



CEADIR DISCUSSION SERIES

Navigating the Climate Economy: Investing for Growth and Resilience

Scaling up Financing for Clean Energy, Sustainable Landscapes, and Climate Adaptation

August 6, 2020

Moderator: **Pablo Torres**, *CA-USA*
Eric Hyman, *USAID*
Charlotte Mack-Heller, *Resonance*
Glen Anderson, *Winrock International*

This presentation was made possible by the support of the American People through the United States Agency for International Development (USAID) and was prepared by Crown Agents-USA and Abt Associates for the Climate Economic Analysis for Development, Investment, and Resilience (CEADIR) Activity. The authors' views do not necessarily reflect the views of the United States Agency for International Development (USAID) or the United States Government.



Pablo Torres

- CEADIR Chief of Party, Crown Agents USA
- Over 15 years of international development experience
- Analyst for the Climate Investment Funds in 2013-2014
- Master of Environmental Management from Yale School of the Environment

AGENDA

Welcome to the CEADIR Series and Introduction

Pablo Torres, CEADIR Chief of Party, Crown Agents USA

Climate Finance Assessment: Clean Energy

Dr. Eric Hyman, Economist, USAID Economics and Market Development Center

Climate Finance Assessment: Sustainable Landscapes

*Dr. Glen Anderson, Senior Development Economist, Winrock International (formerly, CEADIR)
and Eric Hyman*

Climate Finance Assessment: Climate Adaptation

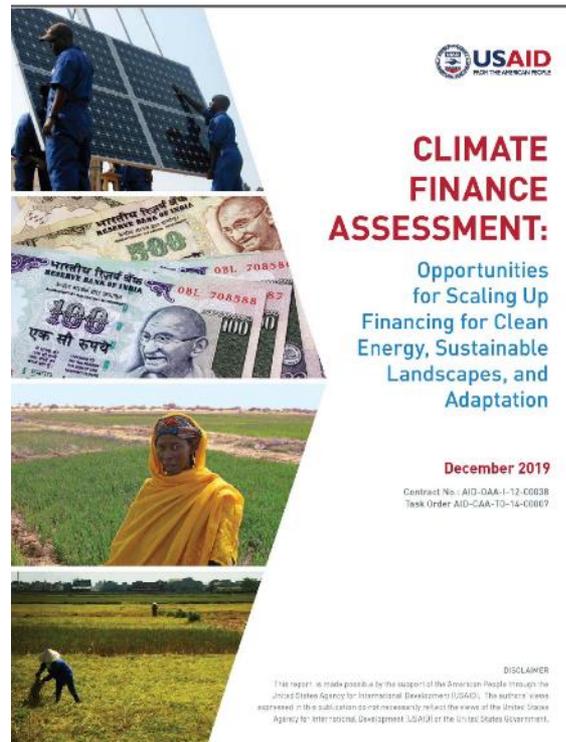
Charlotte Mack, Director of Natural Capital, Resonance (formerly, CEADIR)

Open Forum



CEADIR CLIMATE FINANCE ASSESSMENT

- Emphasizes private sector investments
- Also addresses international and domestic public investments
- Challenges in scaling up investments
- Descriptions and examples of financial instruments and nonfinancial support
- Criteria for selection of opportunities
 - Replicability and scalability
 - High-impact
 - Value for money



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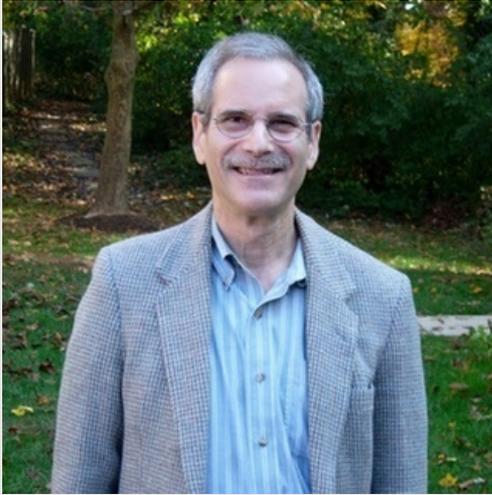
CLIMATE FINANCE ASSESSMENT:

Opportunities for Scaling Up Financing for Clean Energy, Sustainable Landscapes, and Adaptation

