Caribbean Resilience Finance Day 2024

Scale for Resilience

EcoMicro

Global Affairs Canada
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Session 4

The Business Case for Resilience:

Deep Dive Into Successful Approaches for and from the Caribbean Region

Meet the speakers

Carter Brandon
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Malini Samtani
Advisory Officer for Climate Change, IDB Invest

Deissy Martínez-Barón
Regional Program Leader LAC, Alliance of Bioversity & CIAT

Moderator

Tomás Ribé
Director of Investments, GAWA Capital

The economics and finance of building resilience in the Caribbean

Carter Brandon

Senior Fellow

World Resources Institute

Caribbean Resilience Finance Day:

The Business Case for Resilience

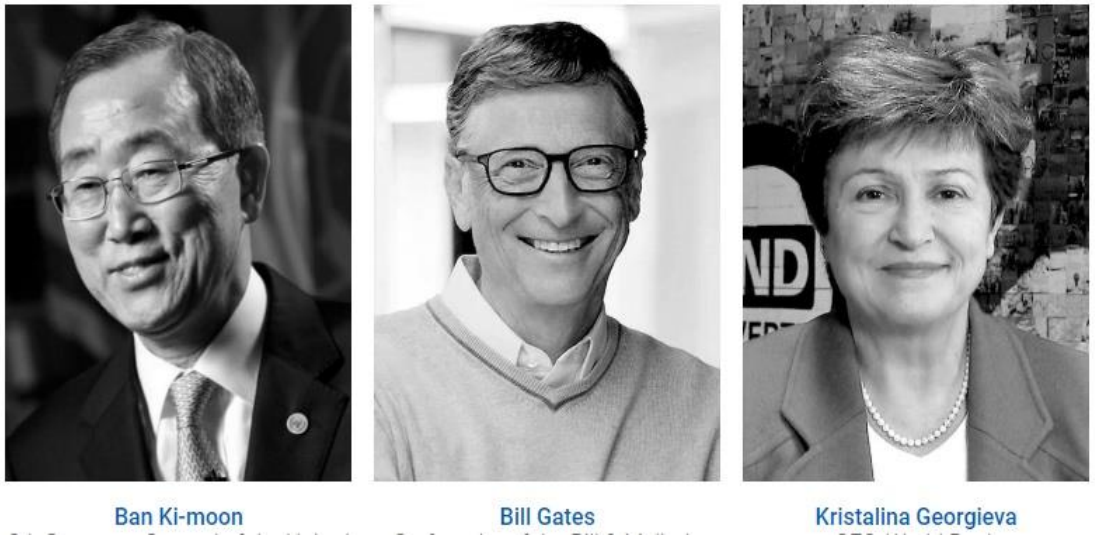
October 11, 2024

There is under-investment in climate change adaptation

“The costs of adapting are less than the cost of doing business as usual. And the benefits many times larger.”

- Ban Ki-moon

8th Secretary General of the UN

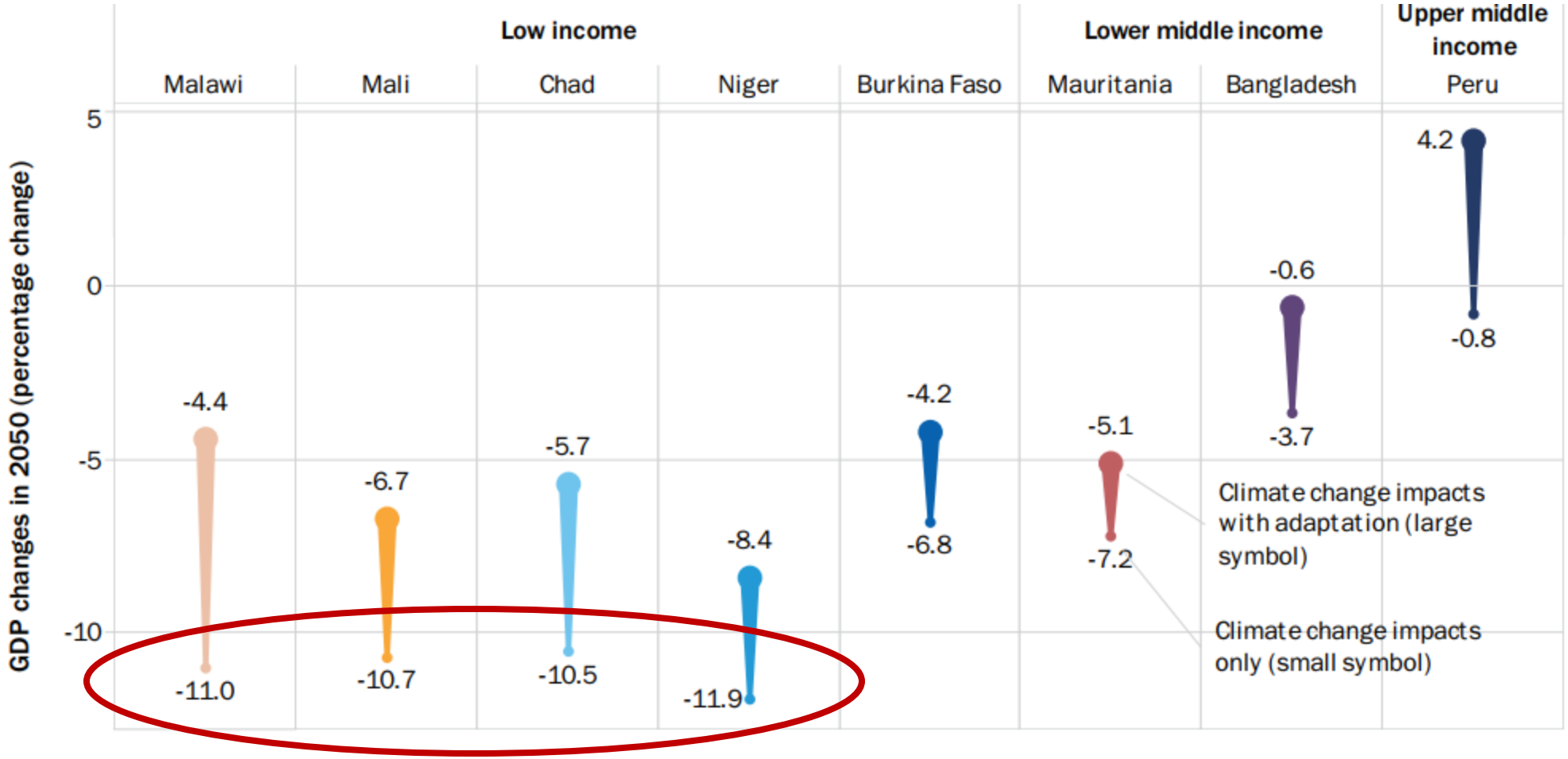


The Global Commission on Adaptation, 2019

There are different ways to look at the problem

1. **Top-down**. Ministries of Finance need to understand the problem and act on government policies to scale up adaptation investments.
2. **Bottom-up**. Project developers need to understand the full benefits of building resilience and seek appropriate partners.
3. **Combining these two is powerful**.

TOP DOWN: GDP IMPACTS OF CLIMATE CHANGE IN 2050, WITH AND WITHOUT ADAPTATION, FOR SELECTED COUNTRIES

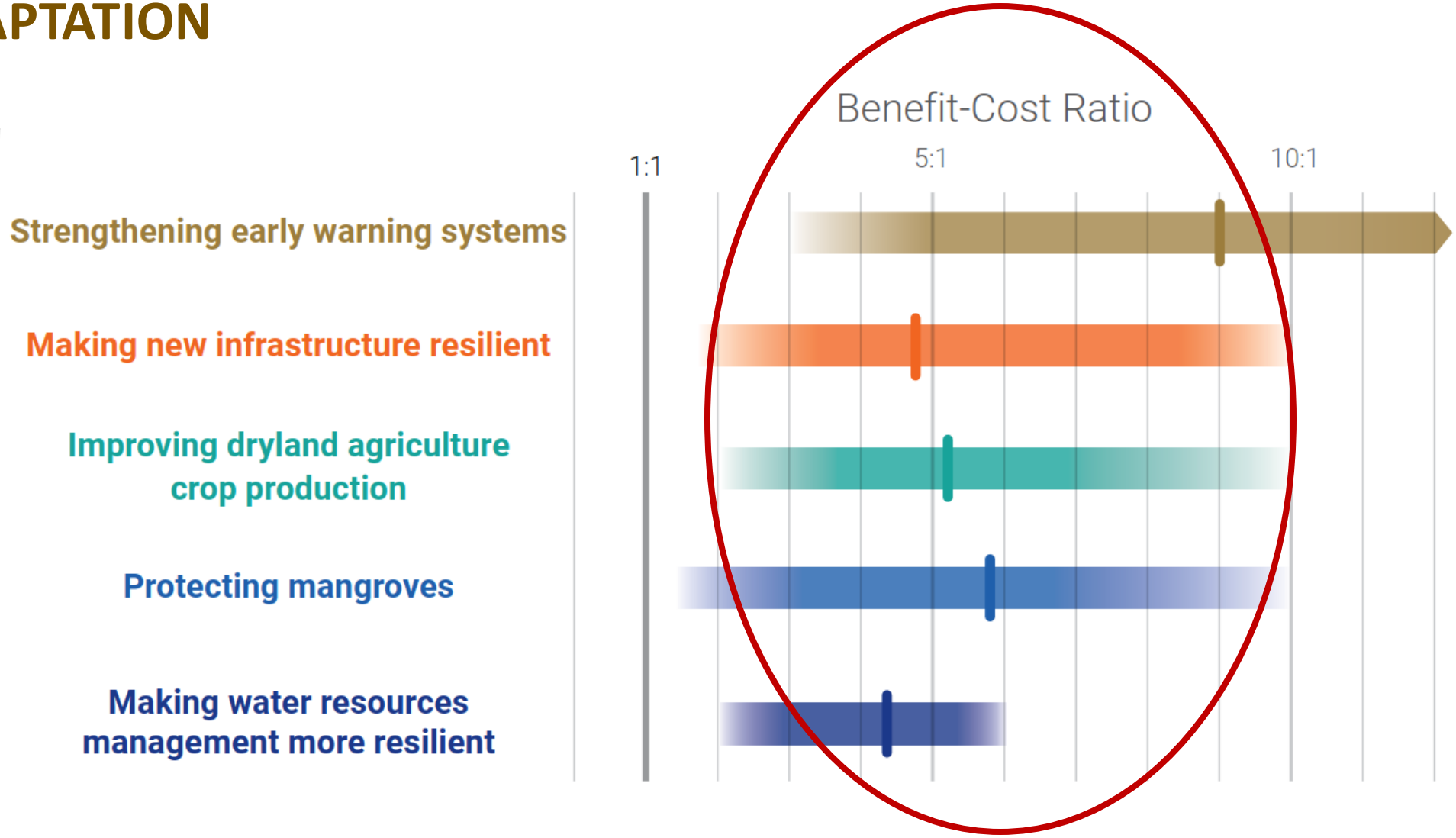


Notes: The small dot is partial impacts without adaptation; the large dot is partial impacts with (partial) adaptation and some of their co-benefits

