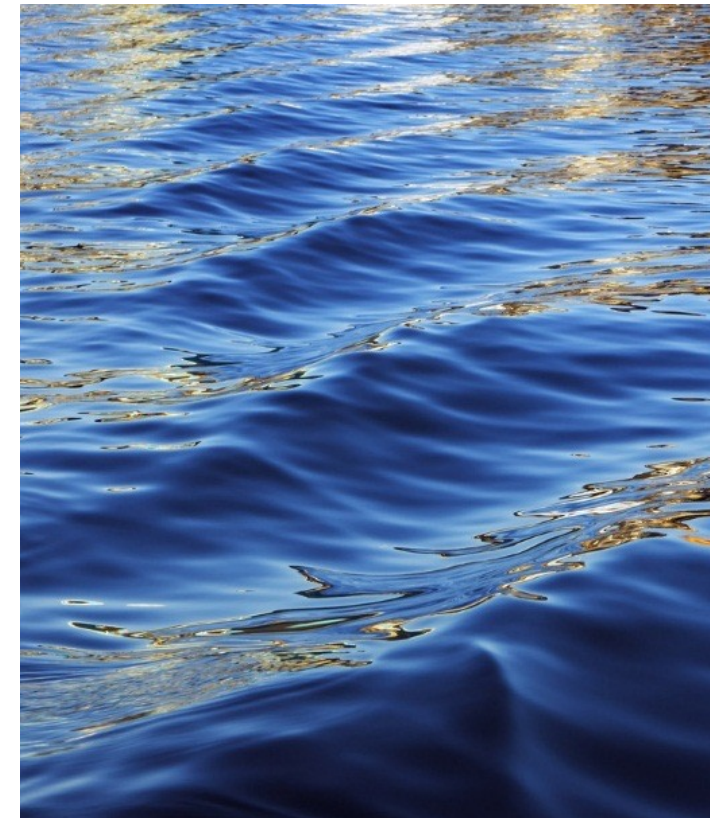




Risk Financing Mechanisms for Climate Change Mitigation in the Agriculture Sector

ALASA
June 1, 2023

Diego Arias
Manager, Agriculture & Food
Latin America and Caribbean Region



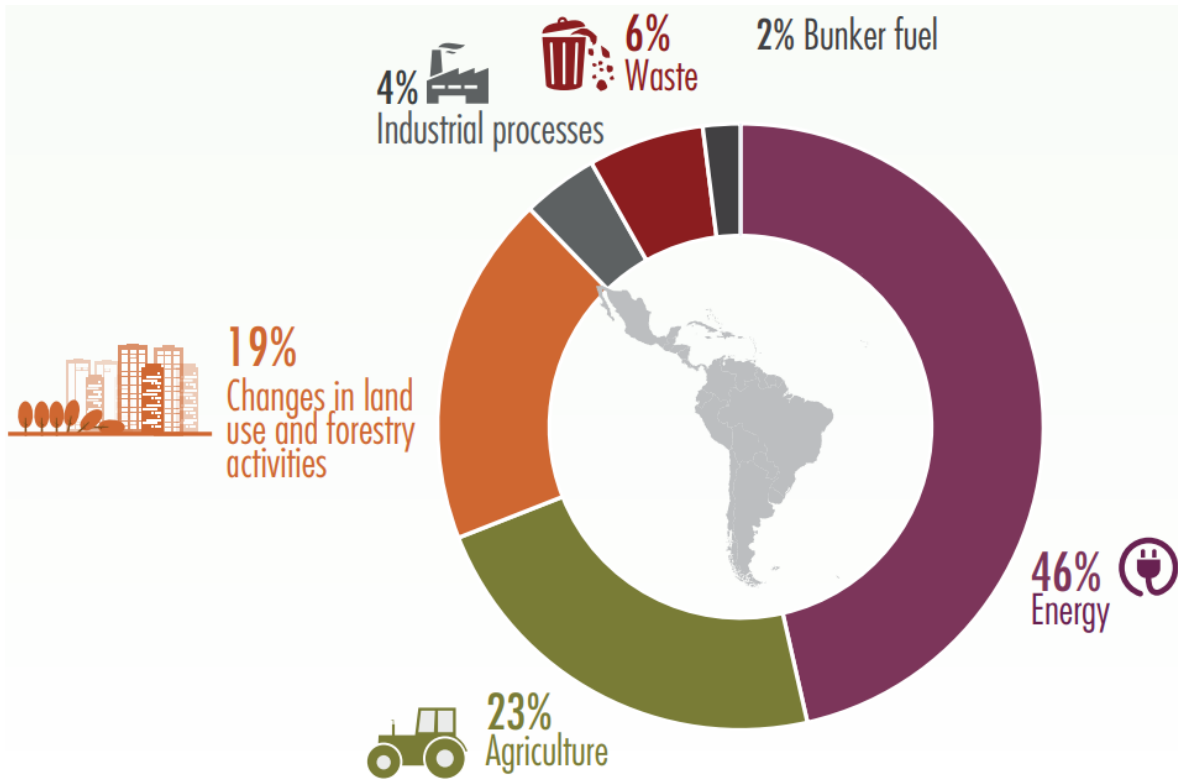
Key messages

1. Reducing GHG emissions from agrifood systems is critical to address climate change in the short and long run.
2. Climate financing is falling short in the amount of resources needed, but important action is taking place to scale up financing.
3. The agrifood and land use sectors (AFOLU) attract relatively low levels of climate financing.
4. There are important experiences of innovative risk financing approaches to leverage climate financing for agriculture.
5. Opportunity from LAC governments to: (i) improve the enabling environment for risk financing for the agrifood sector; and (ii) re-orient existing public supports toward climate outcomes, leveraging climate financing and risk financing.

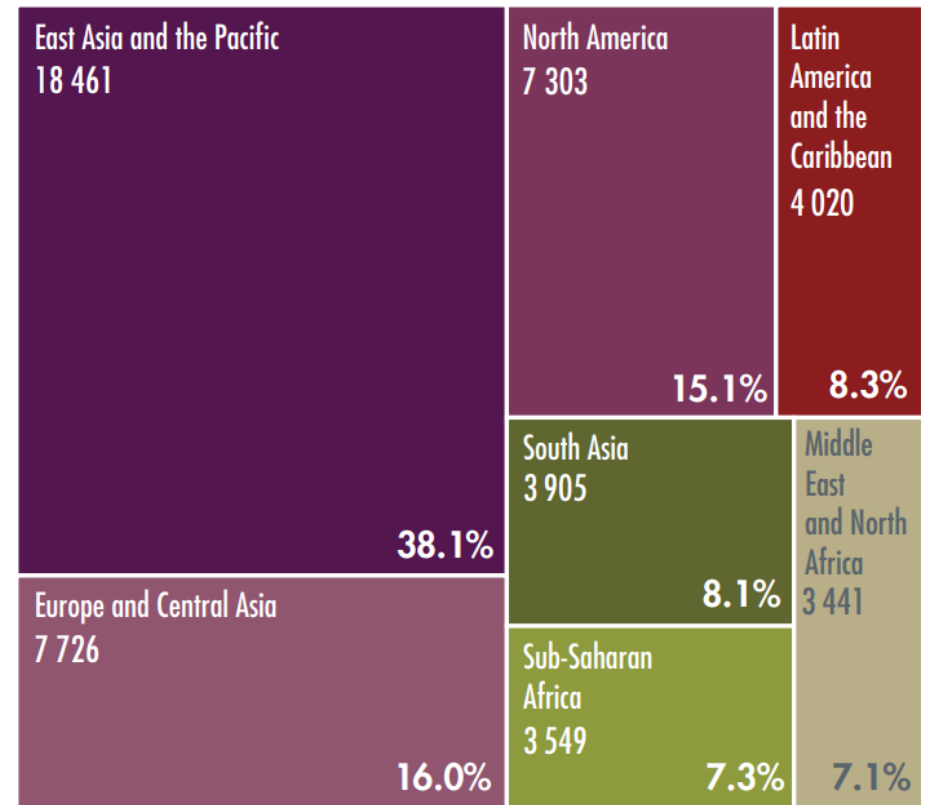
What is the GHG emisión situation in LAC and in the Agrifood Sector?

Although LAC is less than 10% of total global GHG emissions, AFOLU in LAC is 25% of Global AFOLU emissions and 42% of total LAC emissions.

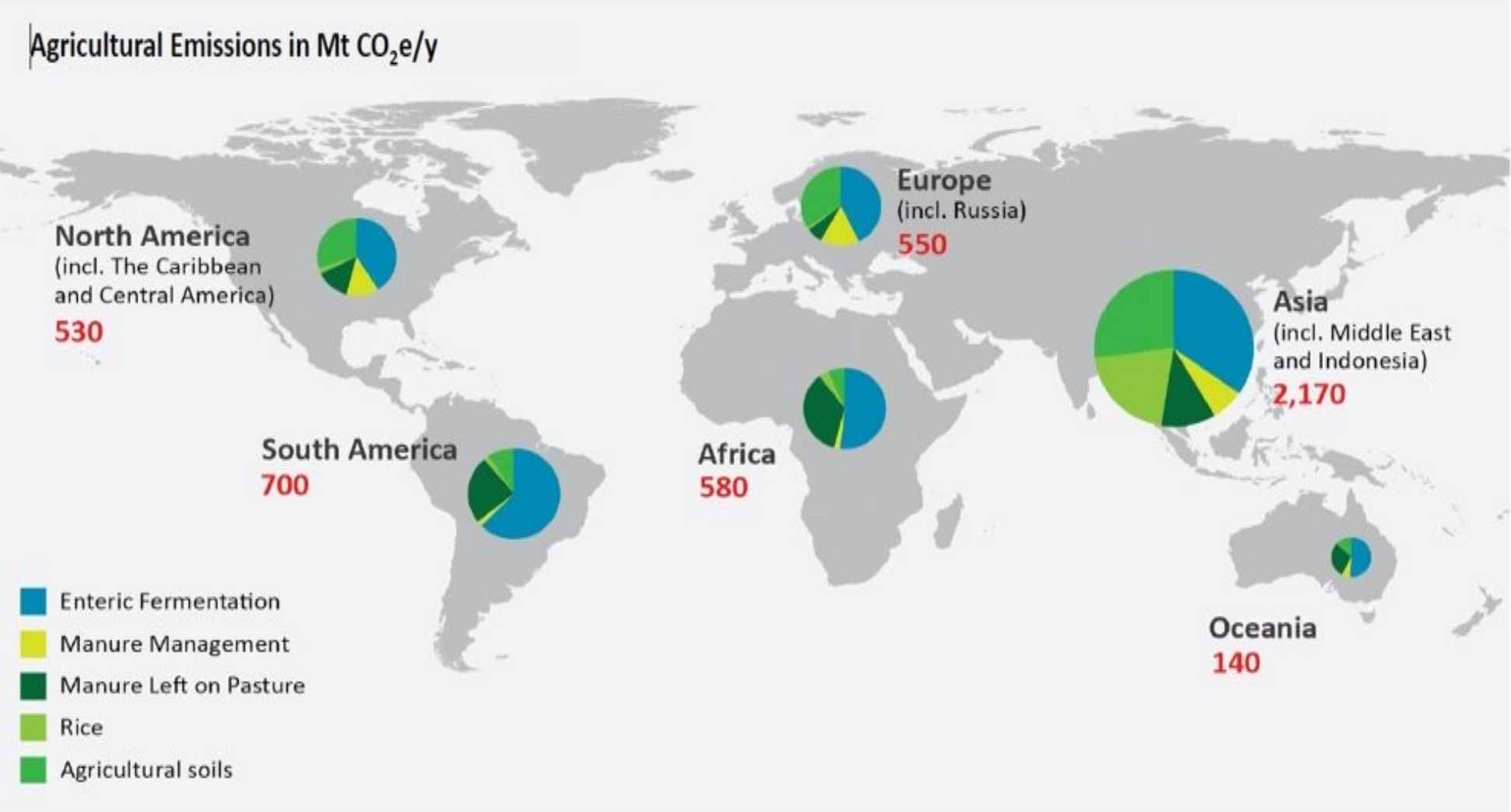
LAC: GHG emissions (2014)



Global GHG emissions by Region (Megatons of CO₂ equivalent (MtCO₂ eq) and %)

