

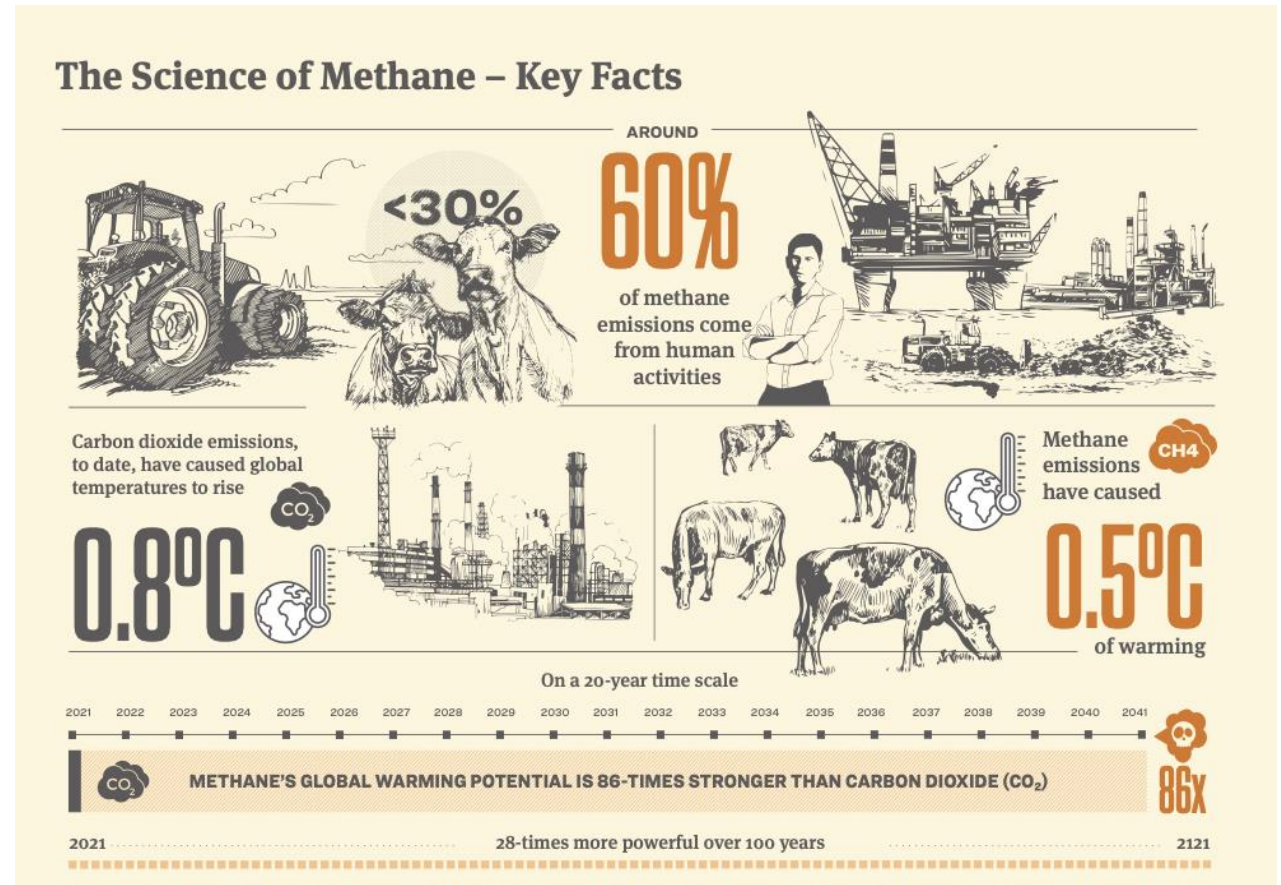


Marcelo Mena Carrasco, PhD - CEO

Recicla Orgánicos.

Why is methane important? Why now?