December 2019

Contract No.: AID-OAA-I-12-C0038
Task Order AID-OAA-13-14-C0067

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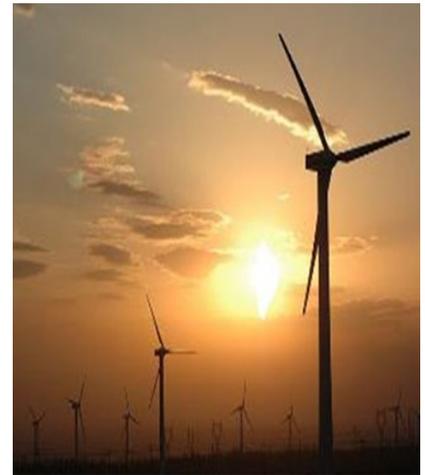


Eric Hyman, Ph.D

- Economist, USAID Economics and Market Development Center
- Formerly with the U.S. African Development Foundation and Appropriate Technology International/EnterpriseWorks Worldwide
- 40 years of experience in environment and natural resource economics and planning, project design, finance, and monitoring and evaluation for agriculture, energy, forestry, and small enterprise development

CLEAN ENERGY

- Renewable energy is now more economically and financially viable than nonrenewable sources in many cases
- Barriers remain for example with
 - Incentives and disincentives for suppliers and consumers
 - Awareness of the benefits and costs
 - Bank willingness to provide appropriate loan products
 - Capacity and interests of government agencies and utilities
 - Use of public-private partnerships (PPPs) and innovative procurement approaches to increase competition



Photos: <https://www.cnbc.com/2015/07/19/will-asia-disrupt-renewable-energy-financing.html>; Chris Lim, Wikipedia Commons

OPTIONS FOR CLEAN ENERGY FINANCING

CLEAN ENERGY

ENABLING ENVIRONMENT

- Create incentives for competitive markets
- Promote favorable fiscal, investment, and regulatory policies
- Develop standardized contracts
- Foster public-private partnerships
- Align investments with development strategies and plans
- Support PPPs

INFORMATION AND CAPACITY DEVELOPMENT

- Assess and develop individual and institutional capacity
- Improve quality, access, and use of energy resource information
- Increase bank willingness and capacity to lend
- Support financing networks and platforms
- Support CE innovation labs and business incubators

FINANCIAL INSTRUMENTS AND MARKETS

- Assess and mitigate financing risks
- Support specialized lending facilities or funds
- Support green credit lines in commercial or development banks
- Support development of green bonds
- Support innovative payment systems for off-grid energy users



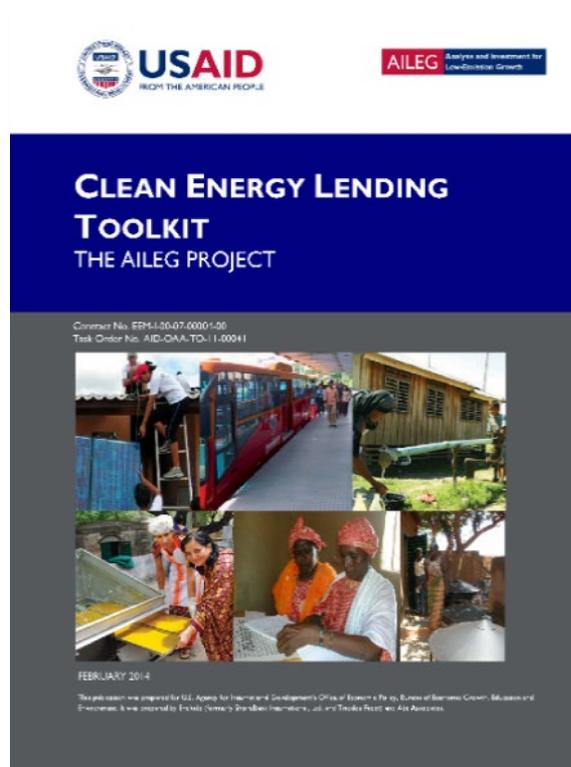
PROMOTE RENEWABLE ENERGY PROCUREMENT THROUGH REVERSE AUCTIONS

- Competition for efficient price discovery to reduce costs
- Long-term Power Purchase Agreements (PPAs), preferably with inflation-indexed U.S. dollar pricing
- Enabled access to private sector financing
 - Global energy companies used corporate equity and on-balance sheet debt
 - Independent power producers and domestic developers used project finance from commercial or development banks
 - Some financing from investment funds or institutional investors
- Important to ensure grid access and avoid excess capacity
(Molina, Scharen-Guivel, and Hyman 2018)