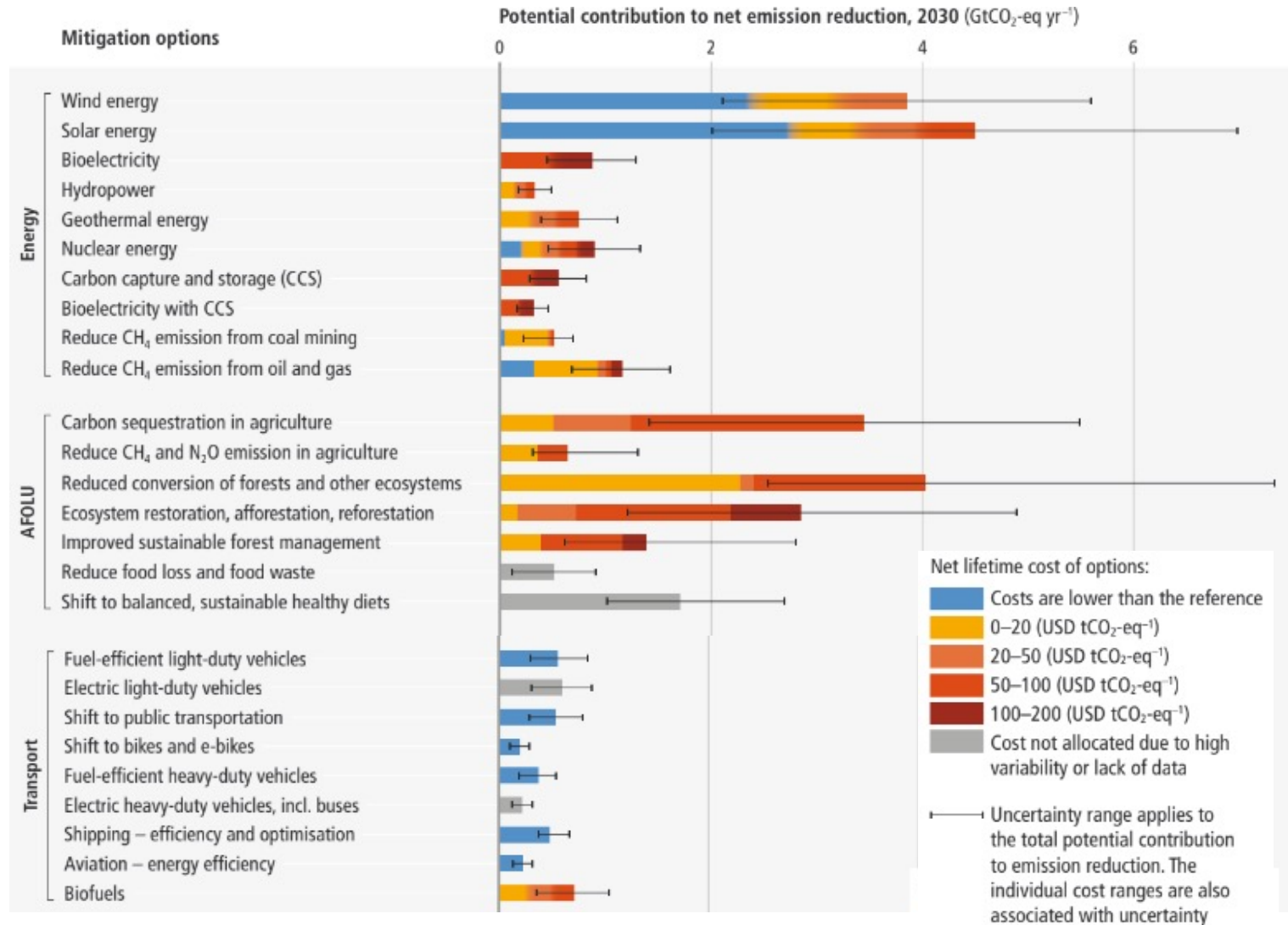


Why we focus on methane emissions from livestock in LAC?



Fuente: FAOSTAT data from 2010 (accessed 2013); area of pie charts scaled to regional emissions.; California Environmental Associates 2013, unpublished. Based on data from FAOSTAT 2010.; GLEDTALKS; World Bank

AFOLU mitigation measures have high initial costs but have a relatively larger potential for emission reductions than in many other sectors



State of Climate Financing for the Agrifood Sector

Understanding Different Types of Climate Finance

INTERNATIONAL PUBLIC CLIMATE FINANCE

Finance deployed directly through the MDB and bilateral systems

DEDICATED CLIMATE FINANCE

Concessional Finance with Climate Focus

Example: grant funding from the Global Environment Facility to boost CSA technologies

DEVELOPMENT FINANCE, WITH CLIMATE CO-BENEFITS

MDB balance sheet investment with climate co-benefits

Example: World Bank loan for a climate-resilient agrifood innovation system

OTHER CLIMATE FINANCE

Other funding sources that can be catalyzed by international public climate finance, such as:

PRIVATE FINANCE

Commercial for-profit investment in climate assets

Example: Investment in precision agriculture technologies

GOVERNMENT BUDGETS

Domestic government spending supporting climate goals

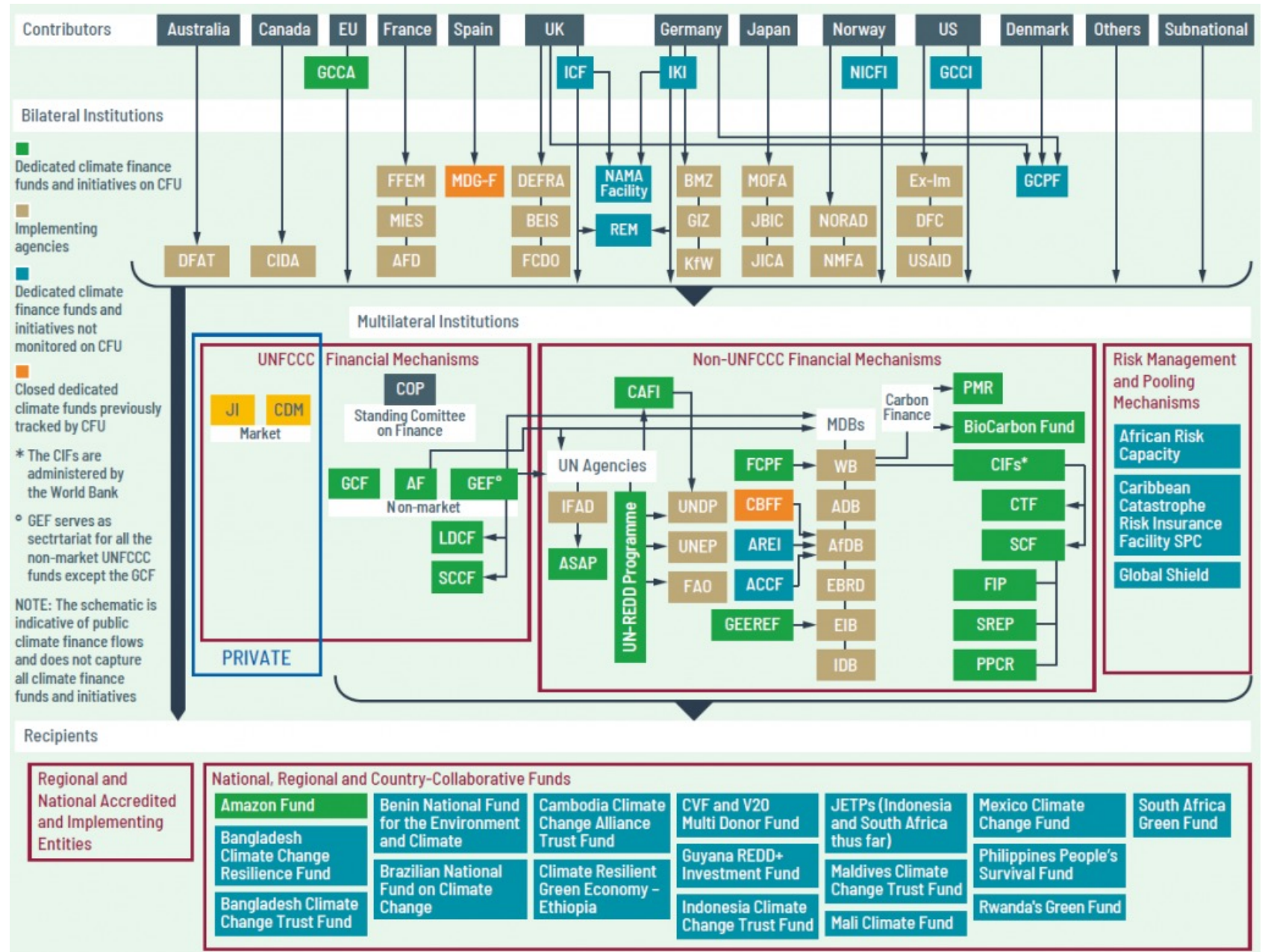
Example: Switching from blanket subsidies to farmers, to subsidizing adoption of CSA technologies

CARBON MARKETS

Revenues from selling carbon emission offsets

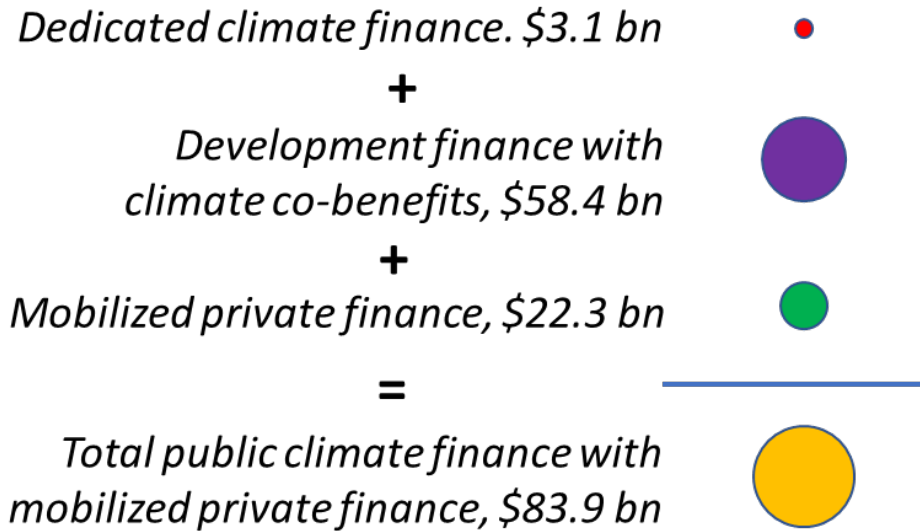
Example: Avoided deforestation project sells emission reductions to US company with net-zero pledge