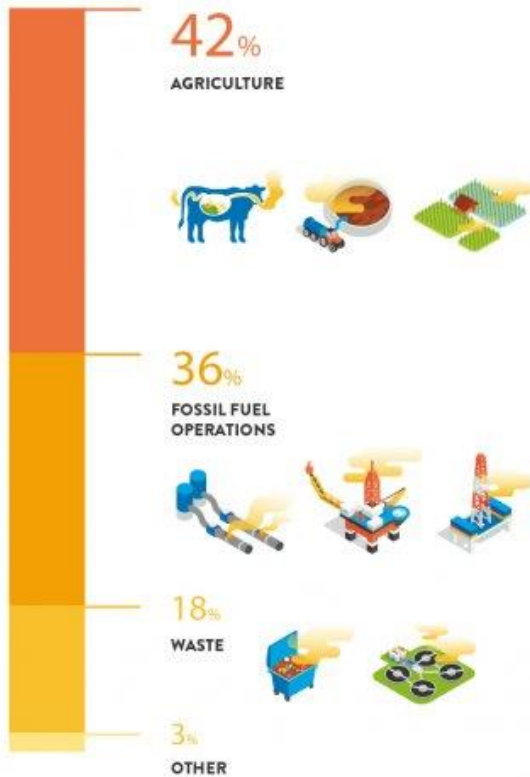
- Much of recent warming has come from methane.
- It is a short-lived pollutant that is **86 times more potent** than CO₂ in 20-year time scale.
28-times more potent than CO₂ in a 100-year time scale.
- 60% of all methane emissions are **anthropogenic**.
- Tackling methane is crucial to keep warming under 1.5 degrees and meet the **Paris Agreement Targets**.



METHANE (CH₄)

SOURCES

Methane is one of the fastest growing greenhouse gases in the atmosphere. Human activity causes 2/3 of emissions.



% = global emissions

Methane emissions caused by human activities are one of the most significant drivers of climate change. Methane is also the main precursor of tropospheric ozone, a powerful greenhouse gas and air pollutant.

IMPACTS

CLIMATE

Responsible for 40% of warming since the industrial revolution

86x

times more powerful than carbon dioxide over a 20-year period

HEALTH

Increasing emissions are driving a rise in tropospheric ozone air pollution, which causes 1+ million premature deaths annually. Methane is responsible for roughly 1/2 of these deaths.