World Bank, The Development, Climate, and Nature Crisis, 2023

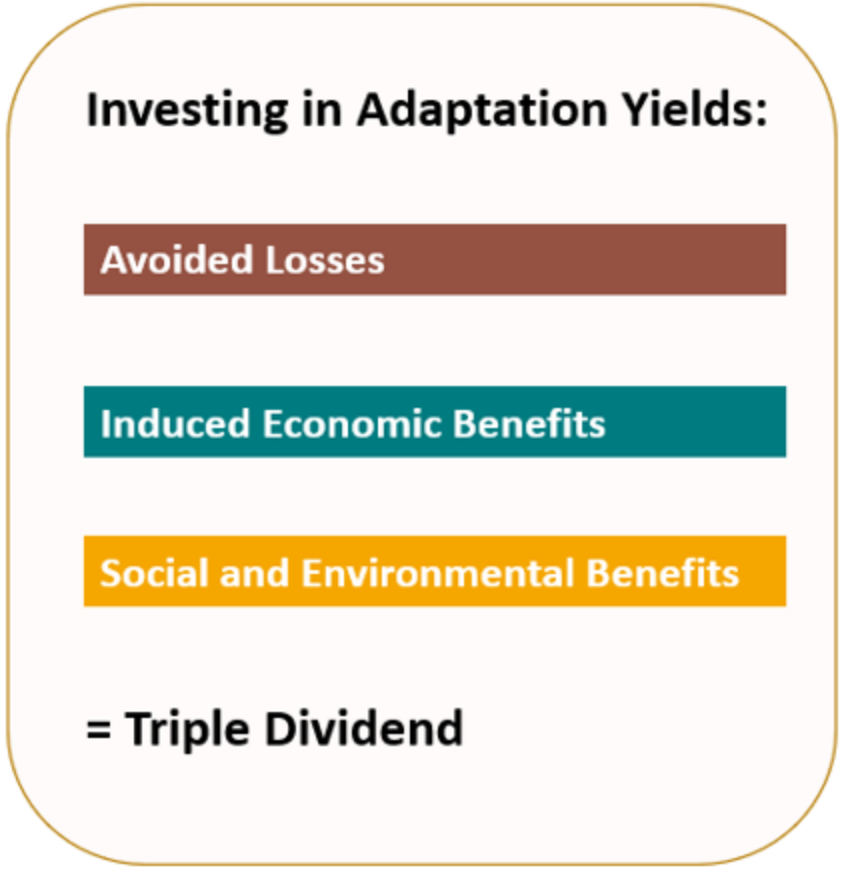
WORLD RESOURCES INSTITUTE

BOTTOM UP: STRENGTHENING THE INVESTMENT CASE FOR ADAPTATION



The economic benefits of global adaptation investments, Global Commission on Adaptation, September 2019

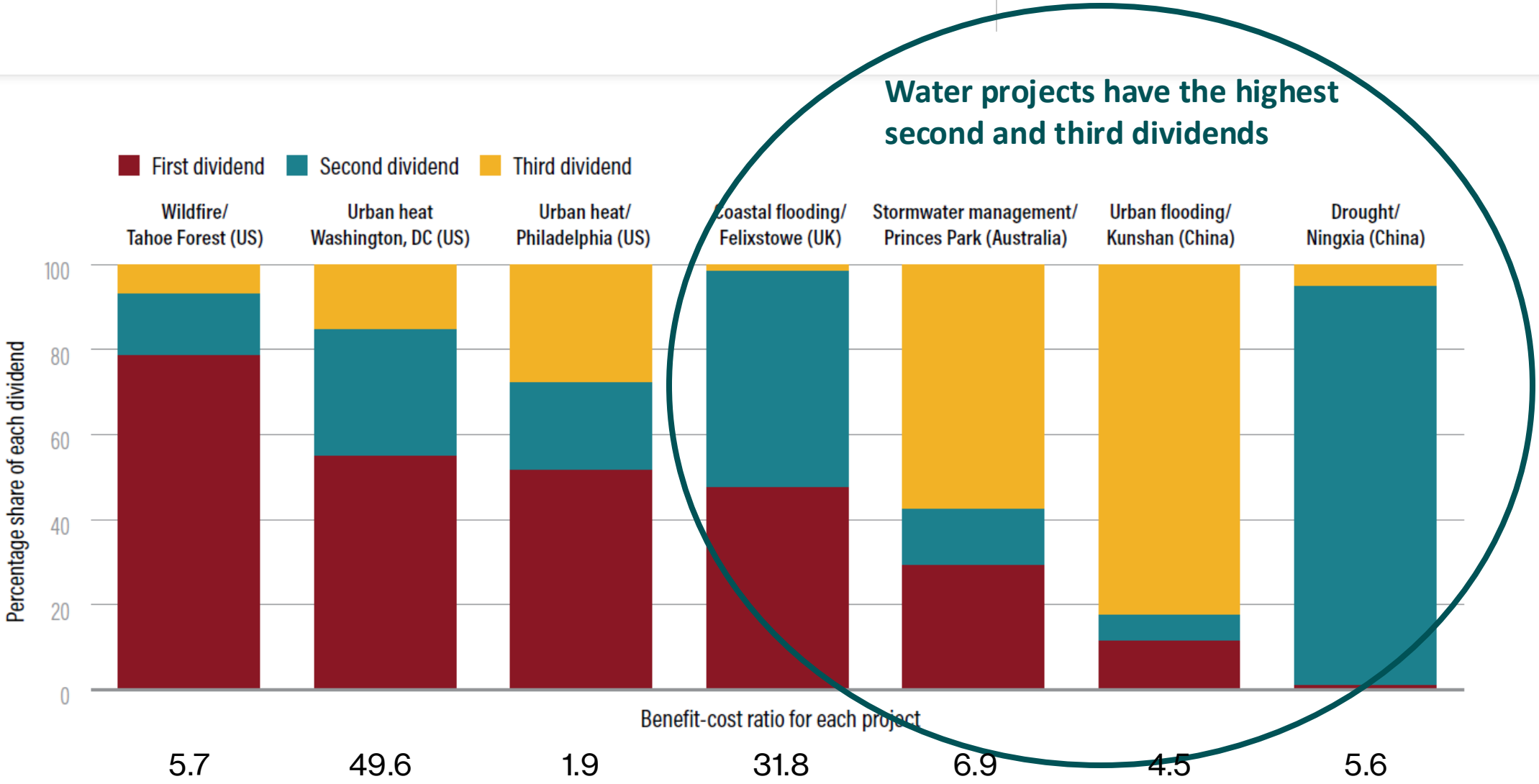
THE TRIPLE DIVIDENDS OF INVESTING IN CLIMATE ADAPTATION



- **Aggregating across TOTAL benefits** is better than promoting each dividend separately.
- Benefit-cost ratios of adaptation investments **are often much larger than assumed (BCR's > 5).**
- The second and third dividends accrue **even when the anticipated disaster does NOT occur**. They don't rely on the probabilities of disaster risk.
- The second and third dividends are **often larger than the "avoided losses"** that accrue when disaster does strike
- The total benefits of adaptation investments **include significant private benefits**, esp. the second dividend

The Triple Dividend of Building Climate Resilience, WRI Working Paper Nov 2022.

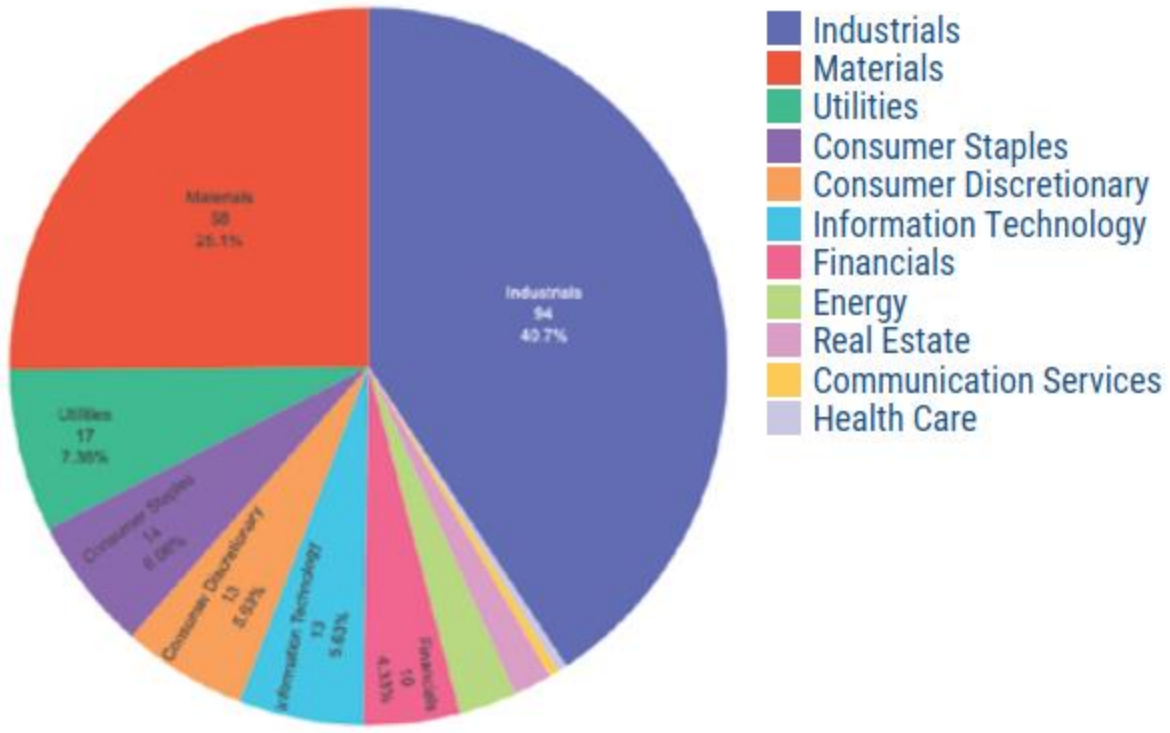
SHARES OF EACH DIVIDEND VARY BY PROJECT



Sector	Climate Adaptation Products & Services
Agriculture	• Drought tolerant crops • Cold chain storage • Irrigation technologies using high-efficiency systems
Real Estate	• Flood mitigation technologies • Efficient cooling technologies • Green roofs
Water Supply & Management	• Water storage technologies • Water preservation technologies; e.g., smart water meters • Irrigation technologies
Information Technology	• Early warning systems for extreme events • Early response systems
Infrastructure & Transportation	• Stormwater management - drainage and conveyance • Extreme heat/cold resistant paving material • Wetlands restoration
Energy	• Grid hardening technologies • Weatherization of renewable assets • Distributed energy systems/community grids
Health	• Vaccines for new diseases • Drug treatments for new diseases • Air purification systems
Financial Services	• Climate parametric insurance • Digital payment systems • Blockchain