The Climate Financing Architecture is complex

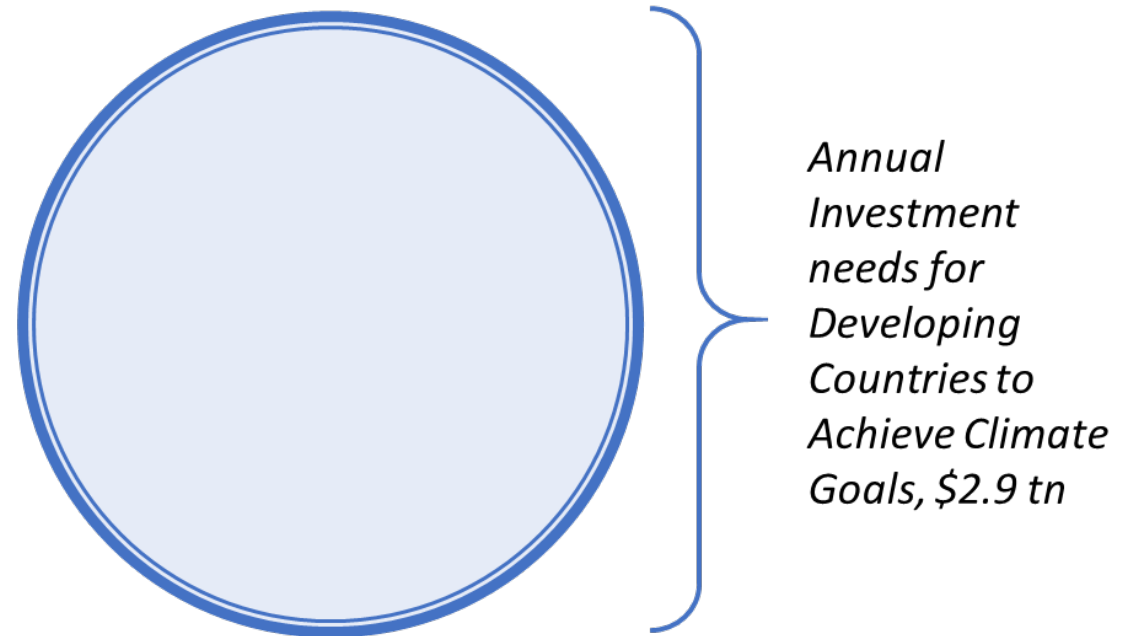


International public climate finance is limited

AVAILABLE PUBLIC CLIMATE FINANCE WITH MOBILIZED PRIVATE FINANCE



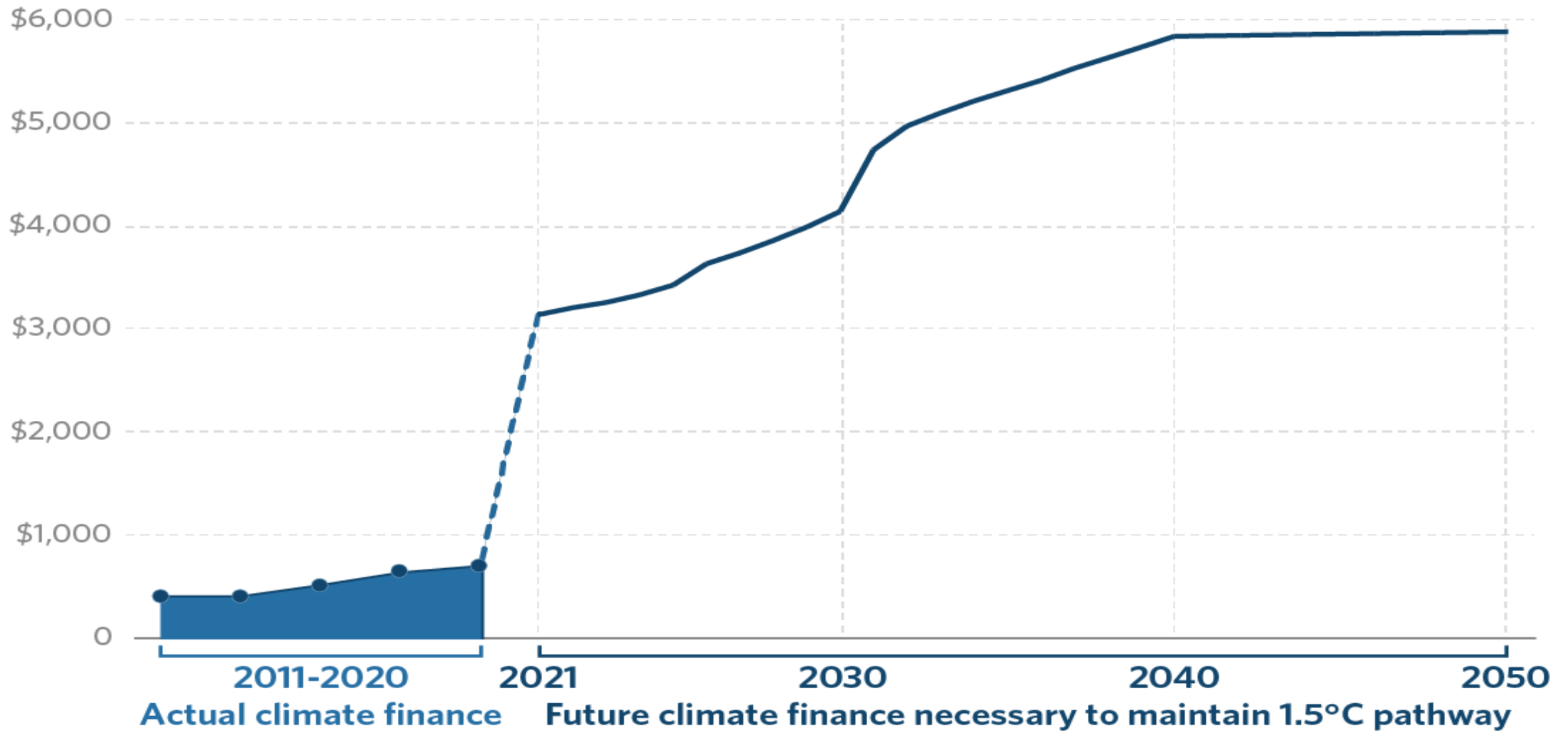
ESTIMATES OF INVESTMENT NEEDS TO MEET DEVELOPING COUNTRY CLIMATE GOALS



- ⚠️ Current public + mobilized Climate Finance levels meet < 3% of investments needs
- ⚠️ If all MDB operations were 100% climate finance, would still only meet less than 8% of needs
- ⚠️ All MDB operations would need to be multiplied by nearly 12 to reach level of finance needed

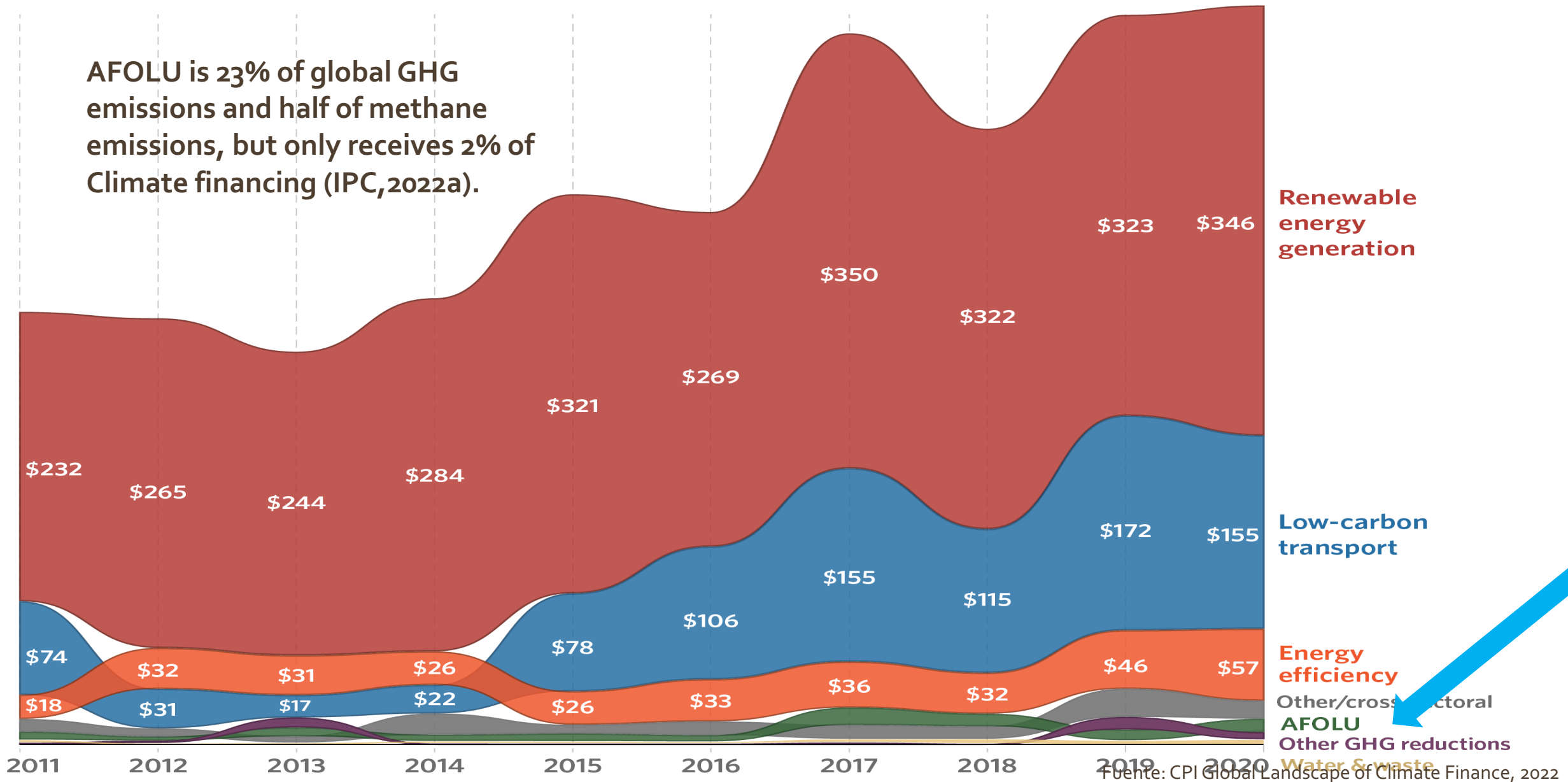
Global climate finance levels must rise

(USD billion)



But must rise especially in the agrifood sector and AFOLU

AFOLU is 23% of global GHG emissions and half of methane emissions, but only receives 2% of Climate financing (IPC, 2022a).



Fuente: CPI Global Landscape of Climate Finance, 2022

Total climate financing for LAC

Table 1: Funds supporting Latin American countries (2003-2022, USD millions)

Fund	Approved	Projects approved
Green Climate Fund (GCF-IRM, GCF-1)	2,330.2	34
Clean Technology Fund (CTF)	771.8	43
Amazon Fund	679.7	102
Global Environment Facility (GEF-4, 5, 6, 7)	586.9	135
Forest Investment Program (FIP)	281.2	25
Adaptation Fund (AF)	200.6	46
Pilot Program for Climate Resilience (PPCR)	126.6	21
Forest Carbon Partnership Facility (FCPF)	89.1	13
Scaling Up Renewable Energy Program in Low Income Countries (SREP)	61.5	17
Special Climate Change Fund (SCCF)	50.9	13
UN-REDD Programme	46.6	10
Global Energy Efficiency and Renewable Energy Fund (GEEREF)	30.8	2
BioCarbon Fund	30.0	2
Adaptation for Smallholder Agriculture Programme (ASAP)	27.0	5
Partnerships for Market Readiness (PMR)	25.9	15
Millennium Development Goal Achievement Fund (MDG-F) ³	24.4	7
Global Climate Change Alliance (GCCA)	24.1	2

Figure 1: Funds supporting Latin American countries (2003-2022)

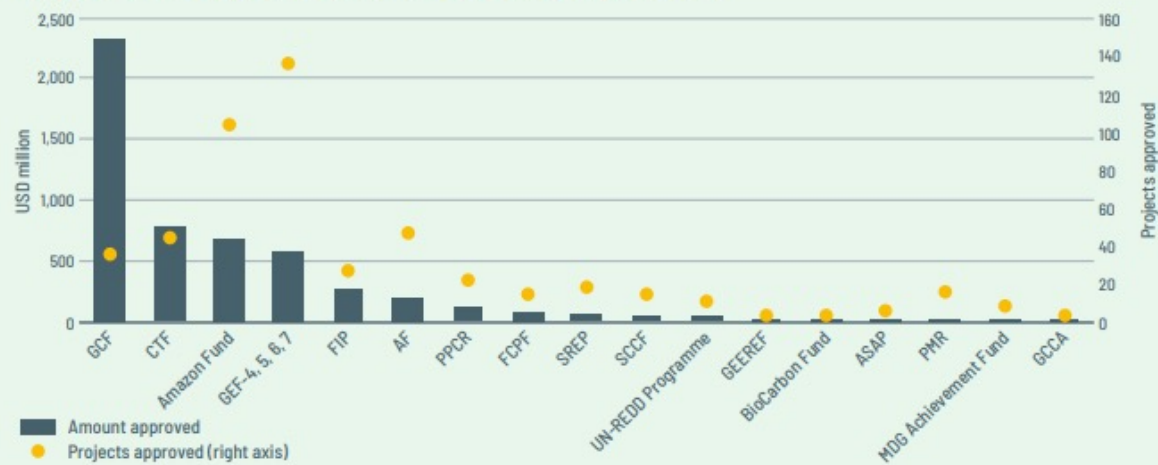
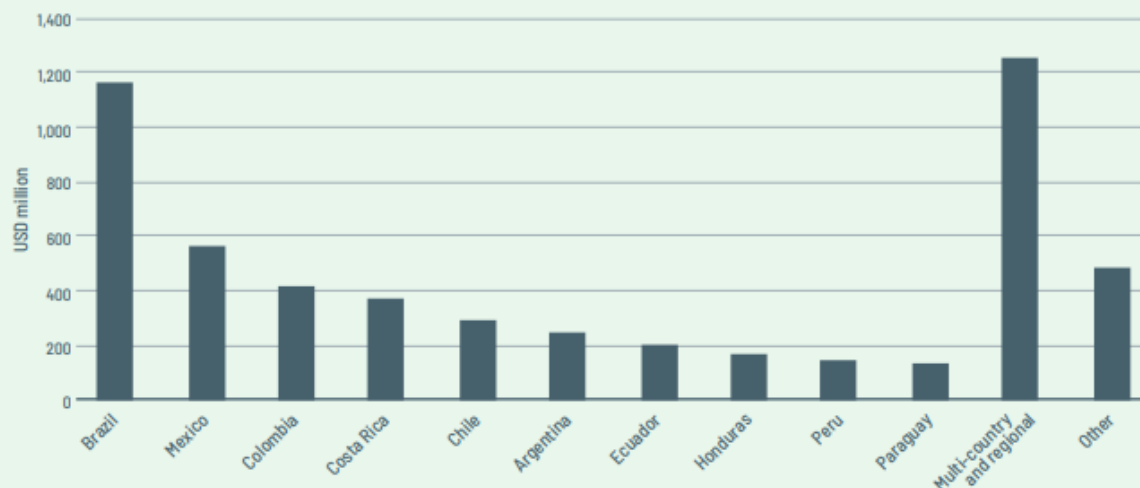


Figure 2: Top ten recipient countries by amount approved (2003-2022)



Main barriers for accessing Climate Financing for the agrifood sector

Technical

- Information on available solutions.
- High costs of MRV and studies.