Respiratory diseases

Heart disease

Damaged airways and lung tissue

AGRICULTURE & ECOSYSTEMS



Up to

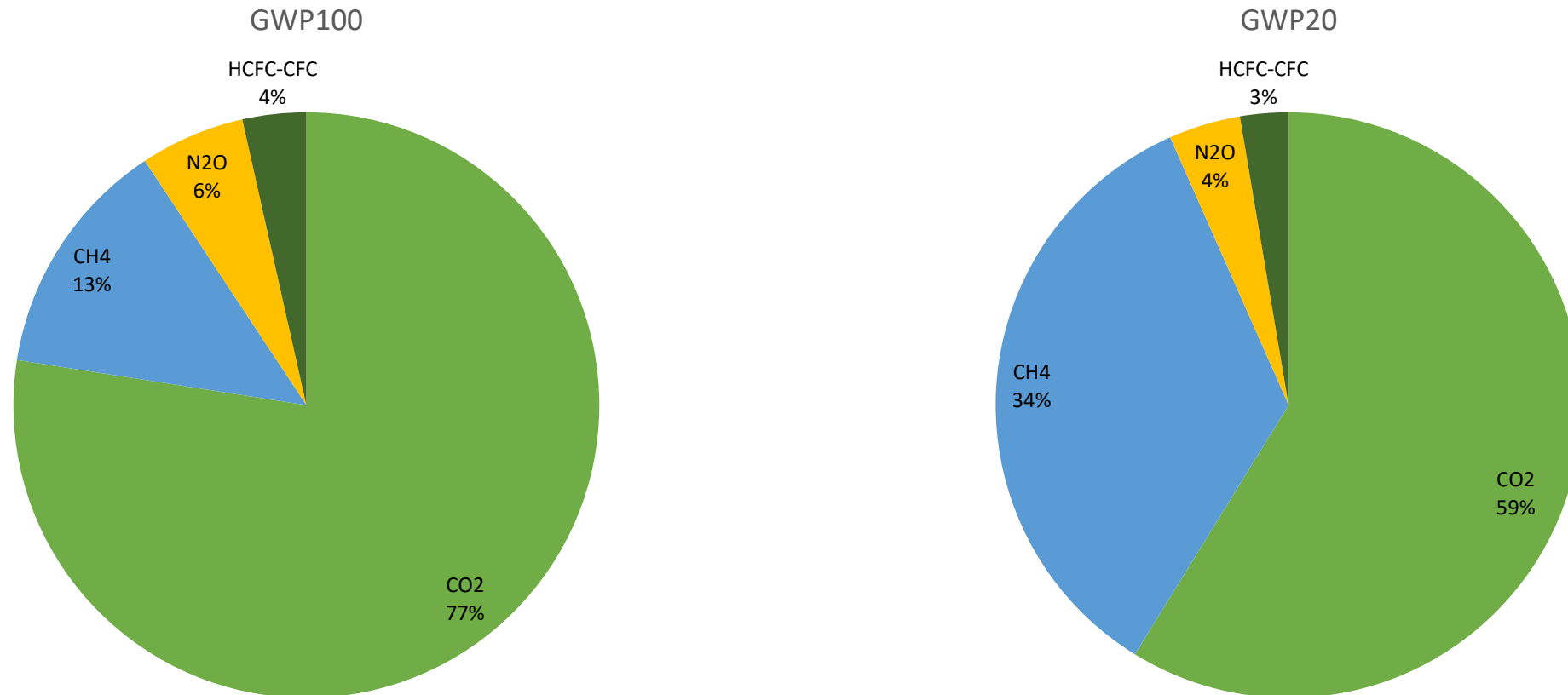
15% annual yield losses

of soy, wheat, rice and maize

LIFETIME IN ATMOSPHERE:
12 YEARS

Since methane does not last long in the atmosphere, efforts to reduce it will bring immediate benefits for the climate and human health.

Al considerar calentamiento en corto plazo, metano pasa de contribuir del 13 al 34% de emisiones totales del país. Sector residuos y agrícola se hace mucho más importante.



Fuente. SNICHile, año base 2018. GWP20 de 86 y GWP100 de 25 para metano. No se modifican GWP de HFC, pero debería también ser mayor contribución usando GWP20.



Global Methane Pledge has put together over 110 countries to reduce emissions by 30% by 2030.

Launched by **President Biden** and dozens of world leaders at **COP26**.

Limiting warming to 1.5°C at the lowest cost

By **2030**

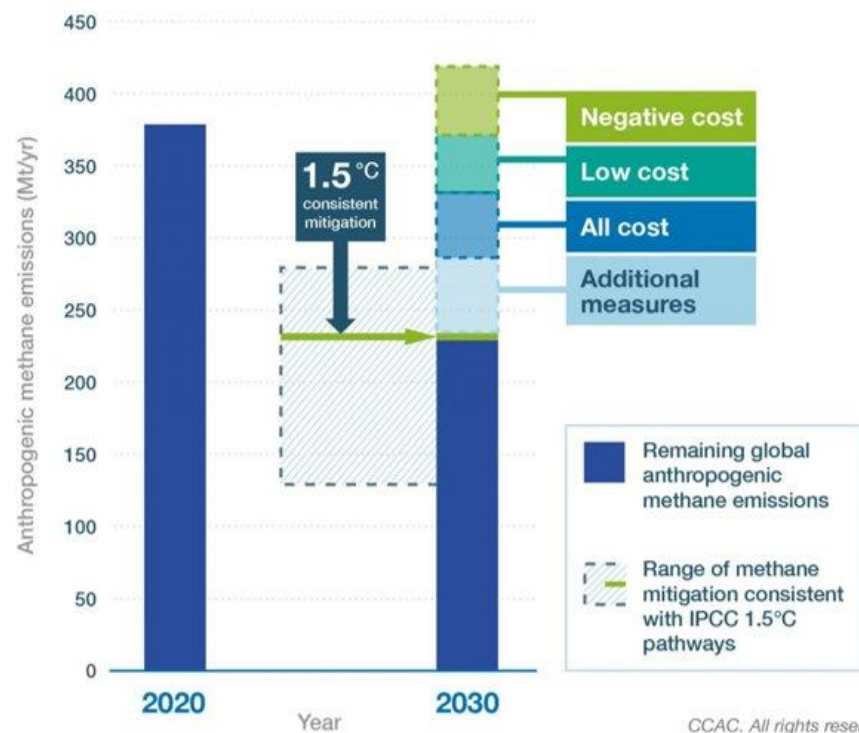
methane emissions need to be reduced in each of the three main emitting sectors:



Reductions relative to 2020 emissions

Methane mitigation provides opportunities for quick wins for safer climate, cleaner air, better agricultural productivity. Most measures have create savings, or have no costs.