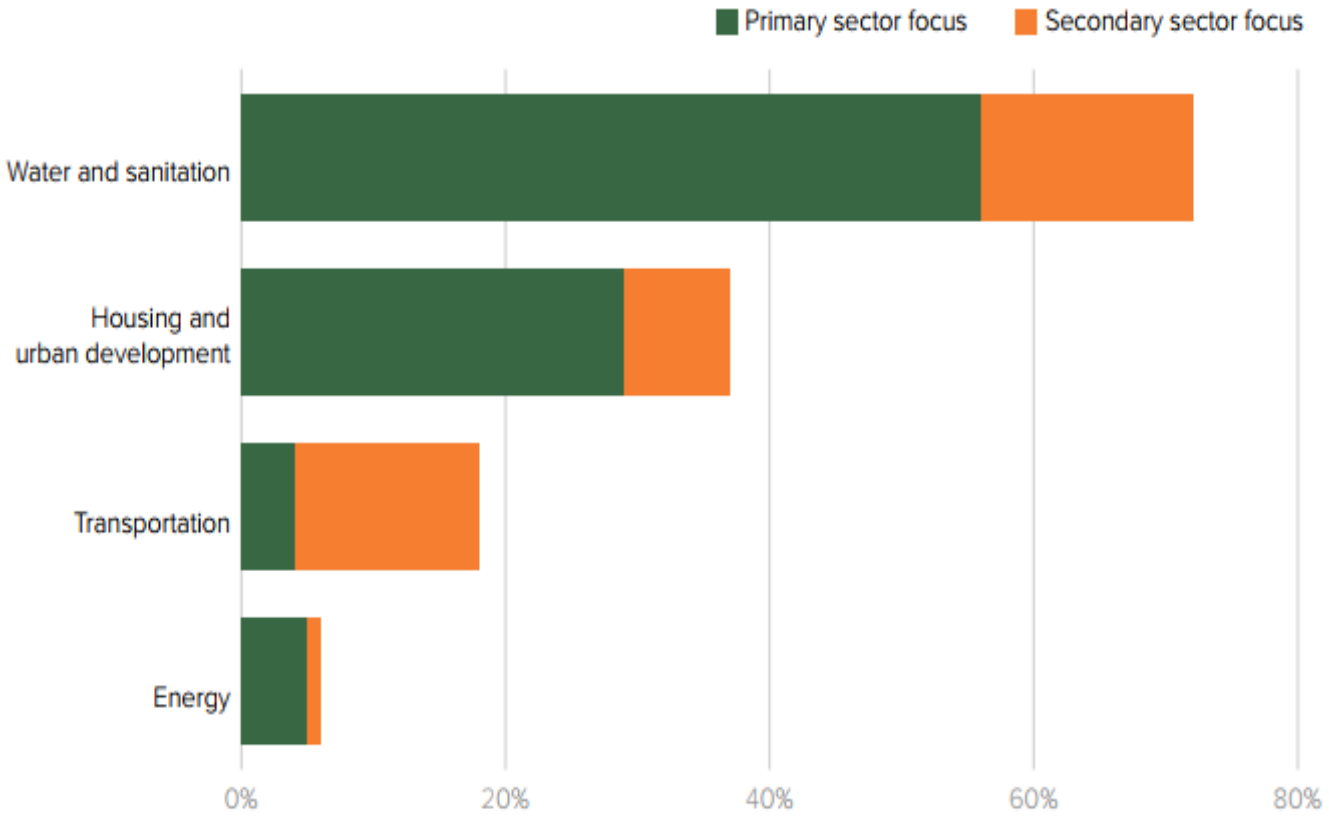
Many market-based adaptation solutions favor the private sector

Emerging Markets Resilience Companies by Sector



The Unavoidable Opportunity: Investing in the Growing Market for Climate Resilience Solutions, GARI.

Nature-Based Solutions typically require joint approaches



[NBS in Latin America and the Caribbean](), WRI, 2021

Lending Entities in Nature-Based Solutions

	Local or national NGO	40	26%
	National government	37	24%
	Local government	30	19%
	International organization or NGO	20	13%
	Infrastructure service provider or utility company	11	7%
	Private company or private foundation	9	6%
	Research institution	5	3%
	Other	4	3%
	Total	156	100%

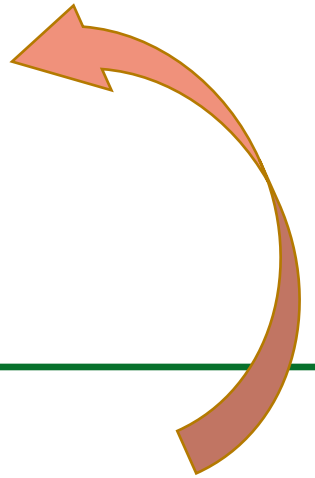
If resilience investments have such large returns, why don't people do more of them?

Is it the nature of the investments themselves?

- They don't generate cash flow.
- They are long-term and therefore highly uncertain.
- They are relatively small with high transaction costs.
- They are complex (and there is scarce expertise).
- They are untested.

Or the nature of the enabling environment?

- Poor information
- Weak institutions
- Weak incentives
- Lack of financing

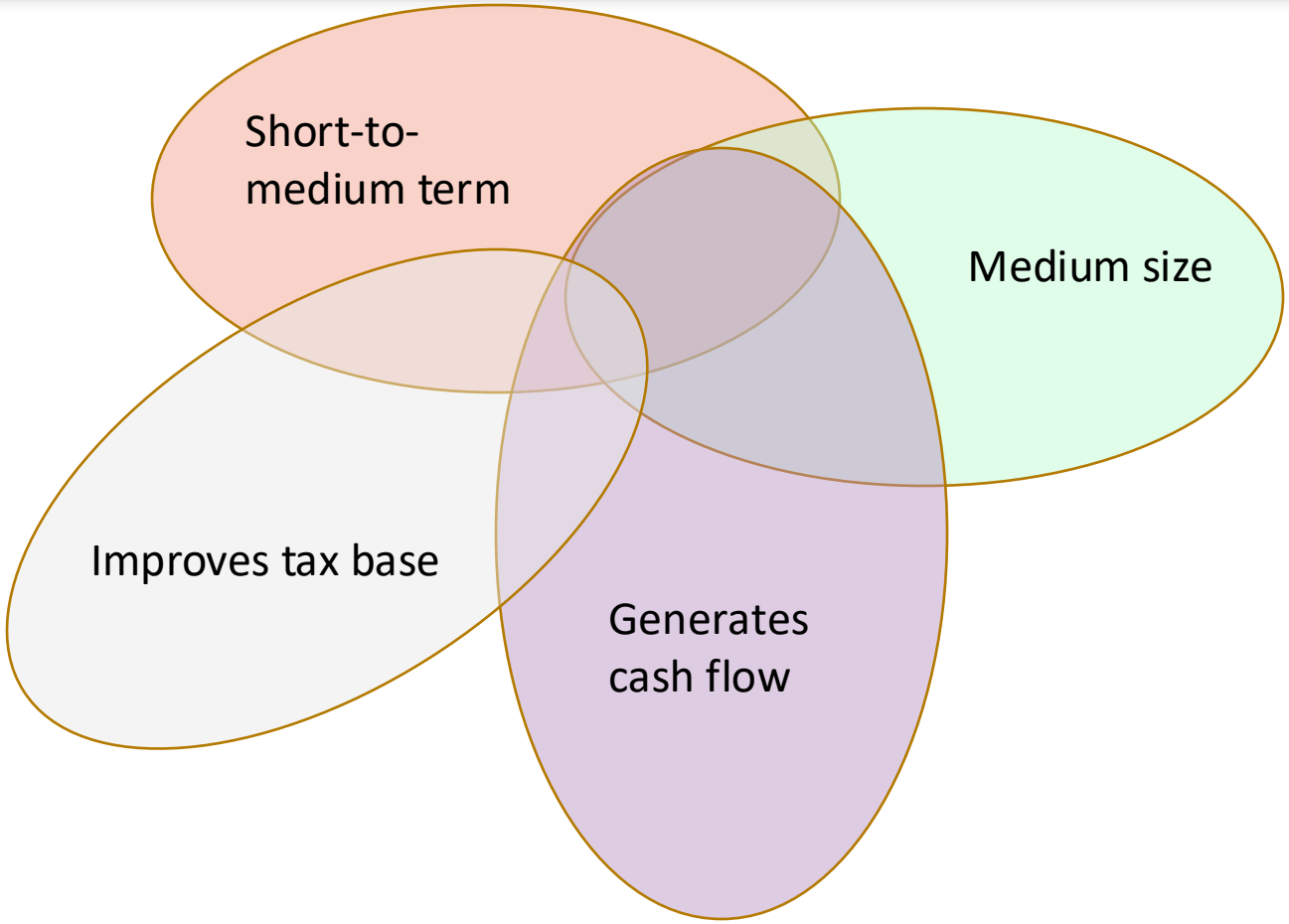


Answer: both

But governments have a unique role in improving the enabling environment

Good project design will maximize both public and private benefits in these ways

- Agriculture
- Buildings and Real Estate
- Water Supply/Flood Control
- Information Technology
- Infrastructure (Energy & Transportation)
- Financial services
- Nature-based solutions



Key Take-aways

1. **Investors need to come to the table** and be active participants in designing adaptation projects
2. **Governments and utility companies need to deepen their engagement** to secure revenue and lend their credit-worthiness to projects
3. **Donors should support policy reform and innovative financing models**.
4. **NBS should be incorporated in infrastructure planning early** so that more NBS projects are identified and financed.
5. **Combining top-down policies with bottom-up project design is powerful** -- and essential for developing joint public-private projects.