Markets

- Limited guarantees and insurance for credit deals.
- High transaction costs (small scale farmers and small scale of deals)

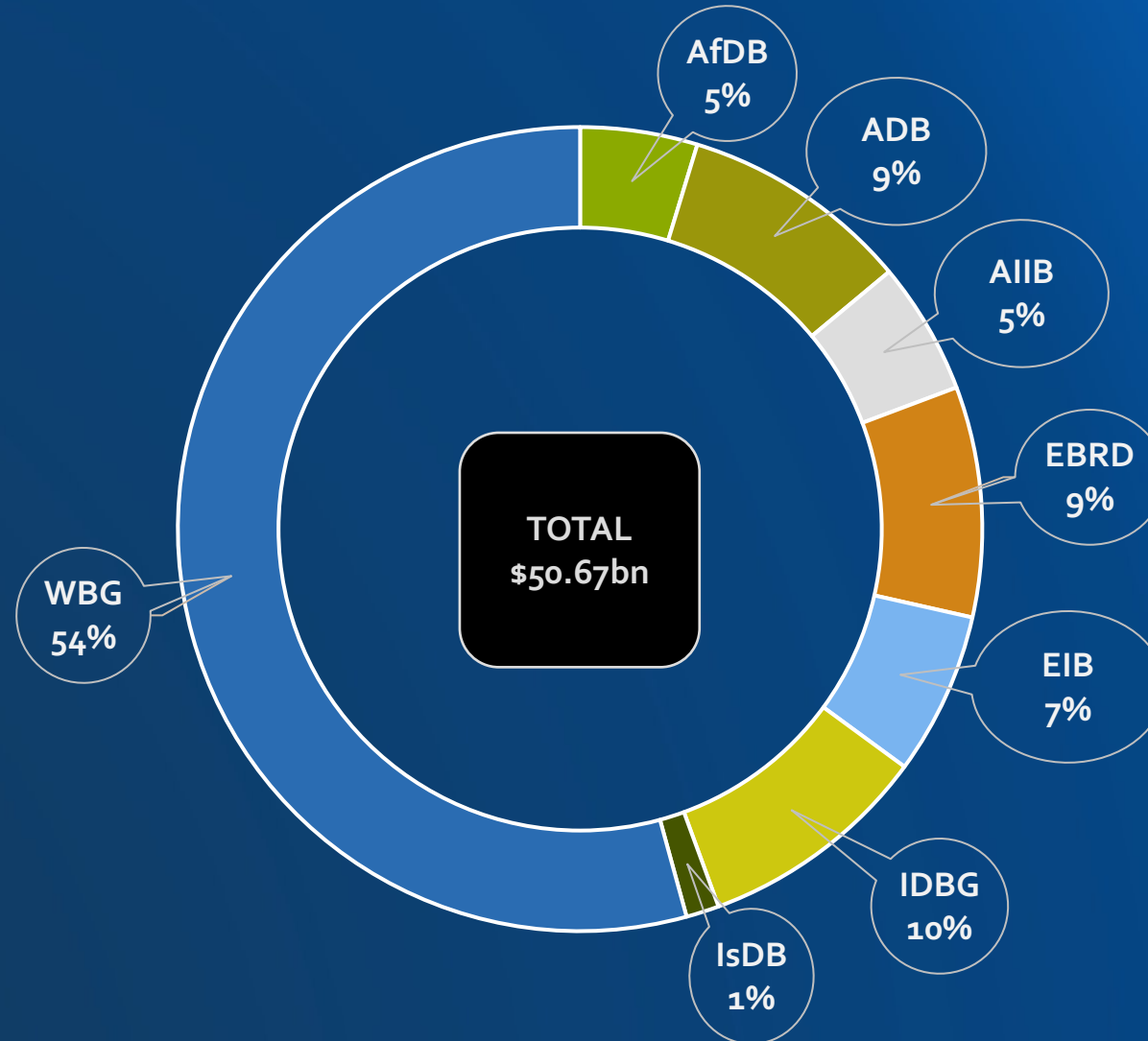
Institutions

- Difficulties in property rights (land titles) for collateral.
- Insufficient market information (on clients and agroclimatic data).

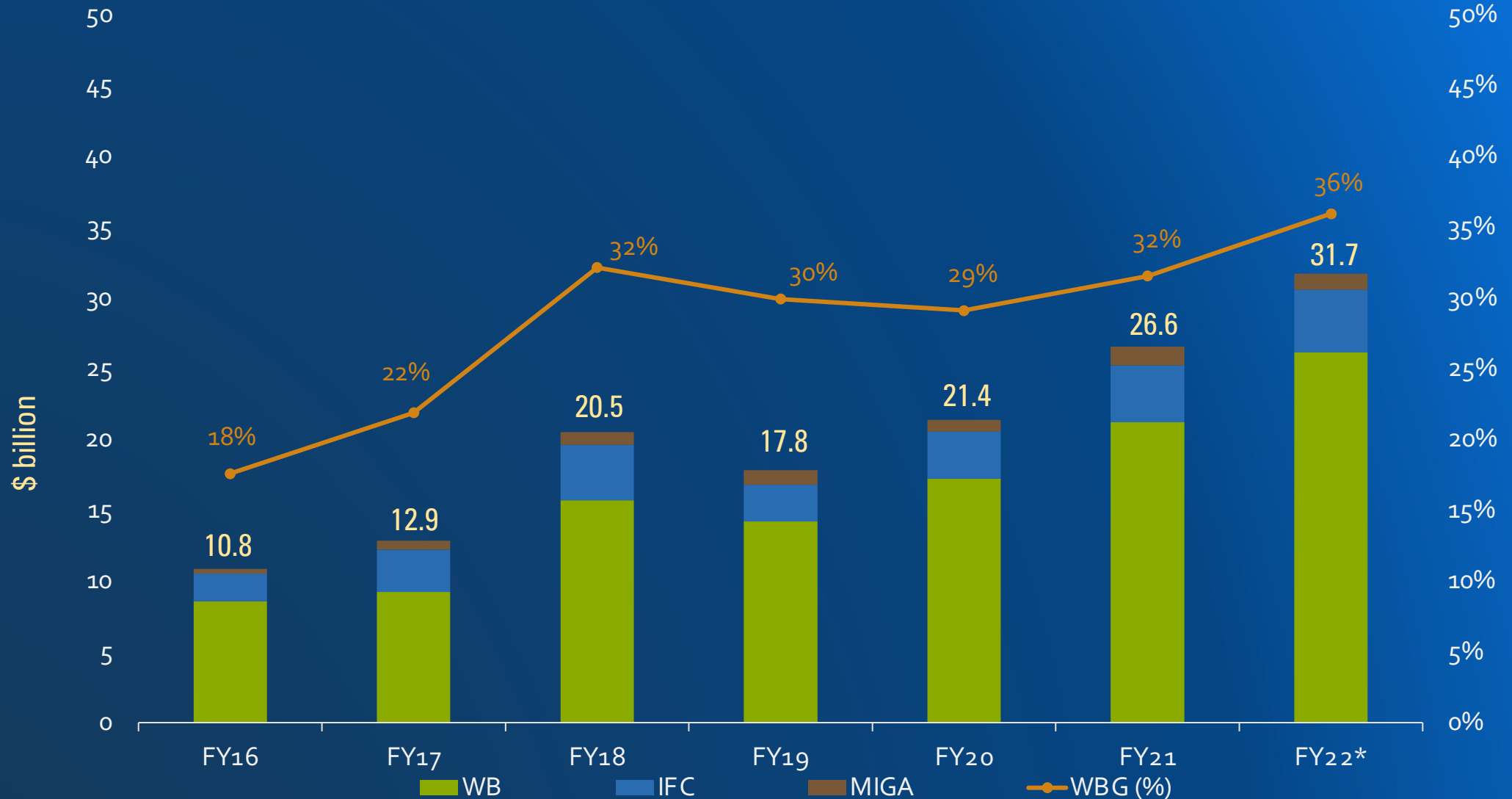
How can the World Bank support LAC countries?

WBG is the leading provider of Climate Finance to Developing Countries

Total MDB climate finance to low- and middle-income countries, 2021



WBG Climate Finance has tripled in the last 6 years



We can Finance and facilitate you Access other sources of financing

Source	Objectives	Type of Financing	Amounts
Climate Investment Fund (CIF) (implementado a través de WB, ADB, AfDB, EBRD, and IDB)	finance programmatic interventions in selected developing countries, with the objective of improving understanding of how public finance is best deployed at scale to assist transformation of development trajectories.	Grants	Total pledge of US\$ 10,6 mil millones
Partnership for Market Implementation (PMI)	establishment market-based mechanisms to respond to climate change	Multilateral - Grants and TA	Pledge US\$131 million
Carbon Partnership Facility (CPF)	development of emission reduction programs / creates carbon assets	TA and grants through Carbon Fund and Carbon Asset Development Fund	\$130 million under management
IDA/IBRD	operaciones de inversiones y políticas	Loans	US\$26,2 Billion in Climate Finance in FY22
Green Climate Fund (GCF)	climate funds to accelerate green market creation, unlocking the financial flows needed for developing countries to transition to low-emission and climate-resilient development	Multilateral - Grants, debt, equity, guarantees and insurance	Cartera vigente US\$11,4 mil millones Nueva: Ventana 2024-2027 (GCF-2)
Bio-carbon Fund	public-private partnership to mobilize and provide finance for sequestration or conservation of carbon in the land use sector	Multilateral	Pledge US\$ 349 millions
Forest Investment Program (FIP) (implementado a través de WB, ADB, AfDB, EBRD, and IDB)	Projects to promote sustainable forest management	Grants and concessional loans	US\$ 785 million
GEF Food Systems, Land Use and Restoration Impact Program (FOLUR)	Projects to transform the global food system by promoting sustainable, integrated landscapes and efficient commodity value chains	Multilateral - Grants	US\$345 millones

¿What are the Risk Financing solutions?

