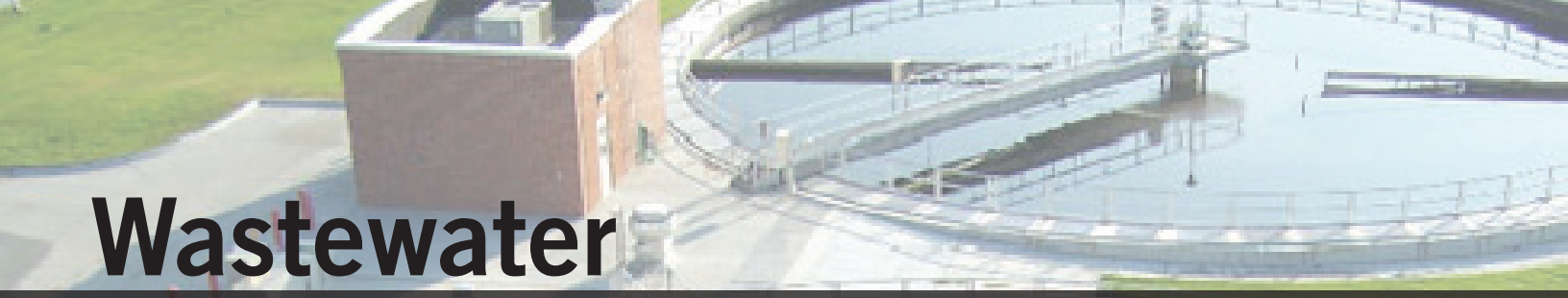


Wastewater

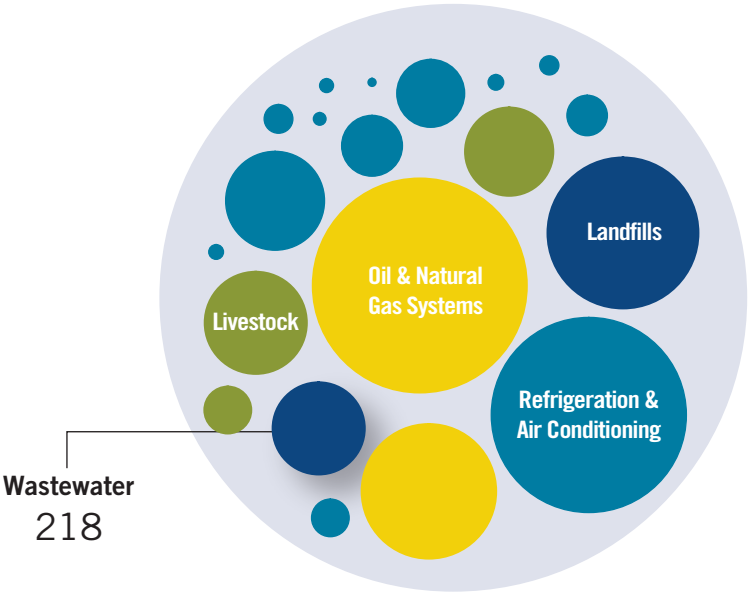
CH_4 Emissions from Municipal Wastewater Systems

Sector Description

Wastewater is the fifth largest emitter of anthropogenic CH_4, accounting for more than 500 $MtCO_2e$ in 2010; wastewater treatment is also a source of N_2O emissions. Domestic and industrial wastewater treatment activities can lead to venting and fugitive emissions of CH_4, which are produced when organic material decomposes under anaerobic conditions of wastewater in a facility. Most developed countries use aerobic wastewater treatment systems to minimize the amount of CH_4 generated, but many developing countries rely on systems such as septic tanks, latrines, open sewers, and lagoons, which allow for greater levels of anaerobic decomposition.