Methane emissions and mitigation potential



Reducing methane emissions by 45% means



Preventing every year:



255,000 deaths from respiratory and cardiovascular diseases



26 million tonnes of staple crop losses



775,000 asthma-related hospital visits



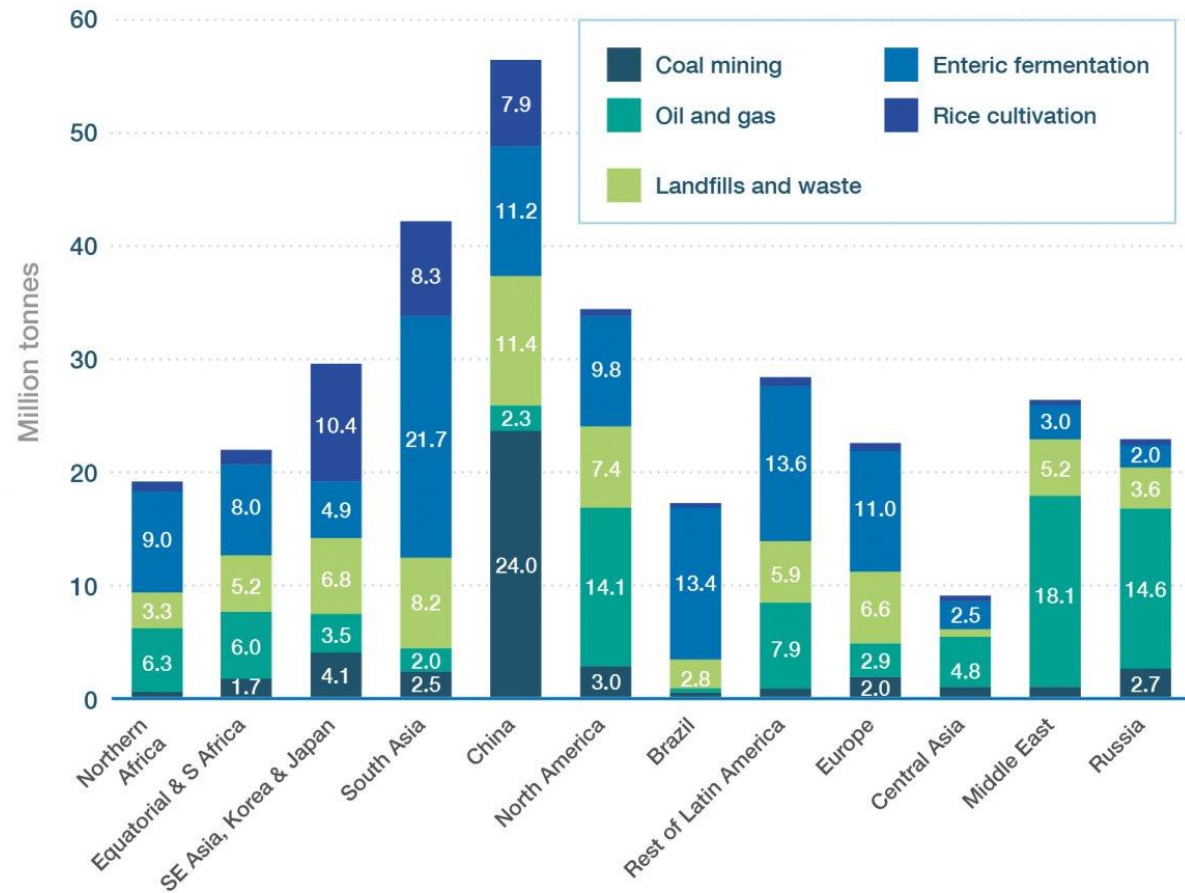
73 billion lost work hours to heat exposure



Satellite observations will allow us to evaluate progress and enforce where we need more efforts.

Each region has its own challenges, political economy, capacity barriers to overcome.