Agricultural Risk Management and insurance

- *What is a broader context for agricultural risk management?*
- *How insurance fits in?*
- **Production risks**
 - Weather related risks that impact agricultural production, livestock and fisheries
 - Climate risks (e.g. risks from significant changes in weather patterns)
 - Pest and diseases that impact agricultural production, livestock and fisheries
- **Market risks**
 - Price risk of agricultural products, livestock and fisheries
 - Losses during storage, transportation and logistics
 - Market access risks such as change in demand, consumer preferences, loss of an important market, etc.
- **Policy and regulatory risks**
 - Change of regulations and policies can disrupt agricultural markets

Agricultural risks and insurance

- Production risks tend to be the most prevalent ones causing the biggest losses of income for agricultural producers
- Insurance is one of the instruments for agricultural risk management
- However, investments to reduce agricultural risks are needed in cases of severe and frequent catastrophic events, like for example, severe droughts and floods (e.g. investments in irrigation, flood control, etc.)
- An agricultural risk management strategy requires a combination of instruments encouraging risk reduction and risk transfer

Financial instruments for Agri Risk Management

- **Risk adaptation and risk mitigation** requires Longer Term investments to reduce risks and better cope with them. These can involve the following suit of financial instruments:
 - Long term debt
 - Blended finance (blending commercial funds with grants focusing on specific investments and perhaps targeted beneficiaries)
 - Guarantees to incentivize investments
- **Risk transfer**
 - Agricultural insurance (commercial farming focused mostly)
 - Catastrophic compensation programs for disaster risks (targeting risks and beneficiaries.....good examples in LAC region)

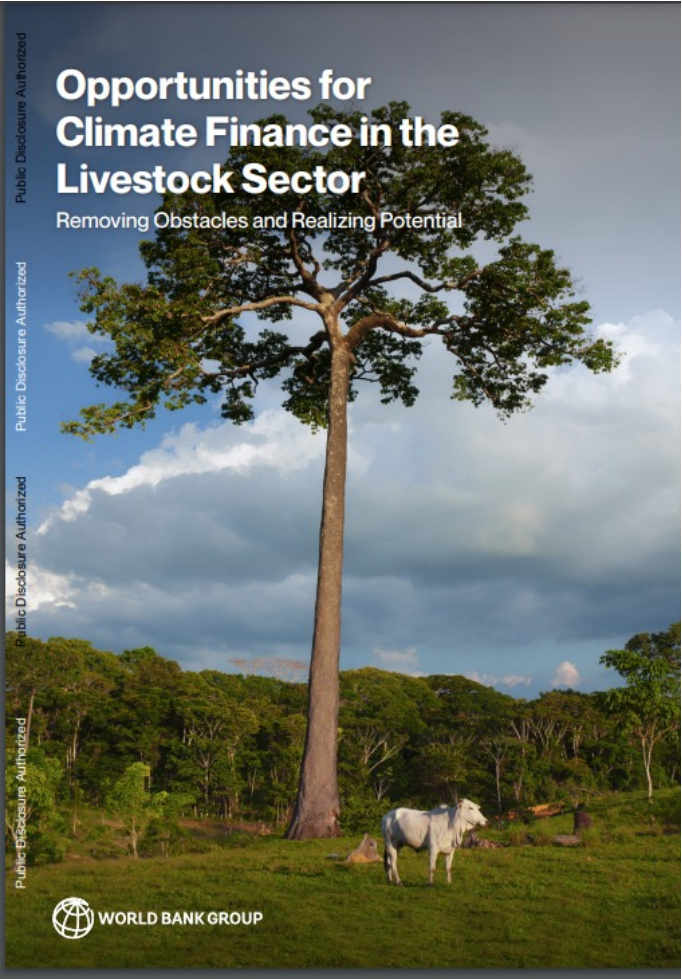
Key messages on Agriculture Insurance

- **Insurance on its own is an incomplete solution for agricultural risks...even for weather or production risks.** It addresses only part of the weather and production risks that require risk transfer;
- **Insurance has more impact (and bigger demand) if it is part of a broader strategy** to reduce risks and part of a package of products and services that improve access to new technologies, credit and markets;
- **Insurance does not replace ex ante measures to reduce risks,** but can be designed in ways to promote climate adaptation (promote investments in smart agriculture).

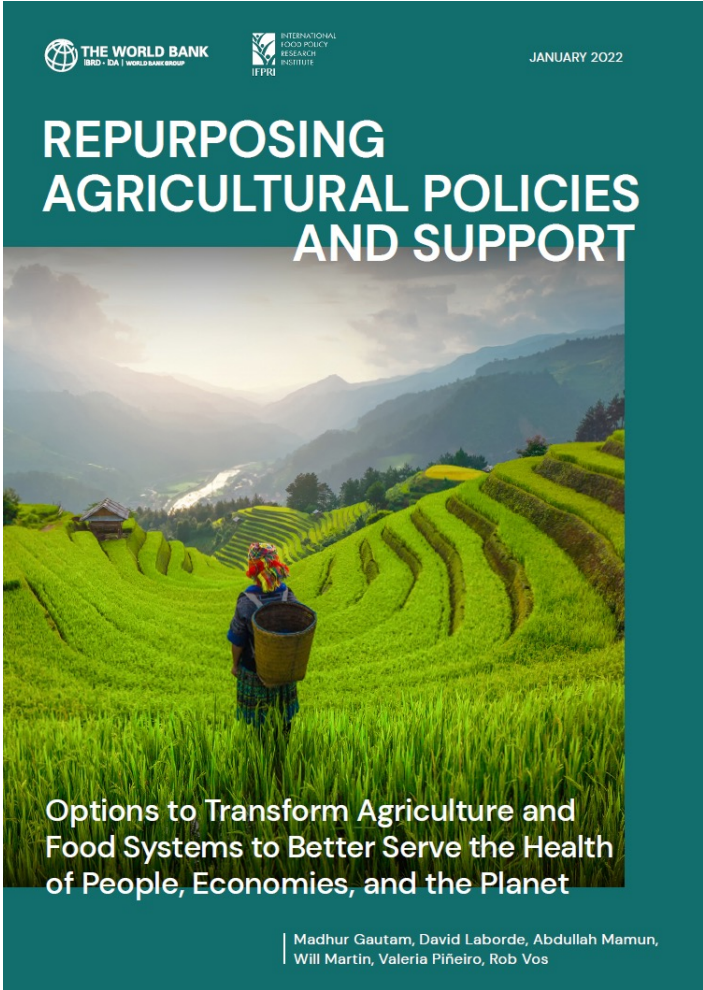
Agricultural insurance and disaster aid

- Governments compensate farmers and rural people in cases of natural disasters
- Usually this happens in the form of disaster assistance or payments, like in the form of conditional cash transfers when disasters strike
- Sometimes such disaster assistance can reduce demand for agricultural insurance
- The interaction of programs to provide disaster aid with efforts to promote agricultural insurance should be considered very carefully to ensure complementarity rather than substitution between disaster aid and agricultural insurance

Recent World Bank publications



<https://www.worldbank.org/en/topic/agriculture/publication/opportunities-for-climate-finance-in-the-livestock-sector-removing-obstacles-and-realizing-potential>



<https://openknowledge.worldbank.org/handle/10986/36875>

The time to bring Climate Finance to the agrifood sector is now!

Lula vows to undo environmental degradation and halt deforestation

President-elect says he will work to save Amazon rainforest and key ecosystems in rousing Cop27 speech



Brazil's president-elect Lula vows climate action during Cop27 speech - video
Luiz Inácio Lula da Silva has told the world that "Brazil is now vowing to begin undoing the environmental destruction seen in his predecessor, Jair Bolsonaro, and work towards zero deforestation of the Amazon rainforest."

On his arrival atmosphere wherever he went on Wednesday, Lula admitted that his administration would go further than ever in environmental protection by cracking down on illegal gold mining, logging, deforestation, and restoring climate-critical ecosystems.

In his speech since winning election, Lula said **Brazil** did not want to lose one hectare of rainforest to be a major agricultural producer. He also used his presidency to demand that rich countries provide \$100bn of climate finance for developing countries.

COP27 Reaches Breakthrough Agreement on New "Loss and Damage" Fund for Vulnerable Countries

20 November 2022

UN Climate Press Release



UN Climate Change News, 20 November 2022 – The United Nations Climate Change Conference COP27 closed today with a breakthrough agreement to provide "loss and damage" funding for vulnerable countries hit hard by climate disasters.

"This outcome moves us forward," said Simon Stiell, UN Climate Change Executive Secretary. "We have determined a way forward on a decades-long conversation on funding for loss and damage – deliberating over how we address the impacts on communities whose lives and livelihoods have been ruined by the very worst impacts of climate change."

Set against a difficult geopolitical backdrop, COP27 resulted in countries delivering a package of decisions that reaffirmed their commitment to limit global temperature rise to 1.5 degrees Celsius above pre-industrial levels. The package also strengthened action by countries to cut greenhouse gas emissions and adapt to the inevitable impacts of climate change, as well as boosting the support of finance, technology and capacity building needed by developing countries.

Creating a specific fund for loss and damage marked an important point of progress, with the issue added to the official agenda and adopted for the first time at COP27.

Governments took the ground-breaking decision to establish new funding arrangements, as well as a dedicated fund, to assist developing countries in responding to loss and damage.

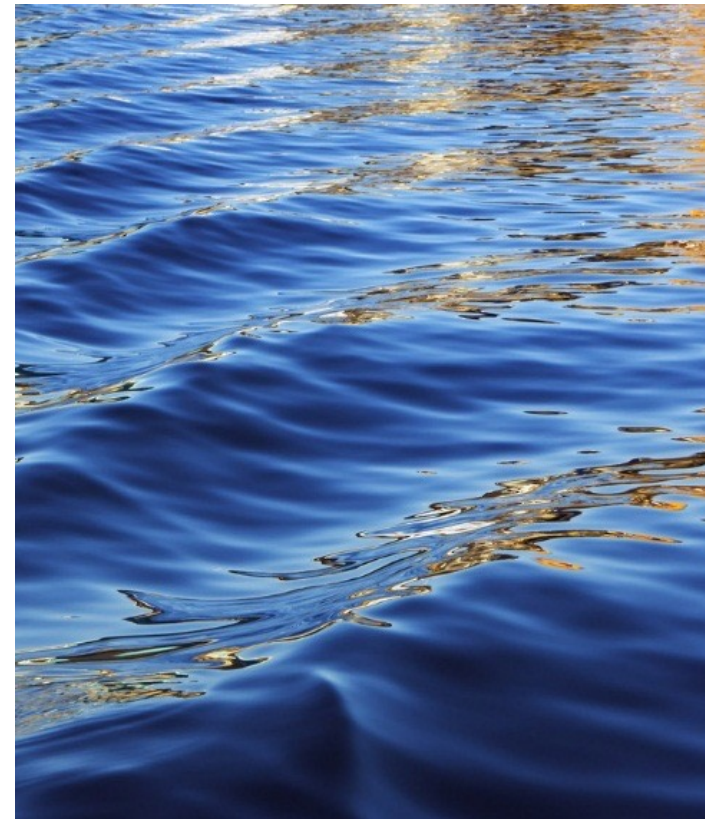


A screenshot of the IPE magazine website, current edition April 2023. The website features a navigation bar with links for HOME, NEWS, COUNTRIES, REPORTS, ESG, TOP 1000, TOP 500, COMMENT, QUEST, and EVENTS. The main article is titled 'UK green finance strategy plans to accelerate investment in nature' by Venilia Amorim, dated 30 March 2023. The article text includes: 'The UK government released this morning its update to the Green Finance Strategy which establishes commitments to deliver on the UK's green finance promises including a UK Green Taxonomy. The strategy will set out how the government will encourage green finance for nature-based solutions such as tree planting and peatland restoration and support farmers to access new private sector revenue streams whilst protecting the natural environment. The government has set a target to raise at least £500m in private finance to support nature's recovery every year by 2027 in England, rising to more than £1bn per year by 2030. This will support greater biodiversity and contribute to achieving the government's environment targets.'



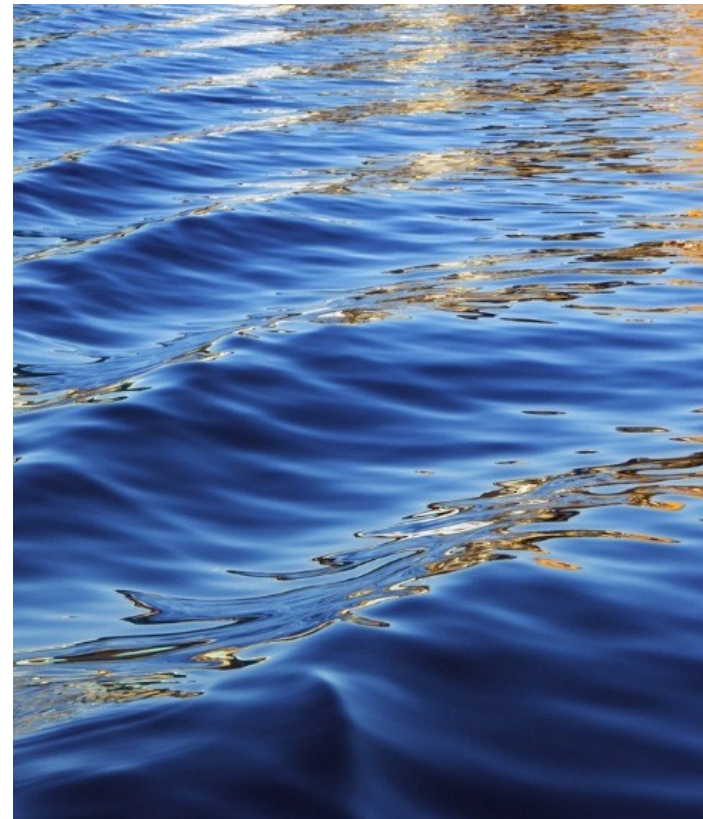
Gracias

darias@worldbank.org





Annex



¿Cuáles ejemplos de nuevos tipos de financiamiento climático en el sector agropecuario?