Source: The Financial Landscape of NBS in Latin America and the Caribbean, USAID, work in progress.

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Resiliency Finance in the Caribbean

IDB Invest, a member of the Inter-American Development Bank (IDB) Group, is a multilateral development bank committed to the **economic development of its member countries** in Latin America and the Caribbean through the private sector.

IDB	IDB Invest	IDB LAB
Governments Civil Society	Corporates Infrastructure Financial Intermediaries	Innovation Ecosystem Actors
Loans Guarantees Grants	Loans Guarantees Equity and Mezzanine Investments	Loans Seed and Venture Capital Grants
Policy Advice Technical Assistance Knowledge	Advisory Services	Knowledge Networks Open Innovation

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Sustainability is no longer a matter of corporate responsibility. If businesses want to endure immediate and future risks, becoming sustainable and resilient is an imperative.

Climate Change Interventions

MITIGATION

Climate mitigation promotes efforts to reduce, limit or sequester of greenhouse gases (GHG).

Based on positive list of activities with lower-emissions e.g. energy efficiency, renewable energy, electric vehicles etc.

ADAPTATION AND RESILIENCY

Climate adaptation is undertaken to lower the risks or vulnerability posed by climate change.

- Climate threats, sectoral and asset vulnerability, and interventions to reduce vulnerability

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INTERVENTIONS TO INCREASE CLIMATE-RESILIENT INVESTMENTS IN BARBADOS, JAMAICA & TRINIDAD & TOBAGO

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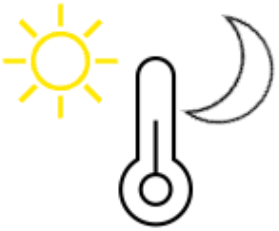
Businesses will need to prepare for increasing impact of climate events

5% increase in peak hurricane wind speeds and increased frequency of intense hurricanes

Increasing trends in one-day and five-day extreme rainfall likely to lead to more severe floods

7% reduction in precipitation resulting in at least one severe drought per decade.

Regional sea level rise is estimated at a current rate (2006 to 2015) of 2.5mm/year.



Temperatures have already risen by 1 degree Celsius, with projections of another .8 degrees increase and recent decades showing accelerated warming.

Hurricane wind annualized losses have average US$215 million, while annualized losses from flooding are $20 million in Jamaica. Energy consumption from increased cooling costs was estimated to cost US$, 8.7, million per year for Jamaica

Solutions: Resiliency Measures

Wind Mitigation measures	Heat Mitigation Measures	Drought Mitigation Measures	Flooding Mitigation Measures
Roof Clips and Ties	Solar shaders	Onsite water storage tanks	Elevating the Structure
Roof Anchorage to Wall	Climate Control system	Low flow faucets	Flood Doors
Impact Resistant Doors and Windows	Thermal radiant roof barriers	Rainwater harvesting	Permanent Flood Barriers
Impact Resistant Shutters	Reducing heat gain on building envelope		Storm water Retention and Infiltration Basins
Concrete roof structures	Cooling of internal spaces		Green roofs
Minimum eaves on buildings			Rainwater harvesting

HURRICANE SHUTTERS

HURRICANE/WIND ROOF ANCHORAGE

OPPORTUNITIES

The Business Case

IDB Invest

Savings Estimates

***Paying a 1-2% premium** for property resiliency measures can offer financial **benefits up to 30-fold** over 5 years

HAZARDS	ARCHITYPE	MITIGATION MEASURE	COST OF EACH RESILIENCE MEASURE WITH RESPECT TO CLIMATE CHANGE	DERIVED BENEFITS OVER 5 YEARS	ROI IN 5 YEARS
Flood	Residential - Affordable income	Using fill to make up levels contained with block base walls	$320	$3,375	9.6x
		Installation of flood doors	$1,800	$2,000	0.1x
	SME - Warehouse	Water retention and infiltration	$104	$3,375	31.5x
		Elevation of structures	$368	$12,875	34.0x
		Elevation of equipment	$1,824	$12,875	6.1x
Hurricane Winds	Residential - Affordable income	Installation of hurricane /wind roof clips and ties	$9	$1,103	121.6x
		Installation of hurricane shutters	$1,900	$1,424	-0.3x
	SME - Warehouse	Installation of hurricane/ wind roof clips and ties	$60	$1,060	16.7x
		Installation of impact resistant windows and doors	$90	$2,120	22.6x
Drought	Residential - Affordable income	Install high efficiency toilets	$800	$350	-0.6x
		Install water efficient faucets and shower heads	$60	$350	4.8x
		Install tanks for rainwater collection	$160	$563	2.5x
	SME - Warehouse	Install high efficiency toilets	$800	$900	0.1x
		Install water efficient faucets and shower heads	$1,267	$375	-0.7x
		Install tanks for rainwater collection	$5,733	$2,000	-0.7x
Heat	Residential - Affordable income	Prodex 10mm insulation and radiant barrier	$450	$2,180	3.7x
		Use concrete filling to block walls	$30	$445	13.8x
		Install double glazed windows	$104	$1,710	15.5x
	SME - Warehouse	Prodex 10mm insulation and radiant barrier	$123	$28,785	233.5x
		3/4" gypsum board lining	$194	$488	1.5x
		Install double glazed windows	$194	$1,723	7.9x

OPPORTUNITIES: The Business Case for Resiliency

There is a massive business opportunity in financing businesses offering these resiliency products and services, given the upcoming demand and trends.

Planning, Design & Construction

Architects, technical consultants, contractors, developers

Services

Consultants, digital mapping and other services to develop plans for resilient business solutions

Financing

Private investors, banks, buyers

Product sales

Equipment

Resiliency Incentives for commercial banks: Piloting in the Caribbean

The 3-pillar solution combines a traditional use of proceeds approach with supporting financial institutions in becoming climate-smart institutions by developing climate-friendly portfolios and establishing corporate tools and strategies that enable these commitments.

1

Use of Proceeds*

- Renewable energy generation
- Energy efficiency
- Transmission and distribution systems
- Process emissions in industry and fugitive emissions
- Sustainable transport modes supporting modal shift
- Agriculture, forestry, land use and livestock management
- Waste and wastewater
- Resilient infrastructure and coastal/riverine protection
- Climate and disaster risk management

2

Portfolio Milestones

- Incremental Ambition in the Green Portfolio over the baseline calculation
  - Portfolio segmentation and design of the Thematic Portfolio Management System at Year 1
  - Incremental Ambition Level 1 [+X% over the baseline]
  - Incremental Ambition Level 2 [+X% over the baseline]
  - Incremental Ambition Level 3 [+X% over the baseline]

3

Corporate Milestones

- TCFD Action Plan Implementation at Year 4, including:
  - Annually disclosed reports with climate transition and physical risk assessments
  - Detailed KPIs
  - Annual amount of induced GHG emission from investment activities
  - Annual expected losses (AEL) from climate-related damages
  - Annual amount of capital allocated to climate mitigation and adaptation respectively

Let's Continue the Conversation

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The Business Case for Resilience

Deissy Martínez Baron
Policy and climate scientist
Regional Lead of Climate Action for Latin America and the Caribbean

Alliance of Bioversity and CIAT, CGIAR

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Scale for Resilience
NATURE BASED SOLUTIONS

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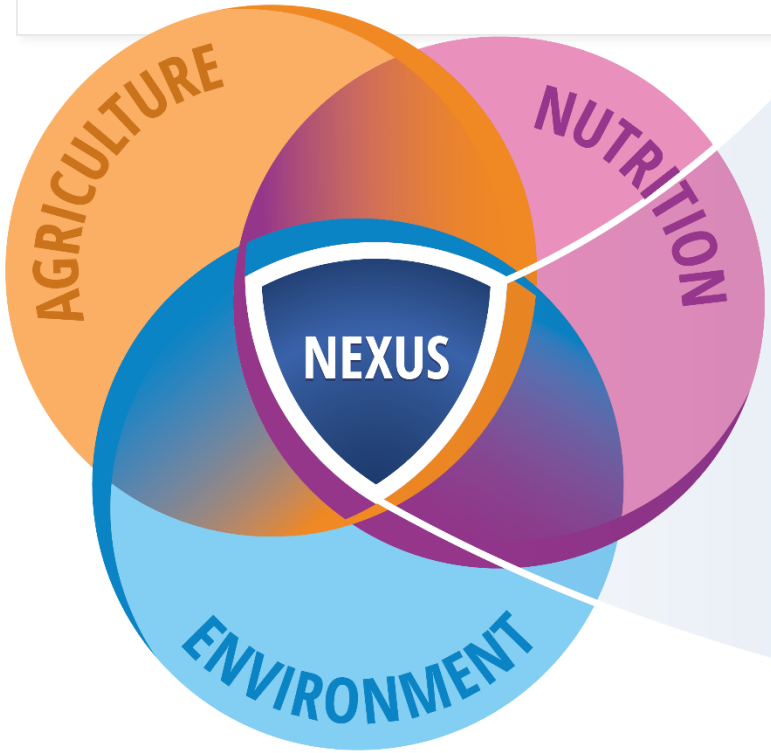
The Alliance of Bioversity and CIAT

"Science and innovation that advances transformation of food, land and water systems in a climate crises"