Estimated annual methane emissions by region and sector



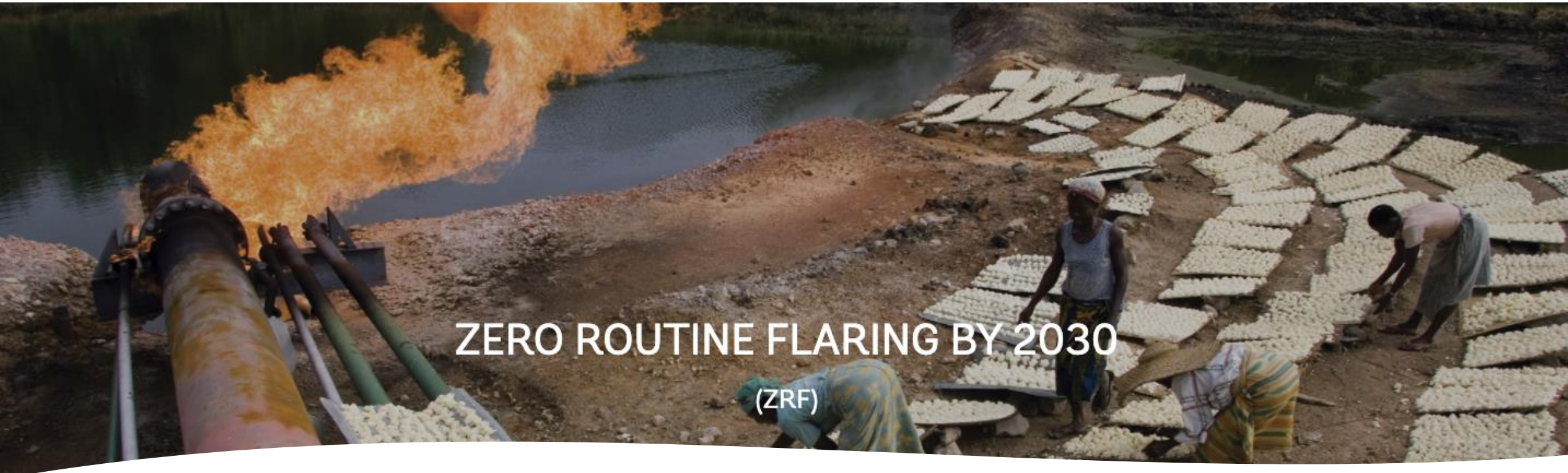
Source: Saunio et al. (2020)

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Fossil fuel mitigation (36% of total)

FOSSIL FUELS

- Carry out pre-mining degasification and recovery and oxidation of methane from ventilation air from coal mines
- Reduce leakage from long-distance gas transmission and distribution pipelines
- Extend recovery and utilization from gas and oil production
- Recover and use gas and fugitive emissions during oil and natural gas production



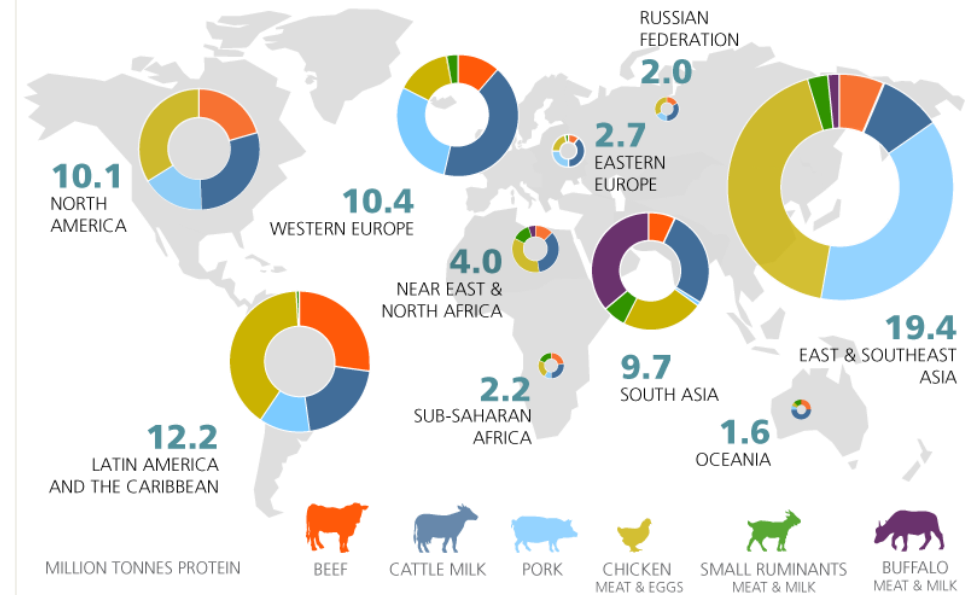


Safety, environment, economics must all be leveraged

Agricultural sector (42% of total) requires increased advocacy and analytics.

