesters.
- The technologically feasible abatement potential of the livestock sector is 267 MtCO₂e in 2030, 10% of baseline emissions.

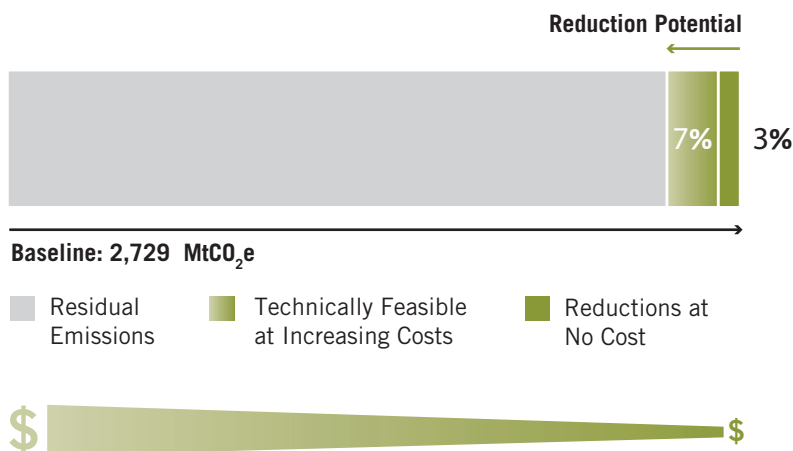
Abatement Measures

Emissions reductions by technology in 2030 at \$0/tCO₂e and at higher prices.



Emissions Reduction Potential, 2030

It would be cost-effective to reduce emissions by 3%, compared to the baseline, in 2030. An additional 7% reduction is available using technologies with increasingly higher costs.



Abatement Measures

The report considered six enteric fermentation (CH₄) abatement measures: improved feed conversion efficiency, antibiotics, bovine somatotropin (bST), propionate precursors, antimethanogen vaccines, and intensive pasture management. It also included two manure management (N₂O) abatement measures: small and large digesters (complete-mix, plug-flow, fixed film) and covered lagoons. The largest reductions resulted from implementation of antimethanogen vaccines, propionate precursors, and small digesters.

Abatement Potential

Technologically feasible global abatement potential for the livestock sector was estimated at 267 MtCO₂e in 2030, a 10% reduction compared to the baseline. In 2030, a reduction of 58 MtCO₂e is cost-effective under current projections and 162 MtCO₂e would be possible at an abatement cost of \$30/tCO₂e.