Food environment and consumer behavior

Multifunctional landscapes

Climate action

Agrobiodiversity

Digital inclusion

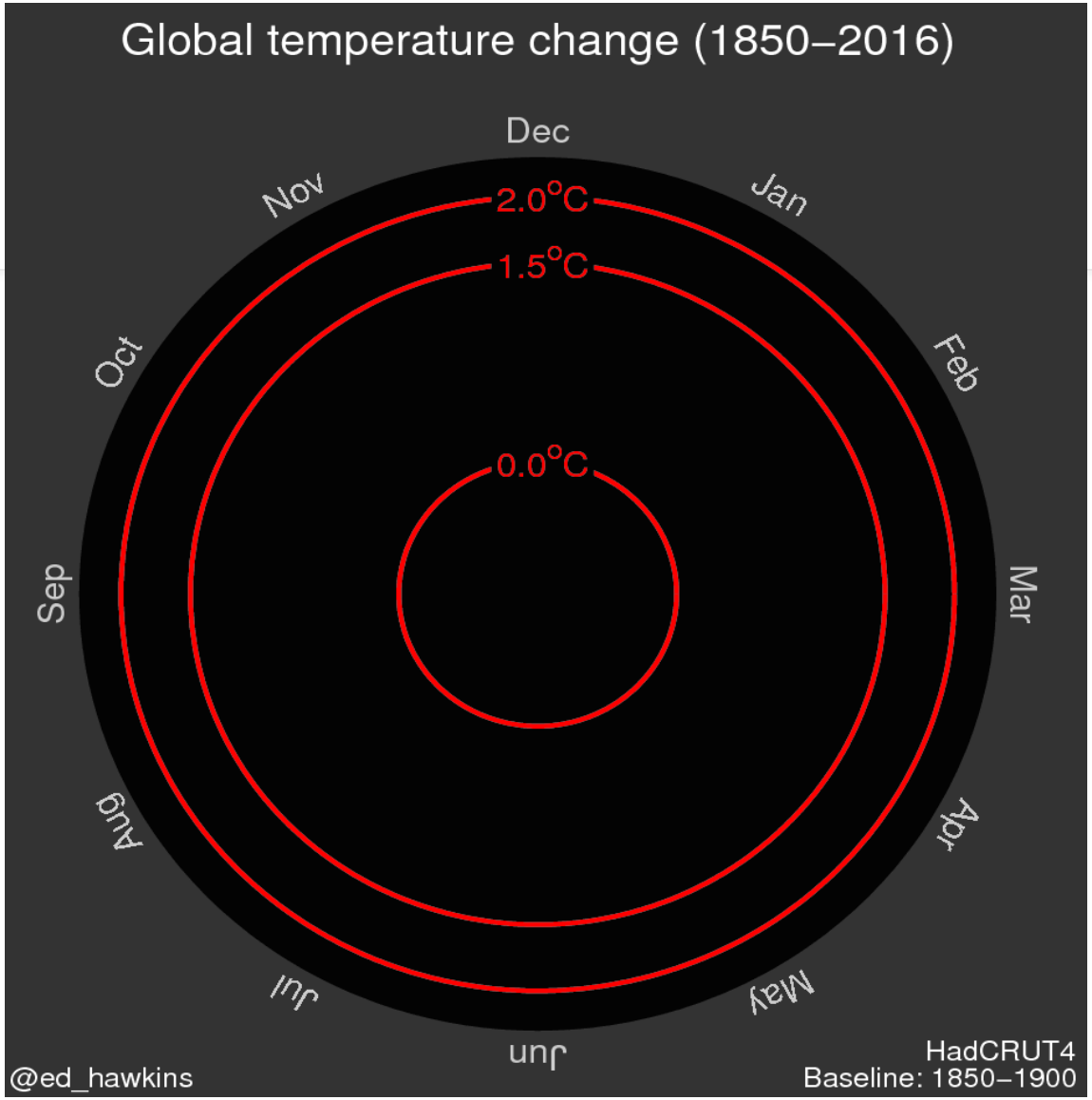
Improving crops

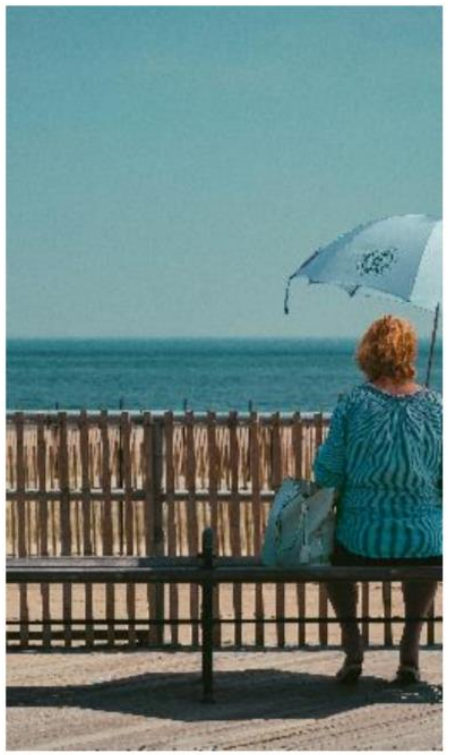
Gender inclusion

Working in regional and localized contexts, we are bringing tangible benefits to the agricultural landscapes and the livelihoods of millions of families.

Where we wo


HEADQUARTERS
Rome, Italy
Americas Hub
Cali, Colombia
Africa Hub
Nairobi, Kenya
Asia Hub
Penang, Malaysia
Alliance staff (+1900)
1-10
11-20
21-60
61-100
101+
Countries with projects*
*Bioversity International and CIAT current projects as of Feb 2024


Global temperature change (1850–2016)
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
2.0°C
1.5°C
0.0°C
@ed_hawkins
HadCRUT4
Baseline: 1850–1900



Extreme heat

More frequent

More intense

Heavy rainfall

More frequent

More intense

Drought

Increase in some regions

Fire weather

More frequent

Ocean

Warming

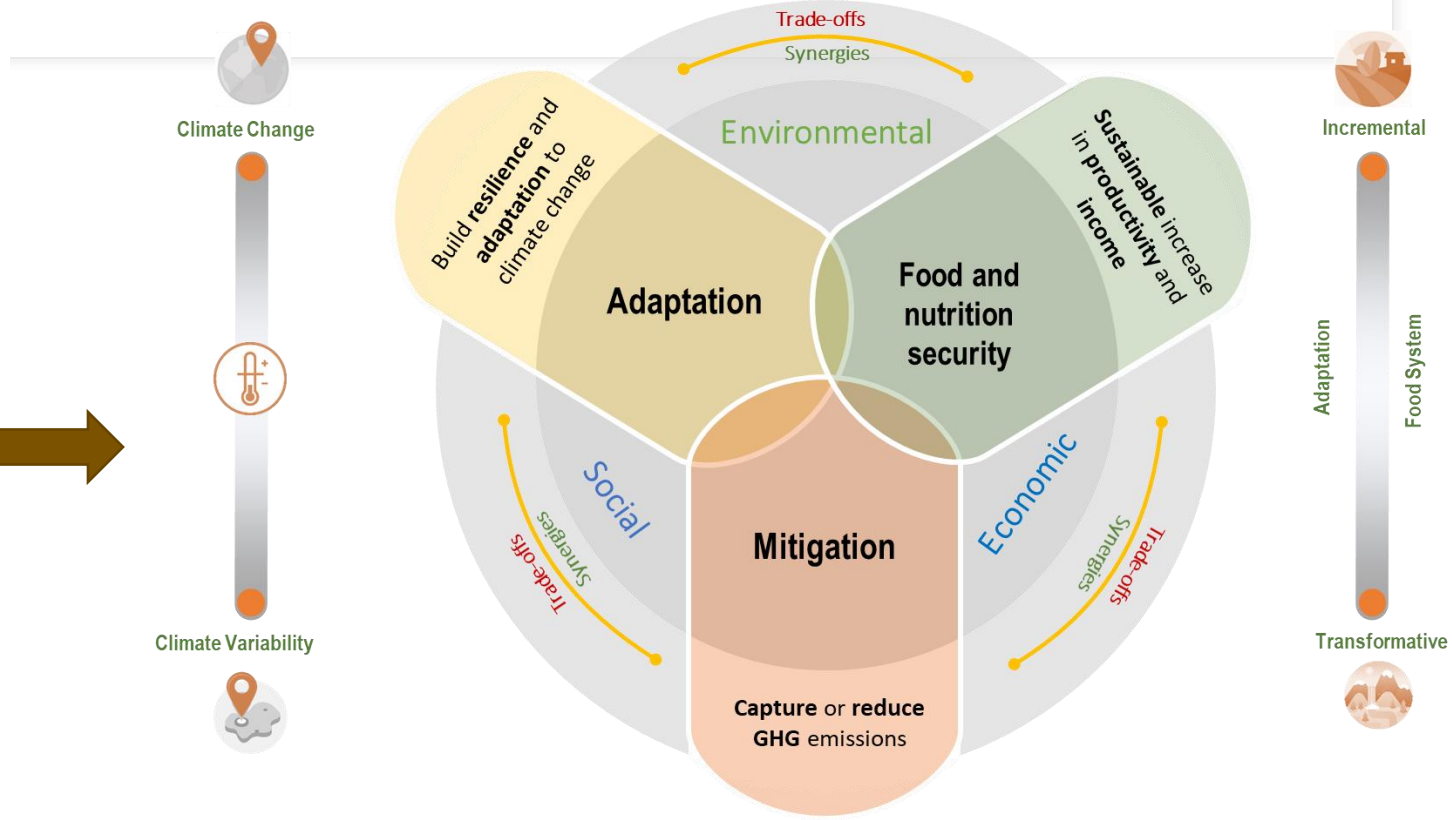
Acidifying

Losing oxygen

Photo Credits from left: 1. Luiz Guimaraes 2. Jonathan Ford 3. Peter Burdon 4. Ben Kuo 5. NOAA

Nature based Solutions (NbS)

Climate Smart Agriculture (CSA) approach



Portfolio of climate-smart options

Livestock

1. Improved feeding strategies (e.g. cut n carry)
2. Rotational grazing
3. Fodder crops
4. Grassland restoration and conservation.

Agroforestry

1. Boundary trees and hedgerows
2. Nitrogen- fixing trees on farms
3. Multipurpose trees
4. Improved fallow with fertilizer shrubs

Agriculture

1. Intercropping with legumes
2. Crop rotations
3. New crop varieties (e.g. drought resistant)
4. Improved storage and processing techniques