DEVELOP CAPACITY OF BANKS TO INCREASE CLEAN ENERGY LENDING

- Provide toolkits and TA to help banks assess market and profitability of CE lending
- Clean Energy Lending Toolkit
 - AILEG developed and piloted (https://pdf.usaid.gov/pdf_docs/PA00JS5M.pdf)
 - CEADIR translated into French (https://pdf.usaid.gov/pdf_docs/PA00MMK8.pdf) and Spanish (https://pdf.usaid.gov/pdf_docs/PBAAF209.pdf)
 - CEADIR used to train banks in 4 Central American and 8 West African countries





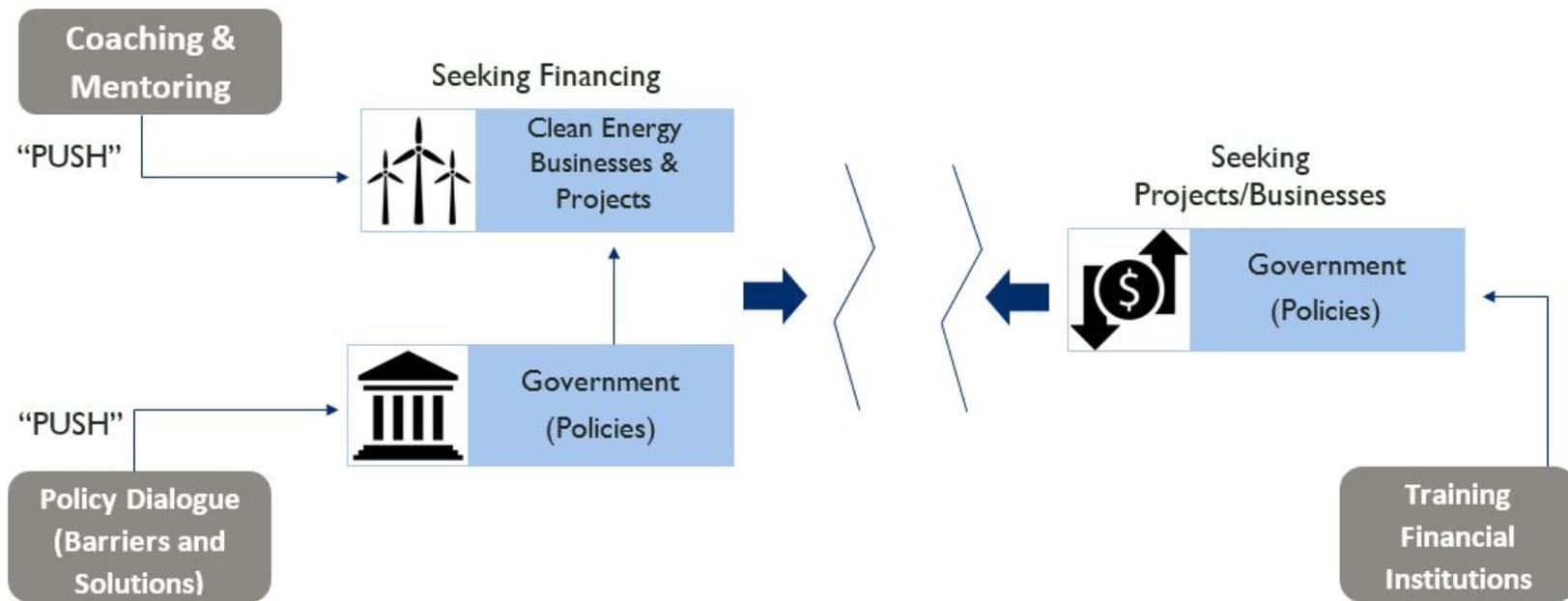
SUPPORT CLEAN ENERGY INNOVATION LABS AND BUSINESS INCUBATORS

- Business incubators: Space, training, consulting, and/or financing for early-stage companies
- Innovation labs design and test new solutions and facilitate collaborations
- USAID Development Innovation Ventures Program (DIV)
 - Tests and scales up creative solutions to development challenges with high-impact potential in any sector and country where USAID operates
 - Open to not-for-profit and for-profit organizations in any country (government agencies only through subaward agreements)
 - Rolling application review process for tiered grants based on an Annual Program Statement
 - Stage 1: Proof of Concept (Up to \$200,000)
 - Stage 2: Testing and Positioning for Scale (Up to \$1,500,000)
 - Stage 3: Scaling (Up to \$5,000,000)
 - Evidence Grants (Up to \$1,500,000)
- India Innovation Lab for Green Finance: Investment trusts for rooftop solar developers and green bonds for impact investors



SUPPORT FINANCING NETWORKS AND PLATFORMS

Private Financing Advisory Network (PFAN): Renewable Energy and Energy Efficiency Partnership and UNIDO



Source: <https://www.unido.org/our-focus-safeguarding-environment-clean-energy-access-productive-use-climate-policies-and-networks/private-financing-advisory-network-pfan>

ASSESS AND MITIGATE INVESTMENT OR FINANCING RISKS

Risk Mitigants	Political	Policy or Regulatory	Counterparty	Grid and Transmission	Technology	Currency	Liquidity and Refinancing	Resource
Political risk insurance	•	•	•	•		•		
Energy savings insurance					•			•
Partial risk/credit guarantee	•	•	•	•	•			
Export credit guarantee	•	•	•	•	•			
Currency hedging instrument						•		
Commodity swaps			•					•
Liquidity guarantee							•	
Resource insurance								•
Loan guarantee	•	•	•	•			•	•