En ALC, varias fuentes y mecanismos de financiamiento para la mitigación están en practica, pero aún no están a la escala para generar la reducción de emisiones de GEI requerida.

Pais	Program	Fuente de financiamiento	Instrumento	Monto
Brazil	Plan Sectorial de Agricultura Baja en Carbono (Plan ABC)	Gobierno	línea de crédito subsidiada para que los agricultores conviertan las prácticas tradicionales de gestión agrícola en prácticas bajas en carbono	US\$1,2 mil millones/ano
Brazil	Proyecto ABC Cerrado	FIP Donación	Asistencia técnica y capacitación en prácticas de restauración de pastos	US\$10 millones (para 6 anos)
Uruguay	Sistema de trazabilidad bovina	Gobierno	Inversiones en el sistema de trazabilidad bovina impulsó la apertura de 120 mercados a la producción uruguaya.	US\$ 12,5 millones/ ano
Colombia	Proyecto de Integración de la Ganadería Sostenible	GEF, BEIS Donación	Inversiones para convertir los sistemas de pastoreo convencionales en modelos sostenibles como los sistemas silvopastoriles	US\$56 millones
Costa Rica	Programa de Pagos por Servicios Ambientales (PES)	Gobierno (impuesto a los combustibles y el cargo por agua), Certificados de Conservación de la Biodiversidad, créditos de carbono y alianzas estratégicas con el sector público y privado.	reconocimiento financiero por parte del Estado, a través del Fonafifo, a los (las) propietarios(as) y poseedores(as) de bosque y plantaciones forestales por los servicios ambientales	US\$ 524 million

Financiamiento climático del sector privado para la intensificación sostenible de la ganadería en ALC

Case	Description & Mitigation Pathways	Outcomes
Novo Campo Program, Brazil	Project under Althelia Climate Fund Avoided deforestation through sustainable intensification, grazing management	Mitigation: Avoided GHG emissions from deforestation, soil carbon sequestration from grazing management Adaptation: Ecosystem resilience due to intact ecosystems Livelihood: Increased rural incomes and productivity gains
INOCAS, Brazil	Project under Althelia Climate Fund Avoided deforestation due to offering alternative income sources, silvopastoral systems	Mitigation: Avoided GHG emissions from deforestation, carbon sequestration from trees in silvopastoral systems Adaptation: Ecosystem resilience due to enhanced micro-climate Livelihood: Increased rural incomes through income diversification
Satellite-based forest monitoring project, Nicaragua	Project under eco.business fund, local partner Lafise Bancentro Grazing management, avoided deforestation through sustainable intensification of livestock	Mitigation: Avoided GHG emissions from deforestation, soil carbon sequestration from grazing management Adaptation: Ecosystem resilience due to intact ecosystems Livelihood: Increased rural incomes and productivity gains
Climate Smart Cattle Ranching, Brazil	Project by Naturevest and the Nature Conservancy, endorsed by Climate Finance Lab Avoided deforestation due to sustainable intensification of livestock, silvopastoral systems	Mitigation: Avoided GHG emissions from deforestation, carbon sequestration from trees in silvopastoral systems Adaptation: Ecosystem resilience due to enhanced microclimate Livelihood: Increased rural incomes and productivity gains
Integrated Crop-Livestock-Forest Systems, Brazil (and Indonesia)	Project implemented by Rabobank, WWF Brazil, and UNEP Silvopastoral systems	Mitigation: Avoided GHG emissions from deforestation, carbon sequestration from trees in silvopastoral systems Adaptation: Ecosystem resilience due to enhanced microclimate Livelihood: Increased rural incomes and productivity gains

Invertir en monitoreo, informes y verificación de GEI (MRV)



Los sistemas robustos de MRV pueden generar resultados verificables a partir de las inversiones en mitigación, vinculándose a las NDC de los países y abriendo la puerta a una mayor financiación climática.

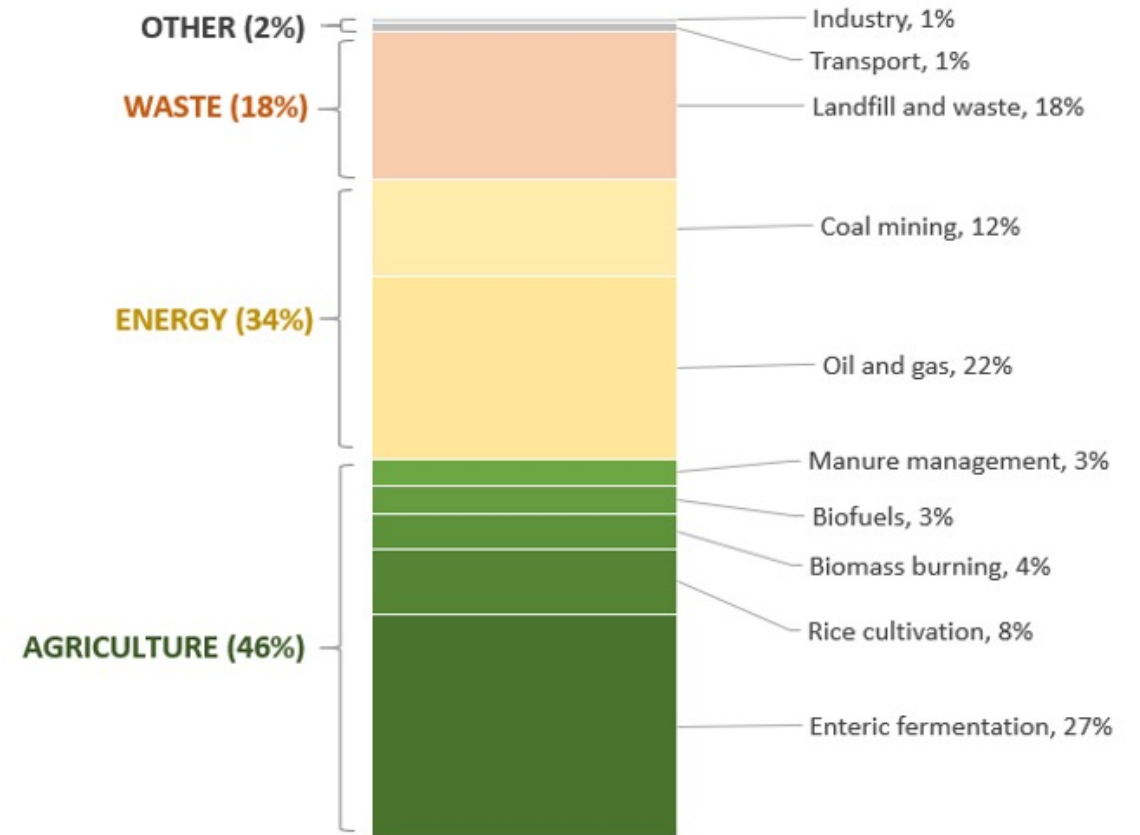
- **MRV a nivel de proyecto:** el proyecto apoya la recopilación de datos y el desarrollo de capacidades para cuantificar las contribuciones del proyecto a la adaptación y la mitigación.
- **MRV a nivel nacional:** el proyecto apoya el desarrollo de un MRV nacional para el ganado y las emisiones para ser utilizado por muchos proyectos y programas en todo el país.
- **Contabilidad nacional de emisiones:** el proyecto convoca a diversas partes interesadas para facilitar el flujo de información desde las bases de datos a nivel sectorial hasta las bases de datos a nivel nacional.

¿Cuáles son los puntos de entrada para que ALC reduzca las emisiones de GEI en la agricultura?

- Cerrar de manera sostenible las brechas de rendimiento;
- Reorientar los subsidios agrícolas;
- Centrarse en las reducciones de metano en la agricultura



Global Anthropogenic Methane Emissions, by source 100% = 352 Mt CH₄ in 2019

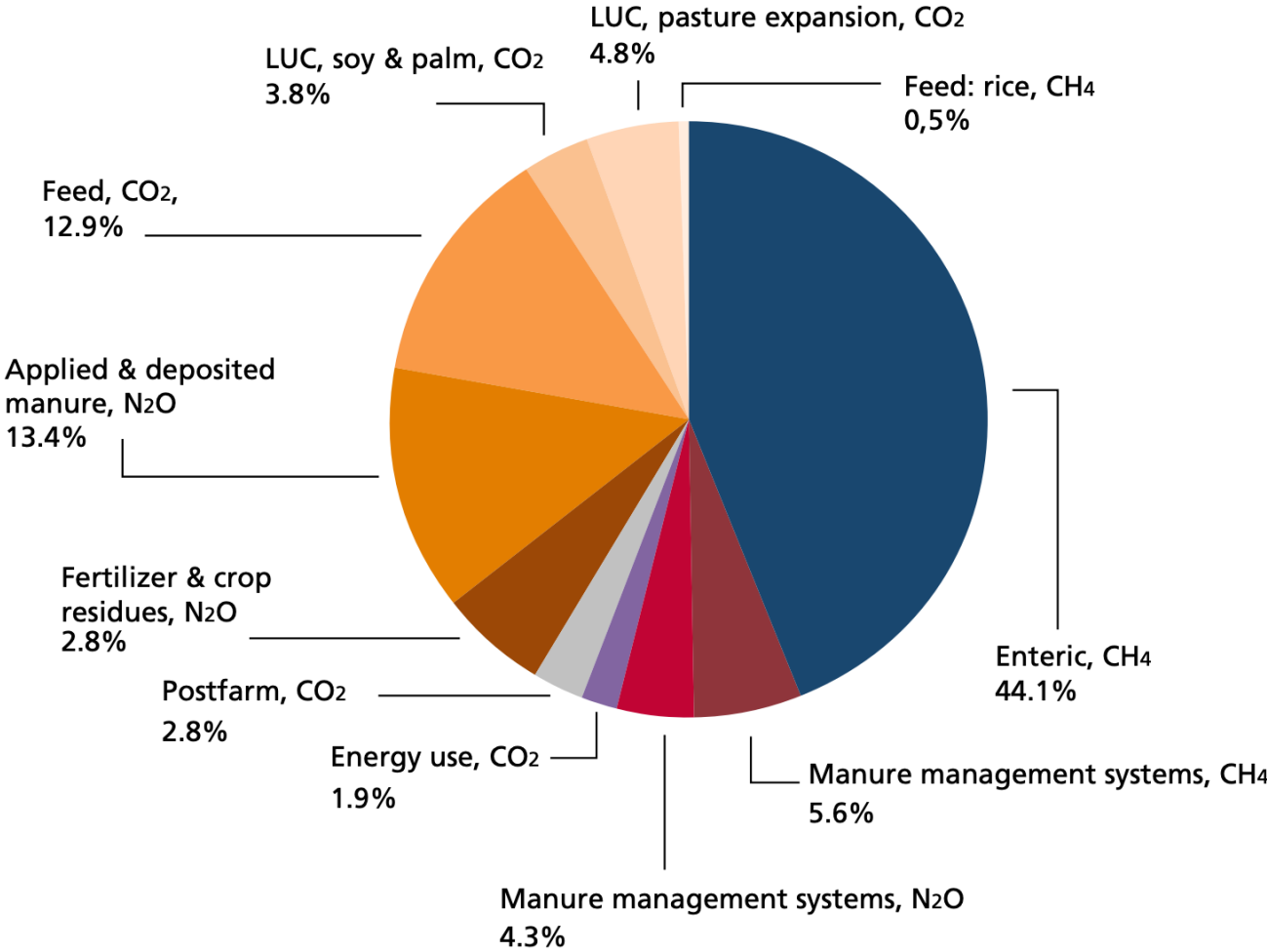


Source: CCAC/UNEP (2020). Global Methane Assessment

While the livestock sector and its value chains are responsible for about a sixth of GHG emissions, it can be part of the solution by reducing emissions and also putting carbon back into the soil