AGRICULTURE

- Improve manure management and animal feed quality
- Apply intermittent aeration of continuously flooded rice paddies
- Improve animal health and husbandry by combining herd and health management, nutrition and feeding management strategies
- Introduce selective breeding to reduce emission intensity and increase production
- Promote farm-scale anaerobic digestion to control methane emissions from livestock
- Adopt guidelines on healthy dietary choices



AGRICULTURAL EMISSIONS

Agriculture is the main source of ammonia (NH_3) and methane (CH_4) in the EU (2017).



AIR QUALITY & HEALTH

Ammonia (NH_3) and methane (CH_4) are major contributors to Particulate Matter (PM) and ozone (O_3) – the most dangerous pollutants for human health.

AIR POLLUTION CAUSE



400,000+ premature deaths in EU

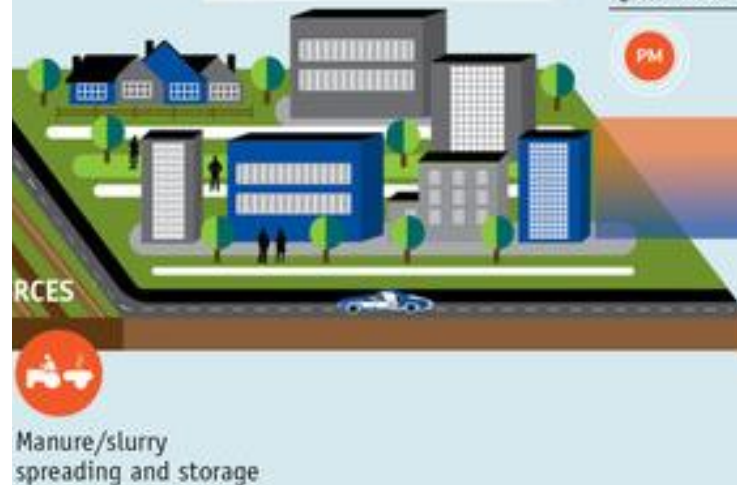


300-900 BILLION € in health-related costs every year in the EU

Must always look to leverage multiple benefits.



And worsen air quality where we live



EFFECTS ON THE BODY CAUSED BY O₃ AND PM

Affects brain development



Causes breathing problems including asthma and chronic lung diseases



Damage the nervous system and causes anxiety



Causes cardiovascular diseases



- Methane mitigation
- Surface water pollution
- Odor control
- PM_{2.5} formation from ammonia
- Deforestation and agricultural burning.

Causes diabetes



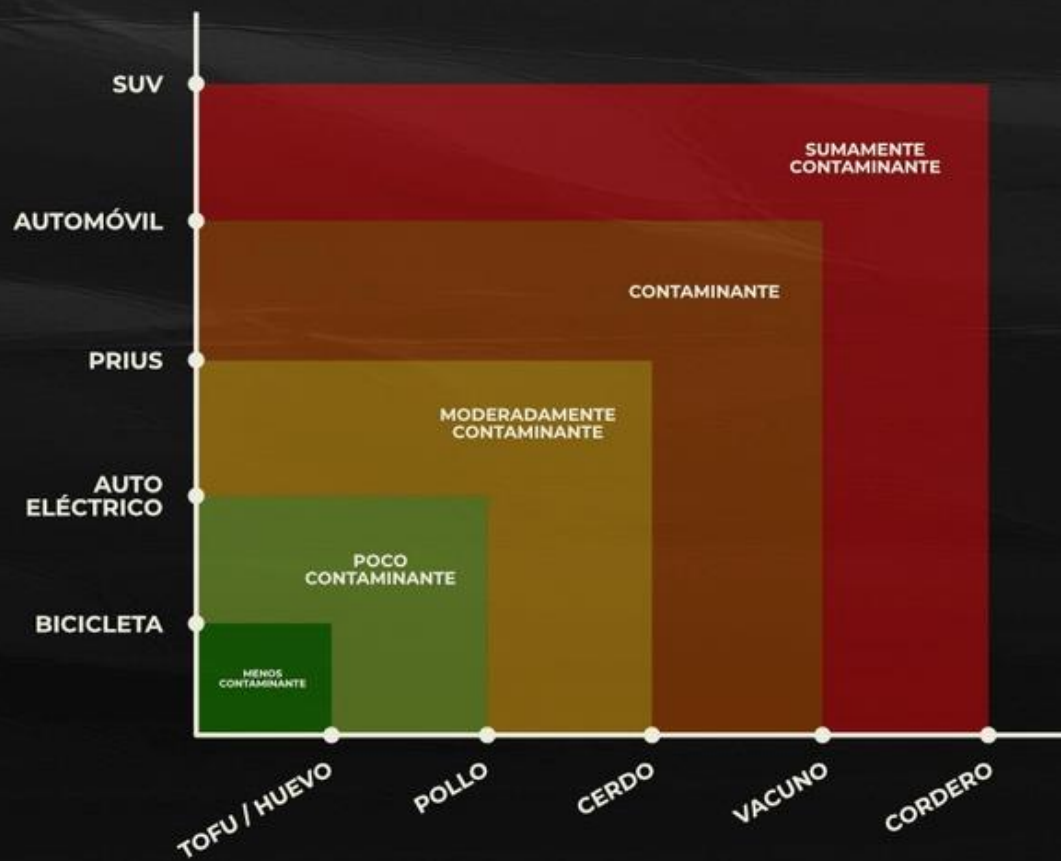
Damage the reproductive system and causes premature births