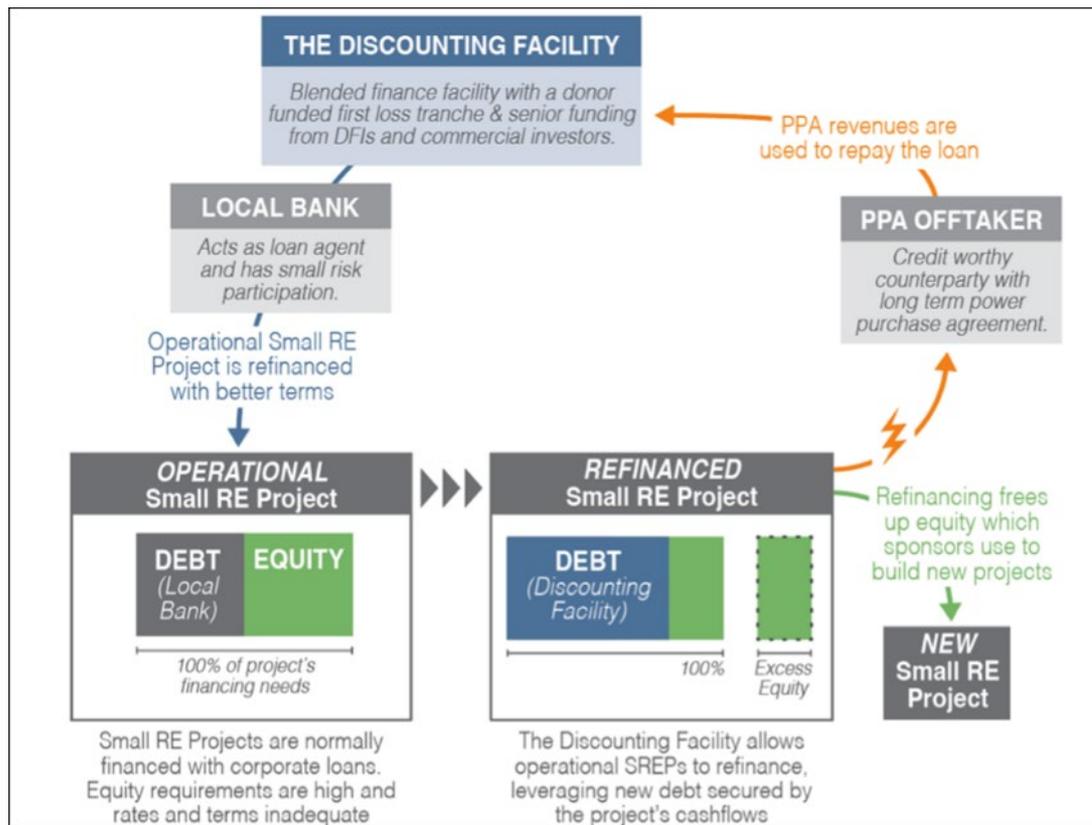


HELP ENERGY SUPPLIERS DEVELOP BANKABLE LOAN APPLICATIONS

- Some banks interested in renewable energy lending report an insufficient pipeline of good loan applications
 - Ecobank/Ghana had an untapped USAID Development Credit Authority (DCA) guarantee for beyond-the-grid renewable energy loans
- CEADIR contracted with business advisory service (BAS) providers in Ghana and Rwanda to help developers prepare loan applications
- BAS providers compensated on a payment-for-results basis
 - Limited milestone payments based on progress in loan approval process
 - Bulk of payment tied to loan approval and based on transaction value
- Led to \$6.6 million of renewable energy loans from Ecobank in Ghana

SUPPORT CLEAN ENERGY LENDING FACILITIES OR FUNDS:

- Reduce barriers to pre-investment and early-stage investment
 - Small-Scale Renewables Financing Facility (*Global Innovation Lab for Climate Finance*)
 - Sustainable Energy Fund for Africa (*African Development Bank*)
 - Power Africa Grid and Beyond-the-Grid Programs (*USG*)