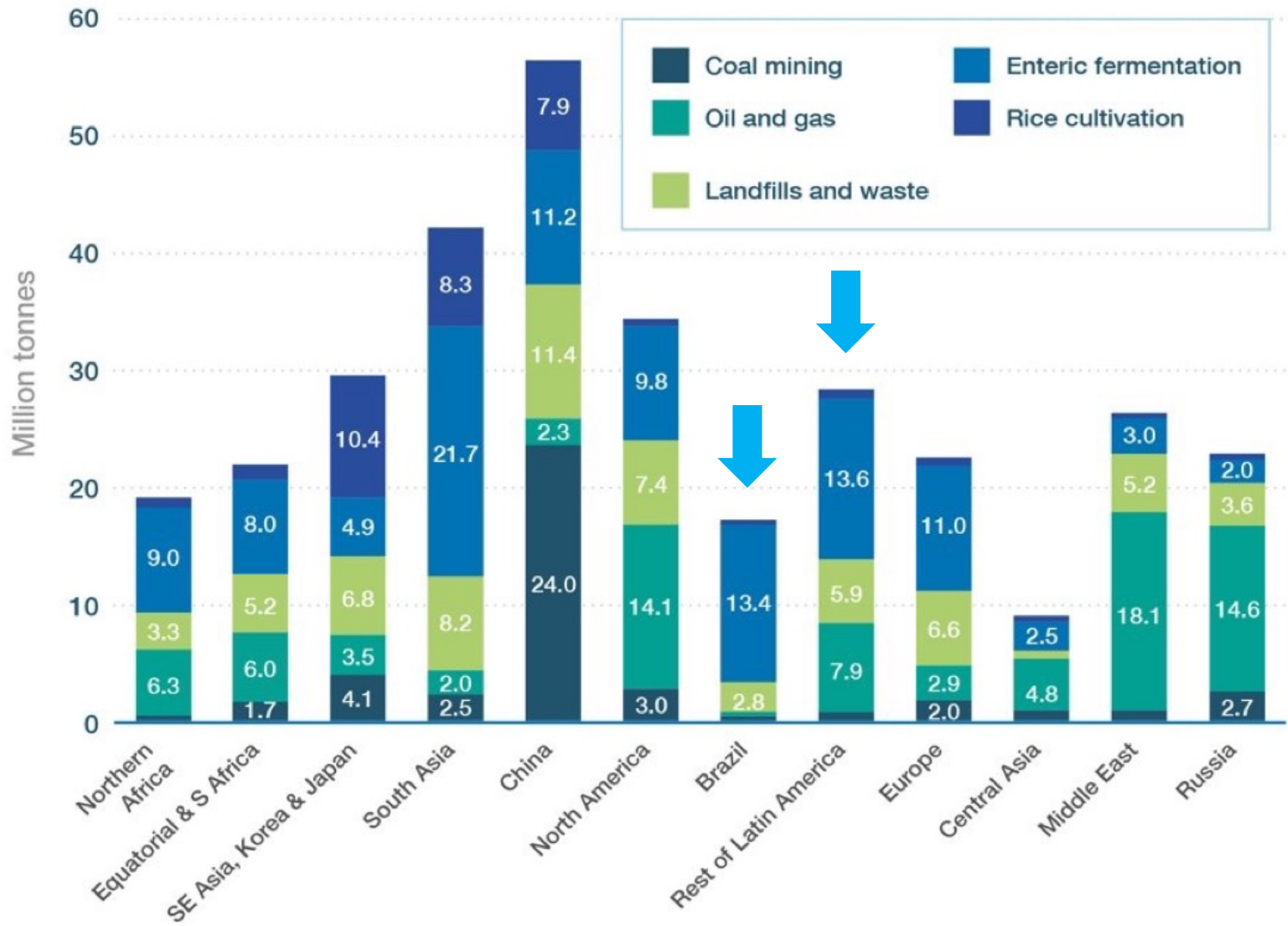
Livestock supply chains contribute ~14.5% of all human-caused greenhouse gas emissions and account for as much as one-third of total emissions in Latin America.

Nearly 45% of total livestock emissions come from enteric fermentation but the greater part, almost 50%, is due to feed production.



Source: FAO, 2017- GLEAM database, 2010.

Estimated annual methane emissions by region and sector



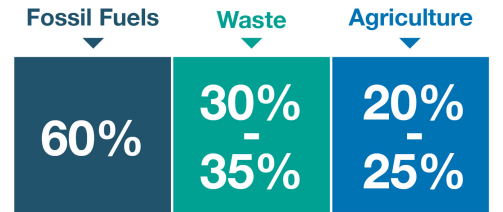
Source: Saunio et al. (2020)

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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:



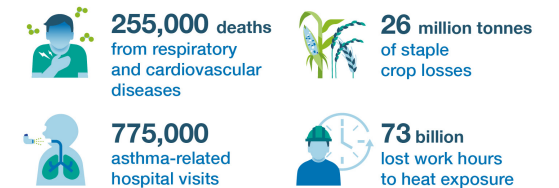
Reductions relative to 2020 emissions

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Reducing methane emissions by 45% means

0.3°C warming avoided by 2040

Preventing every year:

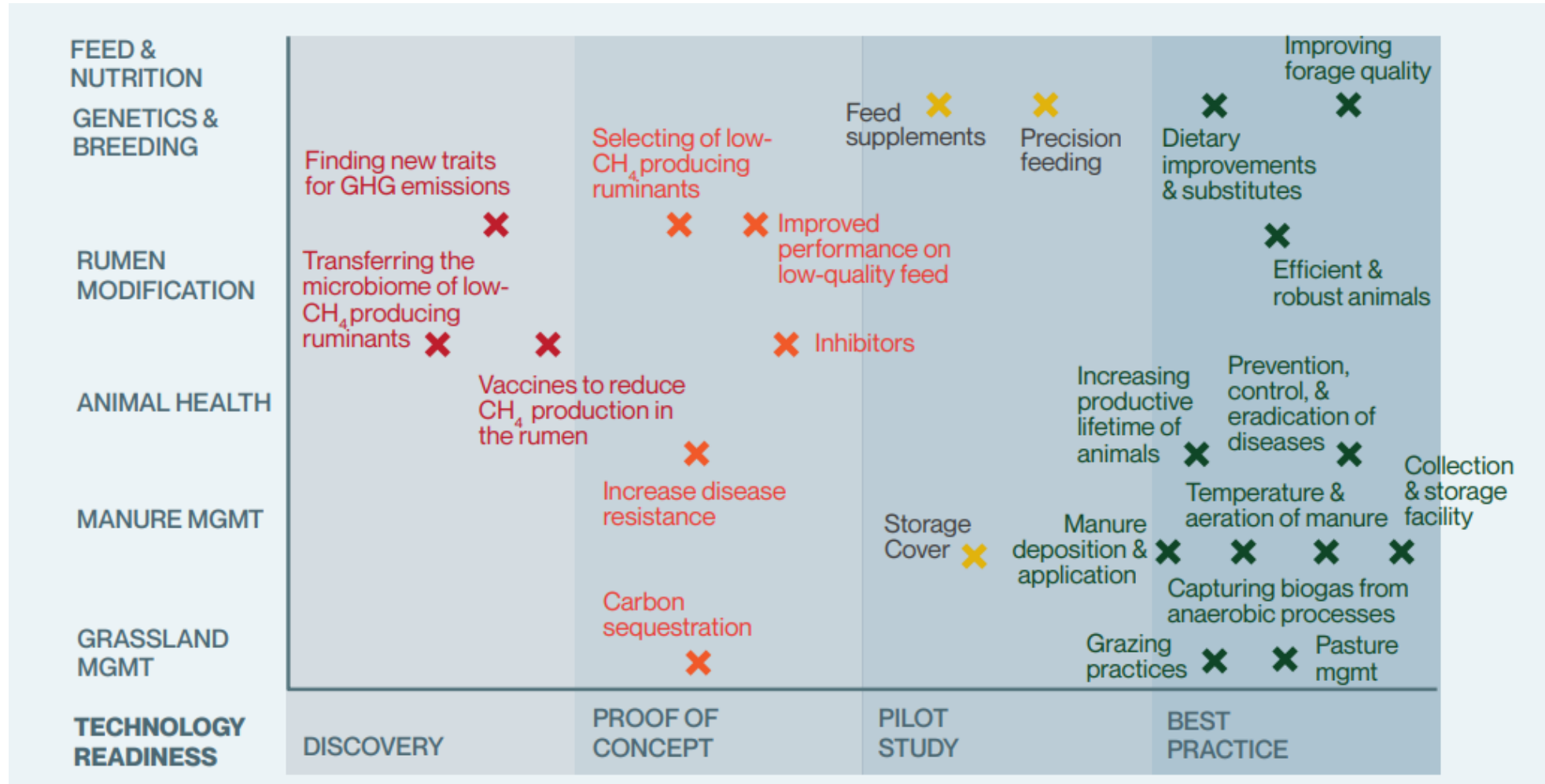


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Source: CCAC/UNEP (2020). Global Methane Assessment

The “what”: Scaling up known, validated approaches

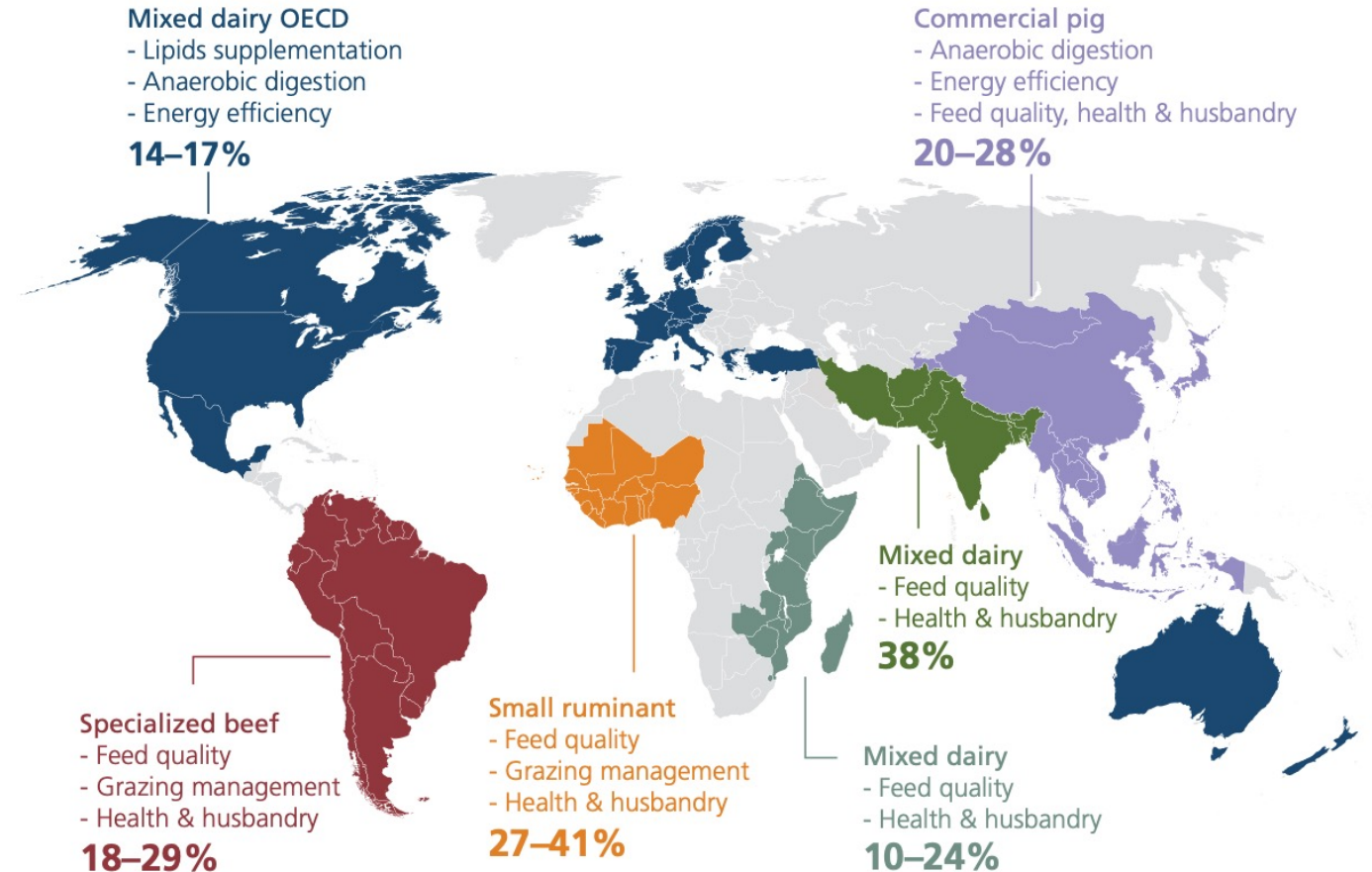
Example: “readiness” of livestock sector mitigation interventions