¿QUÉ TANTO CONTAMINAMOS?

RELACIÓN DE NUESTRA ALIMENTACIÓN
CON NUESTROS MEDIOS DE TRANSPORTE

PONERSE
LAS **PILAS**





1 gallon of milk = 2 gallons of gasoline
in terms of emissions¹

Based on

Grant, C.A. and A.L. Hicks. 2018. Comparative life cycle assessment of milk and plant-based alternatives. Environmental Engineering Science . Adjusted to GWP20 vs GWP100

Waste issue (18%) will probably require institutional support, partnering with development institutions.

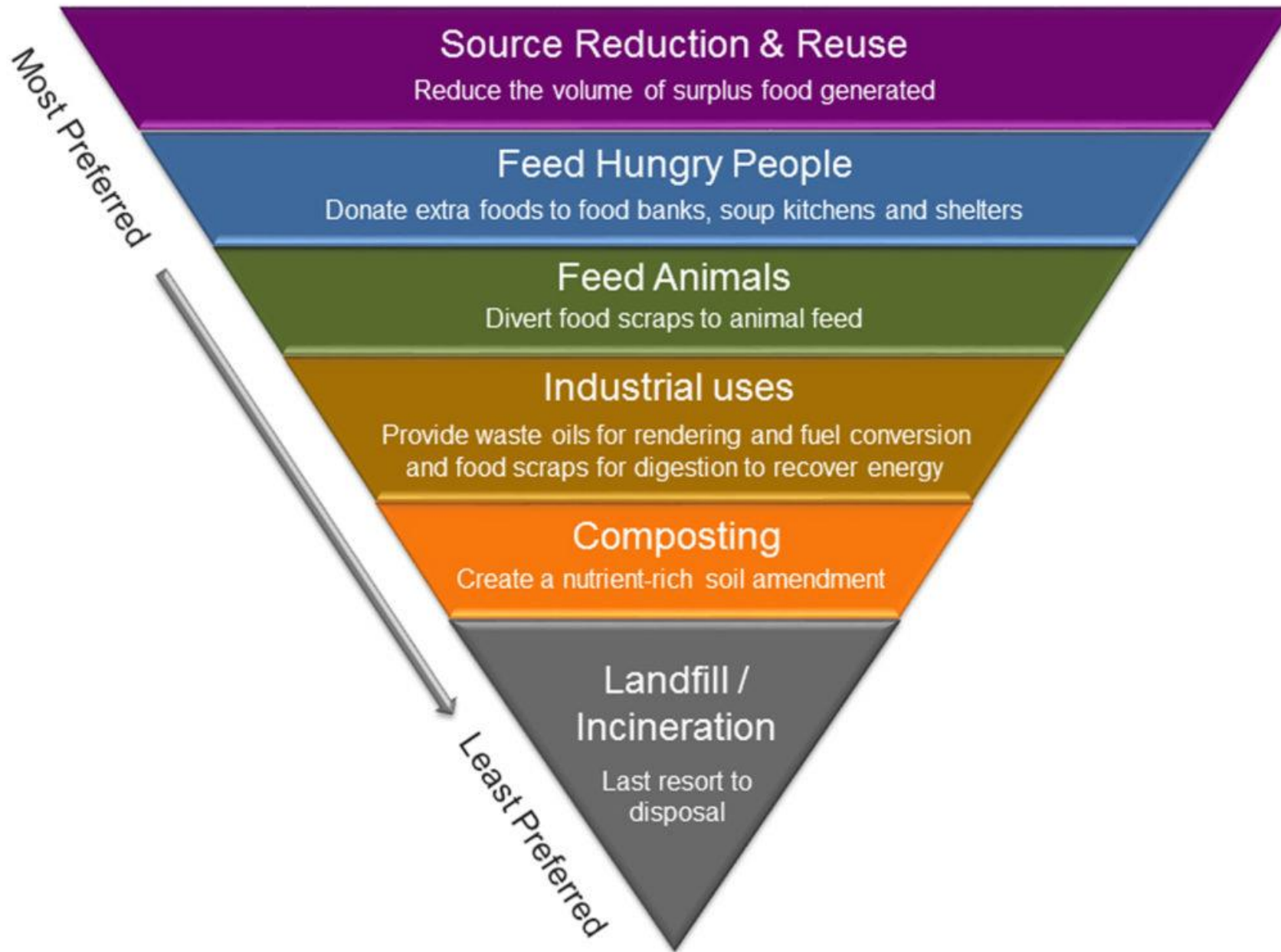
WASTE MANAGEMENT

- Separate and treat biodegradable municipal waste, and turn it into compost or bioenergy
- Upgrade wastewater treatment with gas recovery and overflow control
- Improve anaerobic digestion of solid and liquid waste by food industry
- Upgrade primary waste-water treatment
- Divert organic waste
- Collect, capture and use landfill gas





Food Recovery Hierarchy



Composting is a solid measure for methane prevention in organic waste.

Intervention	Mean reduction in methane emissions from MSW	Mean reduction in methane emissions from entire waste sector (61% of waste sector emissions are from MSW)
Composting	78%	48%
Composting + bio-stabilisation of residuals	90%	55%
Composting stabilisation + bio-actively cover	95%	58%



1 kg de residuo orgánico genera 3kg CO_{2eq} de emisiones.
(igual al cobre, y 3 veces más que el cemento)

6% of global greenhouse gas emissions come from food losses and waste

Our World in Data

Emissions from food that is never eaten accounts for 6% of total emissions



Note: One-quarter of food emissions comes from food that is never eaten: 15% of food emissions from food lost in supply chains; and 9% from consumer waste.

Data source: Joseph Poore & Thomas Nemecek (2018), Reducing food's environmental impacts through producers and consumers. *Science*.

[OurWorldinData.org](https://www.ourworldindata.org) - Research and data to make progress against the world's largest problems.