Source: <http://climatefinancelab.org/wp-content/uploads/2016/01/SSRF.png>

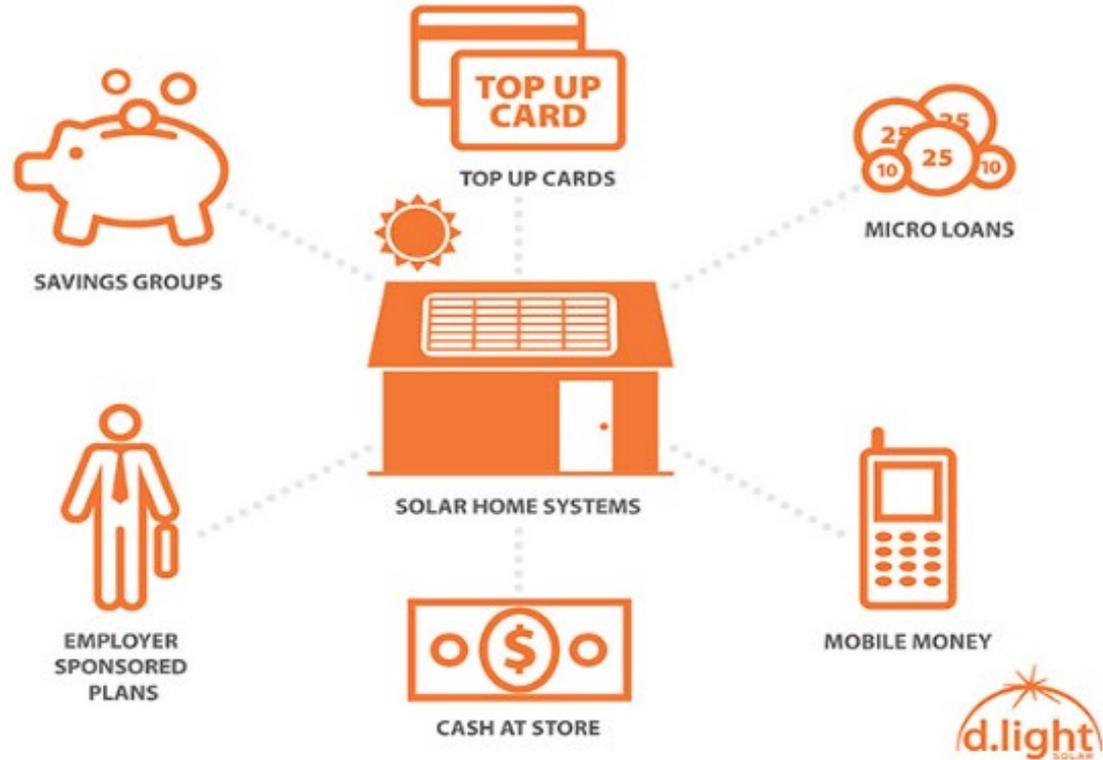


U.S. DEVELOPMENT FINANCE CORPORATION

- Established in 2019 to consolidate capabilities of the Overseas Private Investment Corporation (OPIC) and USAID Development Credit Authority
- Expanded investment cap to \$60 billion and increased focus on development impact
- Equity Financing: New authority for direct equity and support for investment funds
- Debt Financing: Direct loans and loan guarantees of up to \$1 billion for up to 25 years, with specific programs targeting small and medium U.S. businesses
- Political Risk Insurance: Coverage for up to \$1 billion for losses from currency inconvertibility, government interference, political violence, and terrorism.
 - Reinsurance to increase underwriting capacity
- Technical Development: Feasibility studies and technical assistance for project identification and preparation



FINANCE PAYGO SYSTEMS FOR RENEWABLE ENERGY USERS



Source: <https://solarmagazine.com/mobile-apps-cloud-services-key-to-tackling-global-sustainable-energy-challenge/>



SUPPORT GREEN BOND ISSUANCE

- Tradable debt securities for investments with environmental benefits
 - Meets Green Bond Principles of the International Capital Market Association
 - Issued by governments, multilateral or national development banks, or corporations
 - Minimum size \$80-100 million to attract investors and reduce transaction costs
 - May require aggregation and warehousing of loans from multiple sources