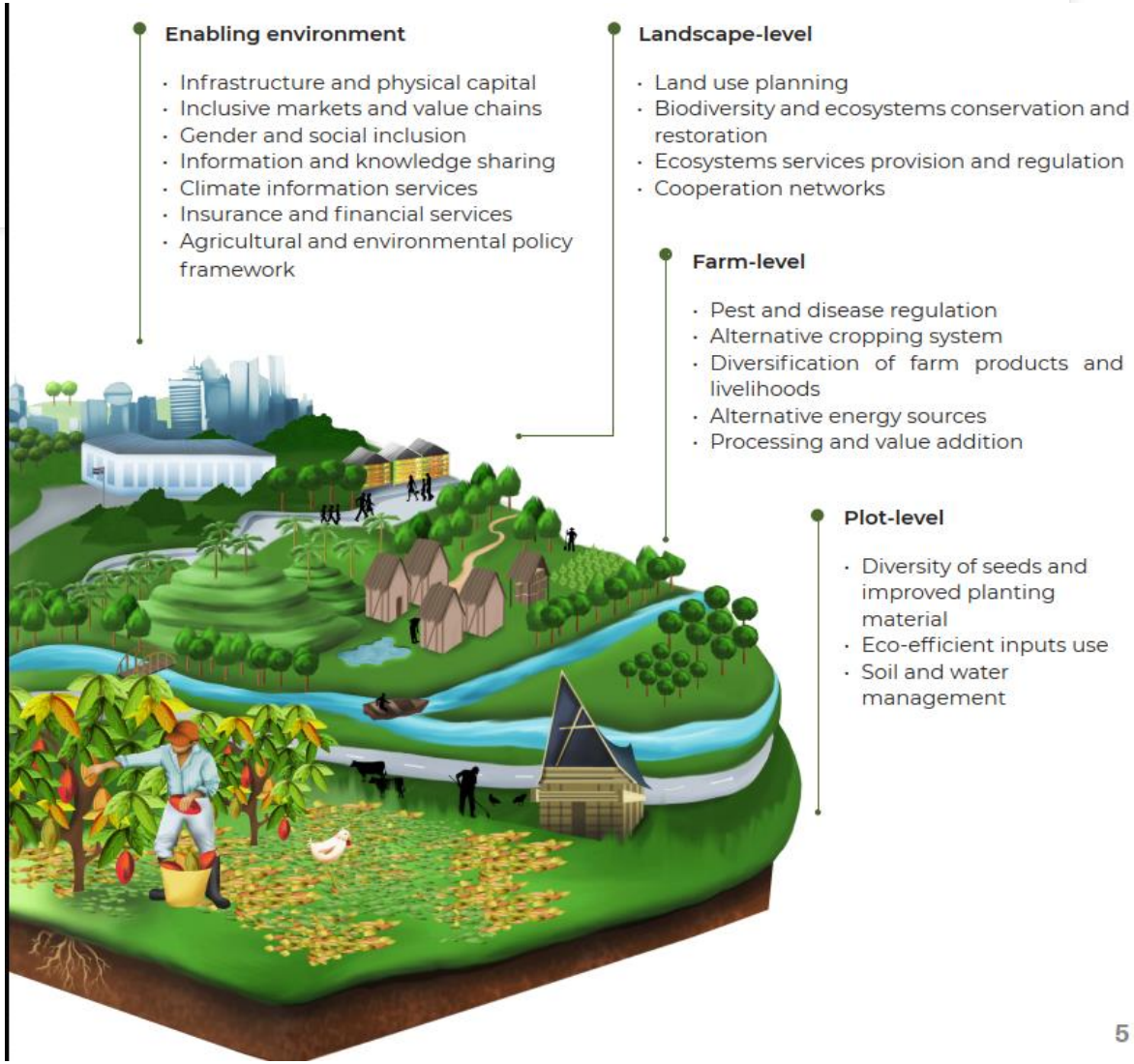
Soil and water

1. Conservation agriculture (e.g. minimum tillage)
2. Contour planting
3. Terraces and bunds
4. Water storage (e.g. water pans).

Integrated food energy

1. Biogas
2. Production of energy plants
3. Improved stoves

At multiple scales

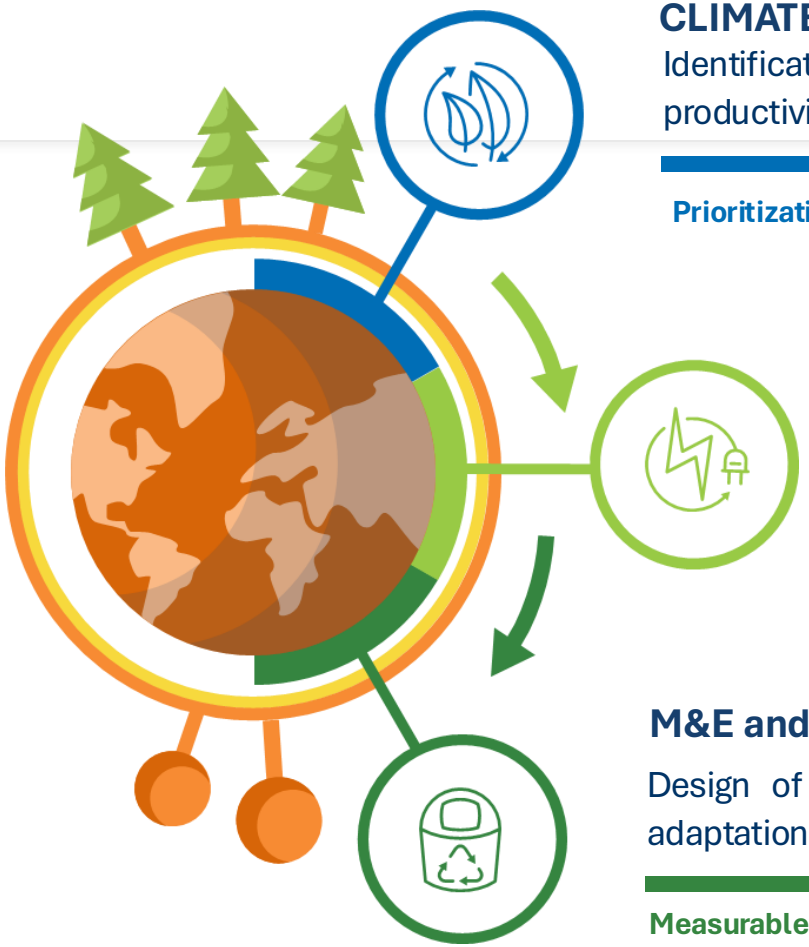


CSA - NbS as business model:

Informing investments and actions to enhance resilience.

Informing investments and actions to scale CSA-NbS

- **Where should I invest my resources?**
- **What are the potential risks involved?**
- **How do I know it works?**



CLIMATE RISKS AND PORTFOLIO DESIGN

Identification of potential negative impacts on productivity (crop/animal) and income.

Prioritization of contextualized measures and potential benefits.

ECONOMIC ANALYSIS BY PORTFOLIO

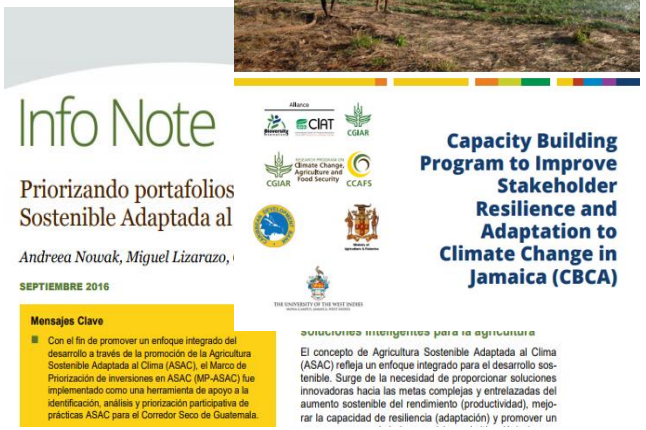
Cost-benefit analysis by portfolio, practice and crop and financial indicators.

Identification of portfolio profitability

M&E and contribution to national/global goals

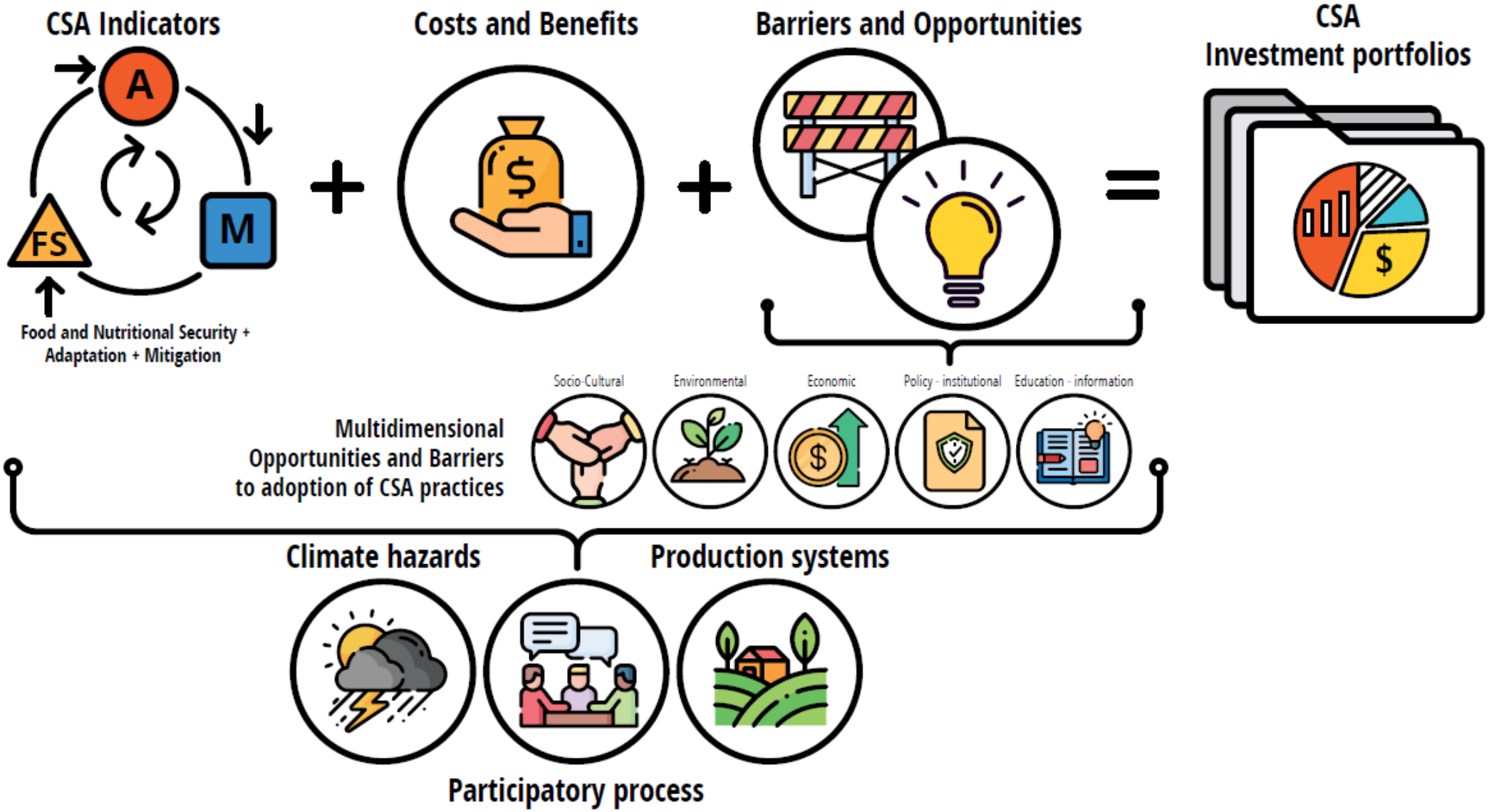
Design of metrics and measurement tools to achieve adaptation, productivity and/or mitigation goals.