Emissions Reduction Potential

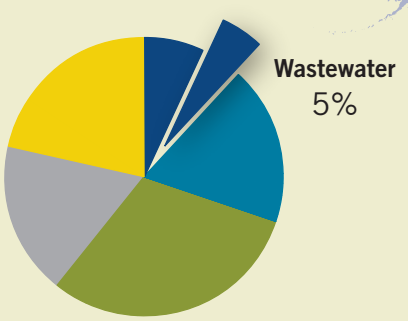
Assuming full implementation of current technology, emissions in the wastewater sector could be reduced by up to 218 $MtCO_2e$ in 2030. This accounts for 5% of the 4,615 $MtCO_2e$ in global reduction potential in 2030.



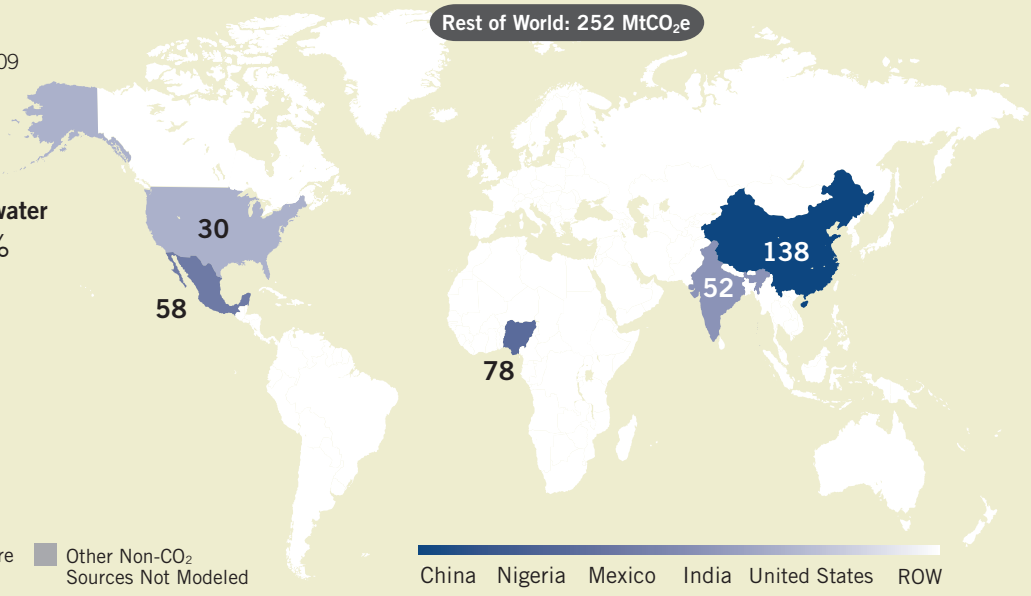
Projected Emissions in 2030

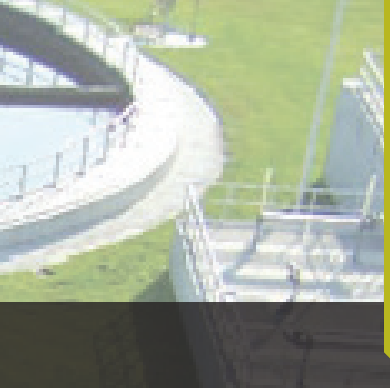
Global Non-CO_2 Emissions

The Wastewater sector baseline emissions are estimated to be 512 $MtCO_2e$ in 2010. In 2030, emissions from this source are projected to be 609 $MtCO_2e$ or 5% of total non-CO_2 emissions.