 - Lower interest rates not available yet in nascent market
 - May be easier to sell to impact investors and financial institutions
- Example: Inter-American Development Bank support for green bonds for minigrids in Colombia



Green Bond Principles

Voluntary Process Guidelines for Issuing Green Bonds

June 2018



GREEN BONDS TAXONOMY

ENERGY	TRANSPORT	WATER	BUILDINGS	LAND USE & MARINE RESOURCES	INDUSTRY	WASTE	ICT
Solar 	Private transport 	Water monitoring 	Residential 	Agriculture 	Cement production 	Preparation 	Broadband networks
Wind 	Public passenger transport 	Water storage 	Commercial 	Commercial Forestry 	Steel, iron & aluminium production 	Reuse 	Telecommuting software and service
Geothermal 	Freight rail 	Water treatment 	Products & systems for efficiency 	Ecosystem conservation & restoration 	Glass production 	Recycling 	Data hubs
Bioenergy 	Aviation 	Water distribution 	Urban development 	Fisheries & aquaculture 	Chemical production 	Biological treatment 	Power management
Hydropower 	Water-borne 	Flood defence 		Supply chain management 	Fuel production 	Waste to energy 	
Marine Renewables 		Nature-based solutions 				Landfill 	
Transmission & distribution 						Radioactive waste management 	
Storage 							
Nuclear 							

 Certification Criteria approved
 Criteria under development
 Due to commence

12/2019

Slide Source: Climate Bonds Initiative

SUPPORT GREEN BOND ISSUANCE (CONT'D)

European issuance remains strong but Asian volumes are rising

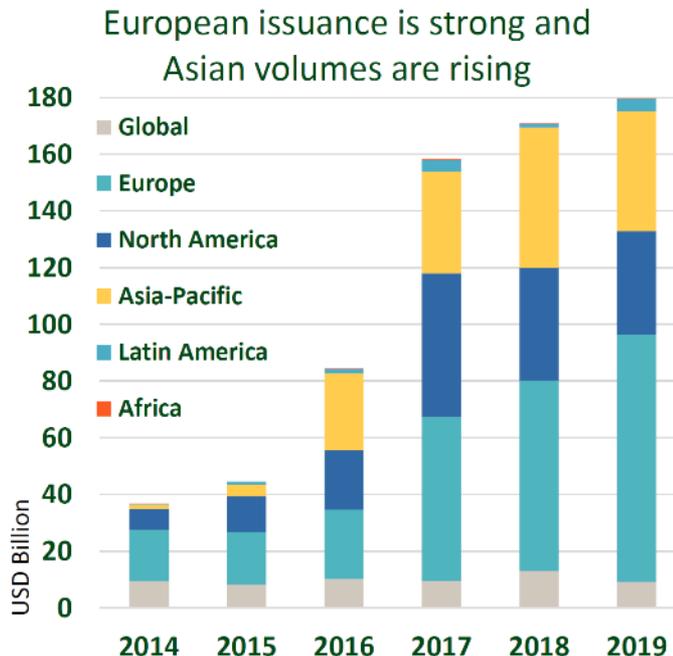
Asia-Pacific issuance grew 35% in 2018

5 new sovereign GB issuers in 2018:

- Europe: Belgium, Ireland, Lithuania
- APAC: Indonesia
- Africa: Seychelles

2 new sovereign GB issuers in 2019:

- Europe: Netherlands
- LAC: Chile



Slide Source: Climate Bonds Initiative

SUPPORT GREEN BOND ISSUANCE (CONT'D)

Corporate sector and sovereigns becoming increasingly active

Key players:

- **Development banks**

- Initiated green bond market. Still quite active in Emerging Markets
- EIB is largest issuer
- IFC now mainly emerging markets GB investor

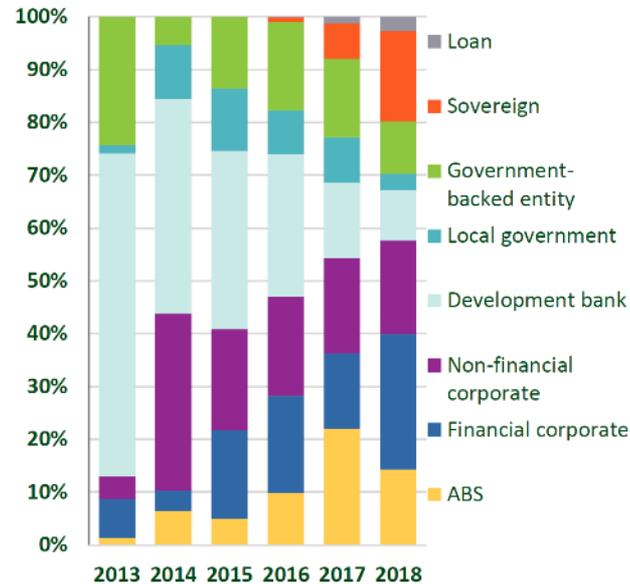
- **Corporate sector**

- Financial corporates now engaging as issuers & underwriter roles

- **SSA sector**

- Government backed entities particularly important issuers – ABS issuance enhanced by Fannie Mae Green MBS
- Sovereigns raising their game: 2018 debut deals from Indonesia, Belgium, Lithuania + repeats from Poland, France

Issuance by issuer type - Evolution



Slide Source: Climate Bonds Initiative

BLENDING PUBLIC/PRIVATE FINANCE: REDUCE INFORMATION BARRIERS AND TRANSACTION COSTS

- Examples of USAID Invest Assistance
 - Grand Challenge on Water and Energy for Food
 - Develop pipeline for Prosper Africa Initiative on trade
 - Private sector engagement with gender and/or COVID-19 recovery focus in Moldova, Ukraine, and other countries
 - Caribbean Resilience Fund
 - Transaction support for four off-grid RE companies in Kenya mobilized \$105 million
 - Technical assistance to Government of Haiti on long-term concessions for electricity generation and distribution
- Scope and results
 - 255 partners in 12 sectors in 57 countries
 - \$160 million in private capital directly mobilized



BLENDED PUBLIC/PRIVATE FINANCE: REDUCE INFORMATION BARRIERS AND TRANSACTION COSTS

USAID INVEST

MOBILIZING INVESTMENT FOR DEVELOPMENT



Market Assessments



Structuring Funds and Financial Instruments



Transaction Advisory Services



BETTER DEVELOPMENT OUTCOMES

INTEGRATED LEARNING AND RESEARCH



Glen Anderson, Ph.D

- Senior Development Economist, Winrock International
- Formerly, CEADIR Adaptation Lead, Abt Associates
- 29 years of international experience in climate adaptation and finance, water, agriculture, and economic development

SUSTAINABLE LANDSCAPES

- Many investments in forestry, agriculture, and other land uses can increase productivity and profitability while reducing GHG emissions
- However, it can take many years to recoup the capital costs of planting and maintaining trees
- Many developing countries lack the resources and capacity to reduce deforestation and forest resource degradation
- Investment in sustainable landscapes is often hindered by lack of clear land tenure or resource use rights
- Environmental benefits of sustainable landscapes are often unquantified or not valued in monetary terms