Measurable portfolios that contribute to national and global objectives



Nowak et al., 2016

CSA-PF: Prioritization Criteria



CSA-PF implementation

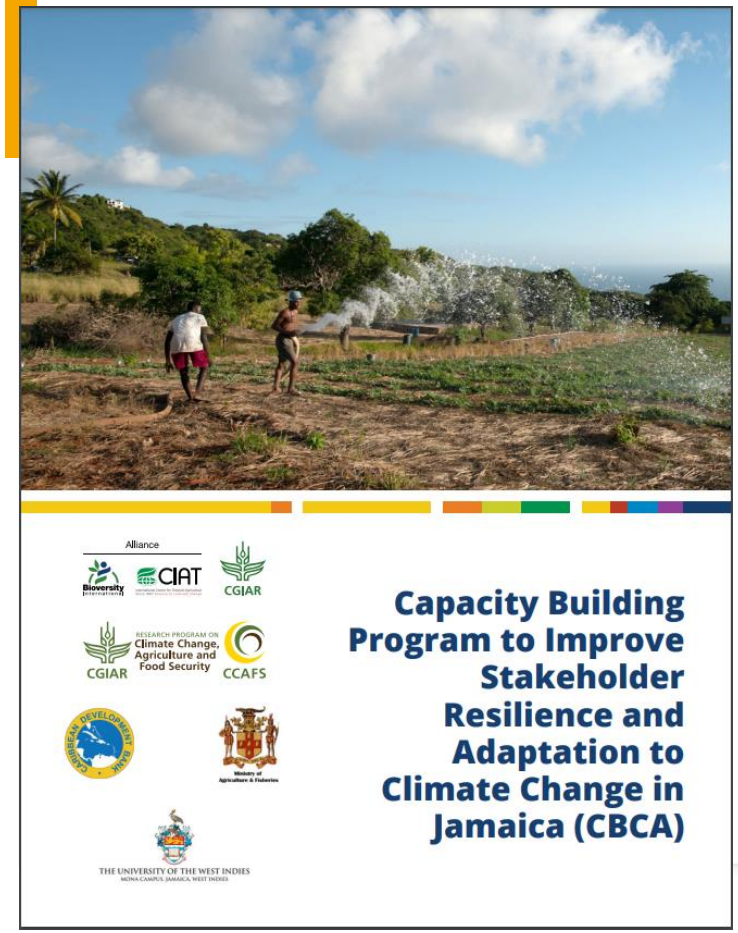
- Guyana
- Belize
- El Salvador
- Guatemala
- Honduras
- Nicaragua
- Colombia
- Vietnam
- Mali
- Jamaica

https://alliancebioversityciat.org/

https://youtu.be/tE9klkL_7EQ

Informing Decision making (Jamaica Case)

Project Reports

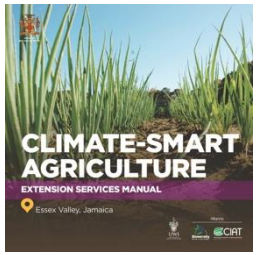


https://hdl.handle.net/10568/117966

Policy Brief

https://hdl.handle.net/10568/118015

CSA Portfolios – Extension manuals



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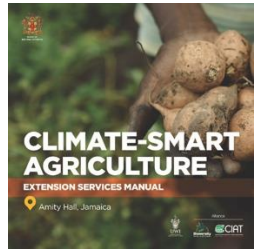

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Practical example

Scientific evidence integrated to design financial services for small farmers in Latin America

Technical assessment of MFIs and smallholder farmers for a climate-smart adaptation fund for smallholder farmers in Latin America

Adaptation Fund Type of investment	Latin America (Honduras, Ecuador, El Salvador y Guatemala) Location	Productivity and Adaptation Impact topics
Small-scale agriculture Sector	$32 Mio Investment size	Technical assistance CGIAR contribution

Contribution to the SDGs

Key challenges

- MFIs lack climate change adaptation products for smallholder farmers.
- Develop and prioritize portfolios that can be financed by MFIs in Guatemala, Honduras, El Salvador and Ecuador.

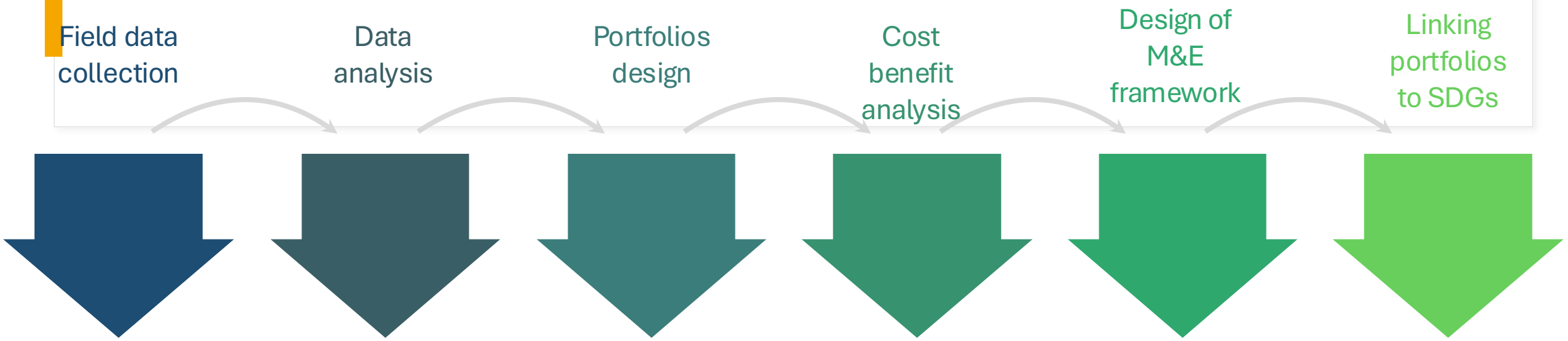
Solutions

- CGIAR pooled its resources in the field and conducted a technical assessment in the target countries, interviewing farmers and MFIs.
- Developed portfolios of adaptation measures that help smallholder farmers increase their agricultural productivity/resilience.

Added Value

- Field visits and focus groups with key stakeholders (MFIs and smallholder farmers).
- Market validation.
- Development of tools and procedures for measuring impact objectives.

Methodology



- Farmers and MFIs **characterization**.
- Main **climate threats** and vulnerabilities.
- Potential **adaptation options**.

- Analysis of main **climate vulnerabilities**.
- Potential negative **effects on productivity, income and crop/animal** losses.
- **Prioritization** of adaptation options.

- **Design of portfolios** based on climate threats, effect on crops and potential benefits of each practice.
- **Assessment of potential increases** in income and yield due to implementation.

- **Economic analysis** per practice and crop in each country.
- **Financial indicators** included IRR, NPV, INI, PP.

- **Metrics and measuring tools** for clime adaptation targets and impacts on livelihoods and resilience.

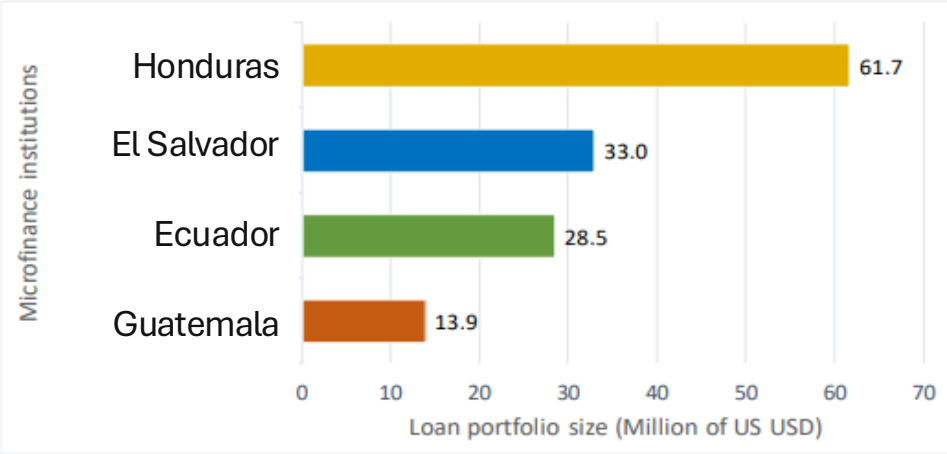
- **Mapping** practices to SMAF targets and SMAF targets to **SDGs**.

Results - characterization

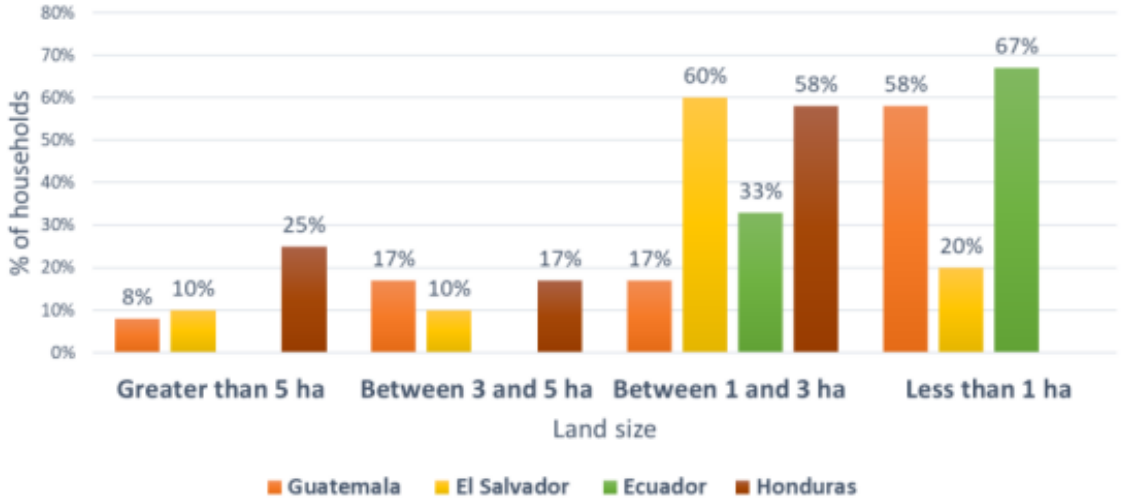
Main productive systems by country

	Broccoli	Cassava	Chives	Eggplant	Jicama	Loroco	Maize	Malanga	Maxán	Peas	Pepper	Pineapple	Potato	Quinoa	Strawberry	Tomato	Watermelon	Apple	Coffee	Cocoa	Jocote	Peach	Plum	plantain	Tree tomato	Cattle	Poultry	Total number of crops per country
Ecuador	■						■						■	■	■	■									■	■			8
El Salvador					■	■					■					■				■			■			■			7
Guatemala			■						■	■						■		■	■		■	■				■	■		10
Honduras		■		■				■				■					■		■	■						■			8
	Annual crops																	Perennial crops							Semi-perennial crops	Livestock			