Licensed under CC-BY by the author Hannah Ritchie.

Recicla Orgánicos nace de colaboración de larga data con Canadá.





INSECT FED

#climatepositive #productocircular #responsableconlosecosistemas



Circular Pet. Comida de perros hecho en Chile



Hay avances con leyes que prohíben destrucción de alimentos vencidos.

Industria / Agricultura y consumo

Organizaciones que recuperan alimentos valoran inminente aprobación de ley contra el desperdicio de comida

El banco de alimentos Biobío Solidario, Fundación Retroalimenta y Fundación Mingako, instituciones que evitan el despilfarro de comida a través de diferentes estrategias, celebran la aprobación unánime en el Senado, el 4 de agosto pasado, del proyecto de ley que regula la distribución de alimentos aptos para el consumo humano. Los tres actores aseguran que la entrada en vigor de la normativa es una urgencia en pandemia por la necesidad de alimentación de las personas y permitirá acceder a una mayor cantidad de alimentos descartados, ya que ésta obligará a productores y comercializadores de comida a entregarla de forma gratuita a entidades intermediarias o a receptores finales como juntas de vecinos, clubes deportivos y otros.





- 330 million dollar philanthropic effort to align funding on methane mitigation
- Focus on oil, gas, agriculture and waste.
- Supporting the **Global Methane Pledge** signatories and potential signatories in meeting the pledge, and to raise ambition.

- Drive coordination and collaboration on methane advocacy
- Granting to highest impact areas, cutting across sectors.
- Entrepreneurial attitude
- Maximize value of all known data streams.
- Engaging with **all industry participants.**
- Raise ambition with **thought leadership**
- Measureable results using **peer-reviewed science.**
- Offices in **Santiago, Chile**, with regional directors to work with you.