The “what”: Scaling up known, validated approaches

Efficient practices key to reducing greenhouse gas emissions in the livestock sector can be reduced by 14-41% through adoption of feasible improvements in: **feed quality | animal health and husbandry manure management | energy use efficiency**

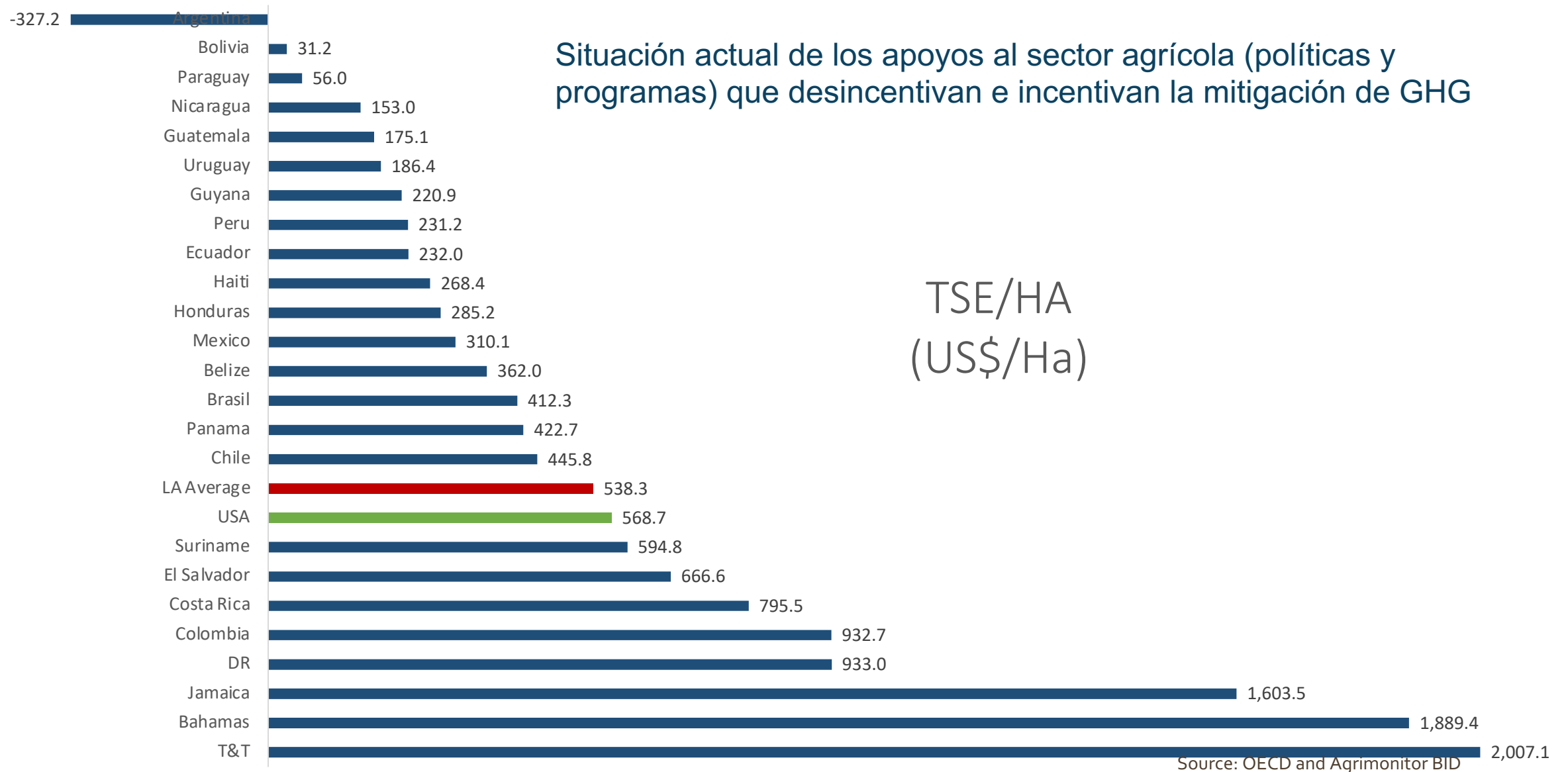
- Soil carbon sequestration in pasture and grasslands is an additional practice with promising mitigation potential.
- Adjustments in grazing pressure can sequester **148.4 Tg CO₂** per year in grazing lands worldwide.
- **64% of the C sequestration potential is found in Central and South America (42.7 Tg CO₂).**



Source: FAO, 2018.

Source: FAO, 2018 (World Livestock: Transforming the livestock sector through the Sustainable Development Goals).

The "how": Re-orienting agriculture supports



WBG Climate Finance | \$31.7 billion in fiscal year 2022

The World Bank Group continues to be the largest multilateral financier of climate action in developing countries.

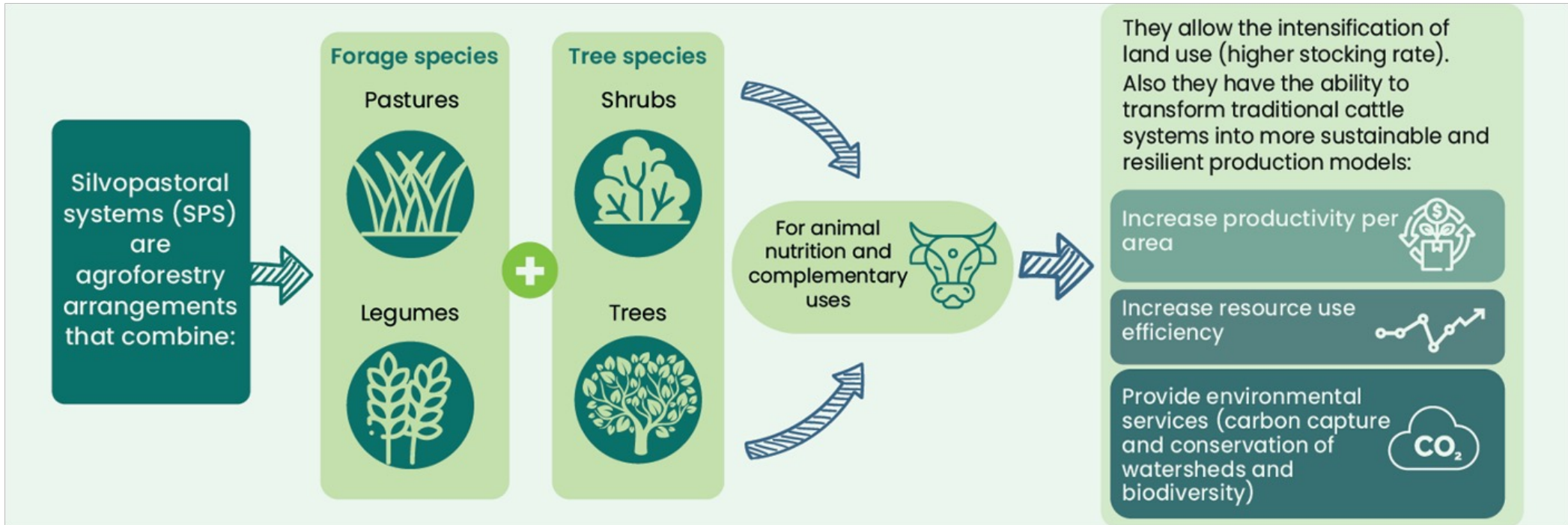
Financing for climate action in FY22 exceeded the target set in the Group's Climate Change Action Plan for 2021-2025 to deploy an average of 35% of the institution's financing in support of climate action: it reached 36% of total Bank Group financing.

- IBRD and IDA together delivered \$26.2 billion in FY22 in climate finance. Building resilience to climate shocks is a priority. Nearly half of the Bank's finance—\$12.9 billion—supported investments in adaptation and resilience.
- IFC, the private sector arm of the World Bank Group, delivered an unprecedented \$4.4 billion in climate finance and mobilized an additional \$3.3 billion from other sources.
- MIGA, the World Bank Group's political risk insurance and credit enhancement arm, delivered \$1.1 billion in climate finance in FY22.
- The Bank's first Country Climate and Development Reports (CCDRs) are examples of our ongoing effort to help countries integrate climate and development objectives and prioritize the most impactful actions that can reduce greenhouse gas emissions and boost adaptation.

Ejemplos de proyectos de LAC

En **Colombia**, el Proyecto de Integración de la Ganadería Sostenible de US\$56 millones ha convertido los sistemas de pastoreo convencionales en modelos sostenibles como los sistemas silvopastoriles, lo cual ha permitido la intensificar el uso del suelo (cargas animales 32,6 por ciento más altas); mejorar la productividad por área (17% por ciento más leche por hectárea intervenida) y secuestrar cantidades significativas de carbono (aprox. 1,5 millones de toneladas de CO₂eq).

El proyecto ha apalancado/creado US\$3,6 por cada US\$1 proporcionado por las agencias de financiamiento (GEF, BEIS) y los socios del proyecto. Adicionalmente, ha creado un valor económico considerable, con rendimientos del 24,5 al 30,1 por ciento y un VPN por hectárea de US\$ 1650 a US\$ 1935, lo que indica que el proyecto es una inversión eficiente que crea simultáneamente valor monetario y social.



Ejemplos de proyectos de LAC

En **Brasil**, el proyecto FIP ABC Cerrado (US\$ 10 millones) apoyó intervenciones para ampliar las prácticas de restauración de pastos, demostrando que US\$ 1 invertido por el programa en capacitación y asistencia técnica de prácticas de bajo carbono alentó la inversión de US\$8 por parte de los ganaderos y aumentó las ganancias en US\$ 1,16-1,54 y redujo las emisiones de carbono en el equivalente de US\$ 0,29 -0,38.



En ALC, varias fuentes y mecanismos de financiamiento para la mitigación están en práctica, pero aún no están a la escala para generar la reducción de emisiones de GEI requerida.

ALC puede ser el centro de innovación global para la agricultura climáticamente inteligente, mostrando el camino hacia la transición del sistema alimentario sostenible:

- **Brasil:** Plan Sectorial de Agricultura Baja en Carbono (PLAN ABC), línea de crédito subsidiada para que los agricultores conviertan las prácticas tradicionales de gestión agrícola en prácticas bajas en carbono
- **Uruguay:** Inversiones en el sistema de trazabilidad bovina impulsó la apertura de 120 mercados a la producción uruguaya. Uruguay invierte al año 12,5 millones de dólares en el sistema de trazabilidad del rodeo vacuno (;
- **Costa Rica** es pionera en el Programa de Pagos por Servicios Ambientales (PES) agroforestal El mecanismo financiero financia a través del impuesto a los combustibles y el cargo por agua de Costa Rica, así como iniciativas propias, como Certificados de Conservación de la Biodiversidad, créditos de carbono y alianzas estratégicas con el sector público y privado.

Centrarse en reducir las emisiones de metano agrícola

- El CH₄ es uno de los principales GEI emitidos por los sistemas agrícolas en ALC.
- En una escala de tiempo de 20 años, el metano es 86 veces más potente que el dióxido de carbono como gas de efecto invernadero.
- Los enfoques de reducción de metano en los sistemas agrícolas son conocidos y validados.

OPPORTUNITIES
for Climate Finance in the Livestock Sector

- 1 Conditional credit lines on mitigation actions**
- 2 Value-chain finance**
- 3 Emissions Trading Schemes**
- 4 Verified Sourcing Areas for livestock feed**
- 5 Prize-based incentive programs**
- 6 Programmatic ODA /IFI finance**

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