Loan portfolio size (millions of USD)



Size of farmers' land by country



Results – climate impacts

Climate hazards, prioritized adaptation measures based on climate hazards and their potential impact on yields/income and losses per country

Type of adaptation measure	ID	Adaptation measure	Guatemala	El Salvador	Honduras	Ecuador	Potential effect of the adaptation measure			
							Perennial, semi-perenial & annual		Livestock	
							Yield /income increase	Avoided losses	Yield /income increase	Avoided losses
Infraestructure	1	Retaining walls		2	1		N/A		N/A	
Infraestructure	2	Water reservoirs	1, 2, 2-3	1, 1, 2-3	1, 2, 2-3	1, 1-2-3	N/A		N/A	
Infraestructure	3	Irrigation systems	1-3, 1-2-3	1-3, 1-2, 3	1-3, 3, 1	2-3, 1-2-3				N/A
Infraestructure	4	Infiltration ditches	1	1-3, 1	1	1	N/A		N/A	N/A
Infraestructure	5	Greenhouses	3	3, 3, 3	3, 3, 3	3, 3, 3		N/A	N/A	N/A
Both	6	Organic inputs production	1	1-3	1	1-3		N/A	N/A	N/A
Managment	7	Fast-growing live fences	2, 1-2	2, 2, 2-3	3, 2, 1	2, 1-2-3	N/A			N/A
Managment	8	Crop diversification	3	3	3, 2	3, 2		N/A		N/A
Managment	9	Crop rotation	3	3	3	3		N/A	N/A	N/A
Managment	10	Shade management	1		1			N/A	N/A	N/A
Managment	11	Integrated pest management	1-2-3	1-3	1-3	1-3			N/A	N/A
Managment	12	Conventionally improved varieties	3	3	3			N/A	N/A	N/A
Managment	13	Conventionally improved pastures	2	2, 2	2	2	N/A	N/A		N/A
Managment	14	Breeds (poultry)	2				N/A	N/A		
Managment	15	Disease management (poultry)	2				N/A	N/A	N/A	
Managment	16	Small-scale silage		2	2	2	N/A	N/A	N/A	

Production Systems 1 Perennial crops 2 Cattle/Poultry 3 Annual Crops

Climate threats to which adaptation measures respond: Diseases, Droughts, Fires, Frosts, Hailstorm, Heat waves, Irregular rains, Landslides, Pests, Strong winds

Results

Portfolio No. 1 for perennial crops: climate threats and effects on crops, portfolio of measures, and estimated effect of the measures on yield increase and/or crop loss decrease

Climate threats	Effects		Measures	Yield/income increase	Avoided losses
• Diseases • Winds	• Fruit loss and branch breaking • Increase of diseases	DECREASE IN YIELDS	Fast-growing live fences	23% yield increase	1–50% flowers loss.
			Organic input production	29–32% income increase	N/A
			Shade management	5–90% depending on soil quality and height above sea level	N/A

CBA results for Portfolio No. 1 for Coffee in Guatemala

Production system	Practice	Financial indicators (5-years period/1000m2)				
		Practice initial cost (USD)	Net Present Value (USD)	Internal Rate of Return (%)	Payback Period (years)	Incremental Net Income (USD/m2)
Coffee	Fast-growing live fences	357	109	32%	2.6	632
	Organic inputs production	177	329	49%	2.1	670
	Shade management	143	597	97%	1.7	955

M&E basic and optimal scenario for portfolio No. 1 for perennial crops

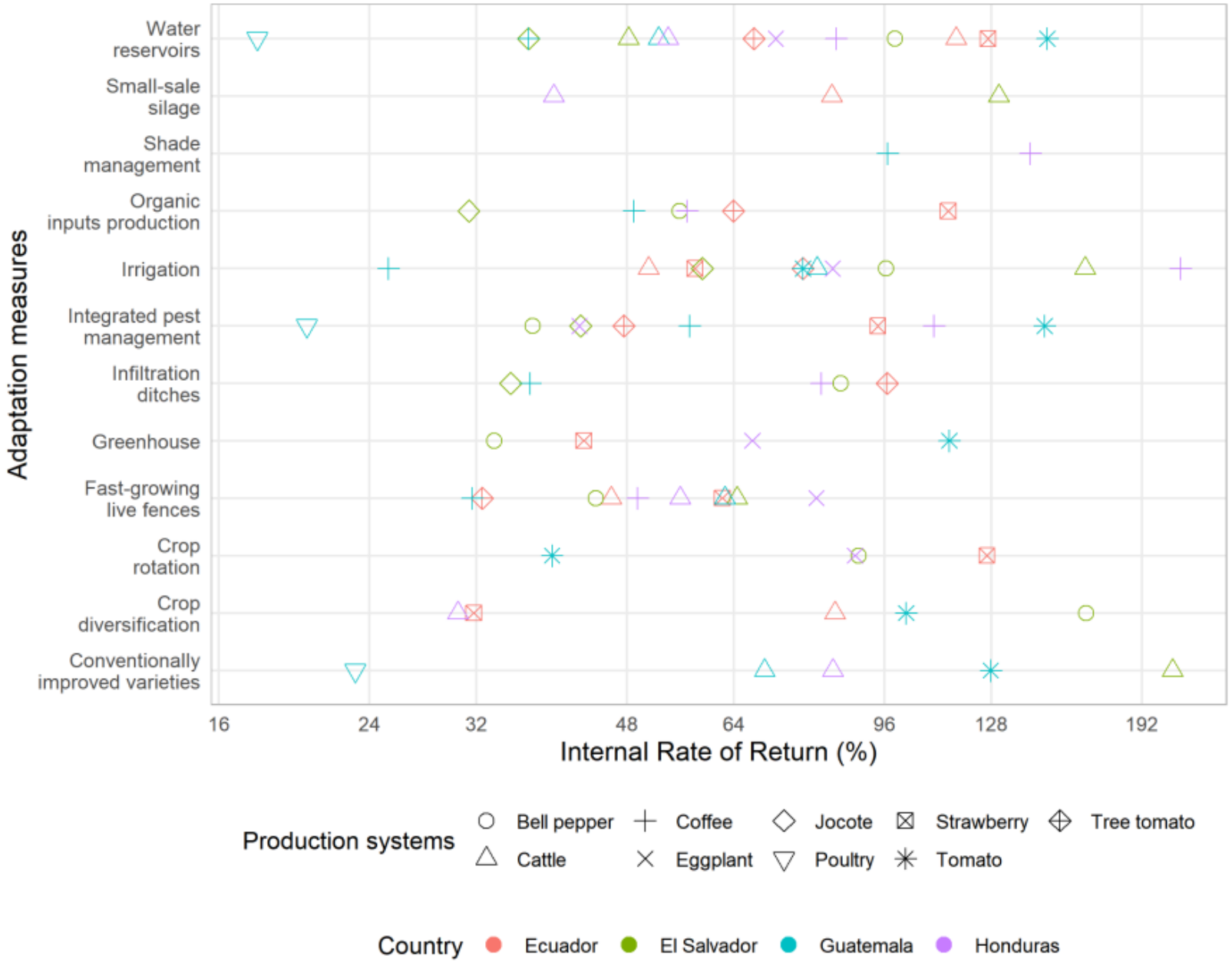
MEASURES	BASIC SCENARIO		
	Benefits	Metrics	Tool
Fast-growing live fences	Reduction in trees affected by wind	no. trees affected by wind/lot	Field notebook to register information
Organic input production	Reduction in diseases	no. diseased trees/lot	Field notebook to register information
Shade management			

MEASURES	OPTIMAL SCENARIO		
	Benefits	Metrics	Tool
Fast-growing live fences	Reduction in incidence and severity of trees affected by wind	no. trees affected by wind/lot *(statistical sampling)*	Field notebook to register information
Organic input production	Reduction in incidence and severity of diseases	no. of diseased trees/lot *(statistical sampling)*	Field notebook to register information
Shade management			

Results

Overall results for IRR for adaptation options prioritized.

- All options are profitable
- Infrastructure options' IRR is enough to cover loan and additional costs.
- Irrigation options IRR is over 50%, indicating a high profitability when implemented, mainly due to the increased efficiency in water use.
- Management options also showed high IRR when implemented.



Key messages

1. Science can bridge the gap between sustainability and profitability to achieve sustainable and climate-smart agriculture.

2. Financial institutions have the tools to promote sustainable and climate-smart agriculture because they understand the climate risks producers face, the measures they can take to mitigate those risks, their *costs and returns*, and how to monitor and demonstrate their contribution to environmental, social, and corporate governance (ESG) criteria and the SDGs.

3. There is a great opportunity to develop financial mechanisms that integrate climate change adaptation and mitigation.

4. Achieving impact at scale to facilitate the transformation of food systems to a more sustainable path is possible by joining forces and working together to develop tailored, science-based financing mechanisms.

Alliance Bioversity & CIAT | CGIAR | Climate Action

OUR INNOVATIONS

Data and Digital Innovations

We develop digital business models with partners delivering climate solutions to help farmers adapt to and mitigate climate change impacts.

Behavior-centered design journey to promote climate smart agriculture

Finance and Investments

We co-design innovative science-based microfinance products, agribusiness acceleration programs, and climate finance projects that deliver climate-smart agriculture to farmers through last-mile private sector partnerships.

Scale for Resilience: Mobilizing financial sector to promote CSA through digital tools

Africa Climate Credit Scoring

Food Systems Accelerator

Policies and Institutions

We provide technical assistance and build capacity of governments, civil society and other institutions on building resilience in value chains, landscapes, and farmer livelihoods.

Climate-Smart Agriculture Investment Profile

Kenya

Punjab and Rajasthan

Jamaica

Gender and Social Inclusion

We build an understanding of the systemic barriers to the engagement of women and marginalized groups in scaling Climate-Smart solutions.

Guide for Climate-Smart Agriculture with a gender perspective

Driving adoption of Climate-Smart agriculture strategies in Kenya

*The **Climate Action Team** is dedicated to advancing research that informs effective responses to climate change, with a goal of enhancing resilience, food security, and peace.*

Thank you!

Deissy Martínez Baron
Policy and climate scientist
Regional Lead of Climate Action for Latin America and the Caribbean

Alliance of Bioversity and CIAT, CGIAR

Caribbean Resilience Finance Day 2024

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