Emissions from Top 5 Emitting Countries ($MtCO_2e$)



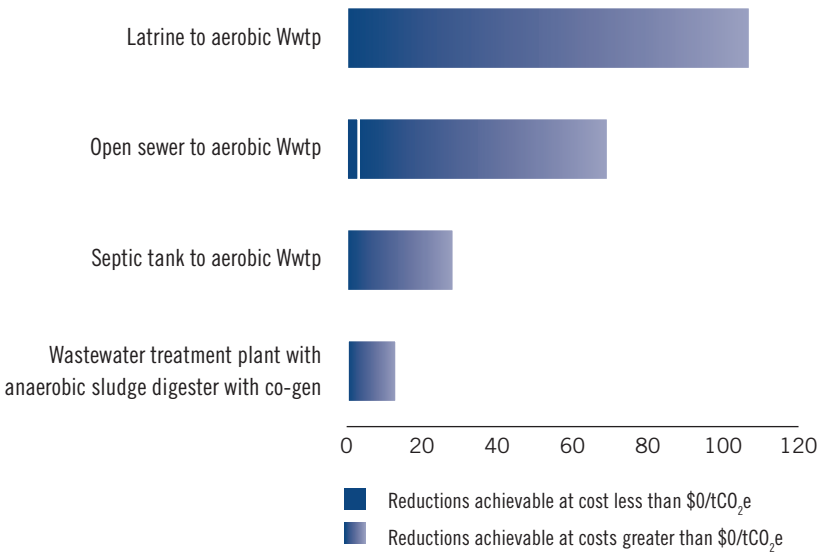


Key Points

- Methane (CH_4) emissions from wastewater treatment accounted for over 500 $MtCO_2e$ in 2010 and are projected to grow 20% by 2030.
- The estimated maximum abatement potential in 2030 is 218 $MtCO_2e$, or 36% of projected emissions.
- Abatement measures with costs less than \$30 tCO_2e can achieve a 15% reduction in CH_4 emissions in 2030.

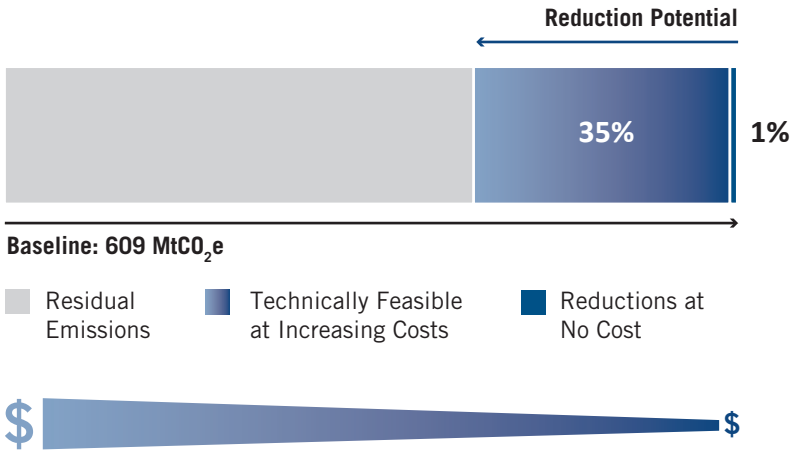
Abatement Measures

Emissions reductions by technology in 2030 at \$0/tCO_2e and at higher prices.



Emissions Reduction Potential, 2030

It would be cost-effective to reduce emissions by 1%, compared to the baseline, in 2030. An additional 35% reduction is available using technologies with increasingly higher costs.



Abatement Measures

CH_4 emissions from wastewater can be significantly reduced through improvements to infrastructure and equipment. Abatement measures available in the wastewater sector include installing aerobic wastewater treatment plants on an individual or centralized scale and installing anaerobic wastewater treatment plants with cogeneration. Factors such as economic resources, population density, government, and technical capabilities are important in determining the potential for mitigating emissions from the wastewater sector.

Abatement Potential

The global abatement potential of CH_4 from wastewater treatment is 138 $MtCO_2e$ in 2020 rising to 218 $MtCO_2e$ in 2030. This level of CH_4 mitigation is considered to be the technological maximum abatement potential because high-cost abatement measures in the wastewater treatment sector significantly constrain the abatement achievable at lower carbon prices. Cost-effective emissions reductions are limited to 3.4 $MtCO_2e$—less than 1% of business as usual (BAU) emissions in 2030.