Photo: Eric Hyman

OPTIONS TO INCREASE SUSTAINABLE LANDSCAPES FINANCING

	ENABLING ENVIRONMENT	INFORMATION AND CAPACITY DEVELOPMENT	FINANCIAL INSTRUMENTS AND MARKETS
SUSTAINABLE LANDSCAPES	<ul style="list-style-type: none">• Support certifications and sustainability standards• Improve policies and incentives• Foster public-private partnerships• Develop investment strategies and financing plans	<ul style="list-style-type: none">• Support innovation through labs and technology• Develop capacity in financing, implementation, and reporting• Improve information collection, analysis, and dissemination on investments• Support climate finance readiness• Improve quality, accessibility, and use of climate information	<ul style="list-style-type: none">• Assess and mitigate risks• Support investment funds and credit lines• Support development of green bonds• Support payments for environmental services• Promote reducing emissions from deforestation and forest degradation (REDD+)



PROMOTE CORPORATE FINANCING OF SUSTAINABLE SUPPLY CHAINS

- Transnational corporations (TNCs) can require input suppliers to meet certification or sustainability standards
 - Meet pledges for no deforestation, peatland conversion, or exploitation of labor (NDPE)
 - Obtain higher environmental, social, and governance (ESG) ratings
 - Possibly improving ability to market products or obtain higher prices
- Suppliers meeting certification or sustainability standards may have better access to credit
 - TNCs access less costly commercial credit due to lower risk and transaction costs
 - TNCs can help leverage concessional financing
- TNC loans to suppliers with interest rates tied to ESG ratings
 - Danone: €2 billion Positive Incentive Loan Facility



NGO SUPPORT FOR CERTIFICATIONS AND SUSTAINABILITY STANDARDS: THE BORNEO INITIATIVE

- Foundation grants for certification costs for natural forest enterprises in Kalimantan, Indonesia
 - Up to \$150,000 for 35,000-75,000 ha
 - Up to \$300,000 for 75,000+ ha
- Forest Stewardship Council certifications for 35 enterprises
- 2.9 million ha certified in Kalimantan, Indonesia through 2019
- 1.1 million ha certifications underway through 2019
- Certification costs high
- Price premium may not be available
- Unclear impacts on sustained yield of forest products and carbon mitigation



Photo: <https://www.cbc.ca/kidsCBC2/the-feed/6-things-you-may-not-know-about-orangutans>

Source: The Borneo Initiative (2019) and <https://theborneoinitiative.org/>



EXPAND PUBLIC-PRIVATE COOPERATION TO REDUCE DEFORESTATION IN SUPPLY CHAINS

- Initiative for Sustainable Forest Landscapes (ISFL) – two funding mechanisms
 - BioCarbon Fund (BioCF*plus*): \$133 million pledged for grants to strengthen enabling environment, pilots, and GHG emissions monitoring
 - BioCarbon Tranche 3: \$222 million pledged for results-based finance and payments to shift to sustainable development trajectory
- Country programs
 - **Ethiopia:** Nespresso helping coffee farmers improve practices
 - **Colombia:** Partnership between regional government and Sustainable Orinoquia Pact regional stakeholders on sustainable cocoa, cattle and dairy, rice, and palm oil
 - **Indonesia:** Private sector partnership in Jambi, Sumatra, for improved forest and land management, fire management, designation of “green villages” meeting criteria for sustainable land management
 - **Zambia:** ISFL private sector strategy for low-carbon rural economy with agroforestry focused on increasing production of groundnuts, honey, sustainably produced charcoal

Source: BioCarbon Fund (2019)



TROPICAL FOREST ALLIANCE (FORMERLY TFA 2020)

- Governments, companies and civil society organizations committed to zero net deforestation in palm oil, soy, beef, dairy, and pulp and paper
- Global and regional dialogues on sustainable landscape policies and management practices and information-sharing platform
 - Africa Palm Oil Initiative: Reduce palm oil deforestation in 11 West and Central African countries
 - Southeast Asia Initiative: Smallholder farmer task force to improve governance and peat restoration
 - Colombia: Zero Deforestation Agreements for zero-deforestation for palm oil, cocoa, beef, and dairy
 - Financial Sector Engagement Initiative: Promoting bank lending for deforestation-free supply chains
 - Better Growth With Forests: Analyzing economic and political benefits of zero-deforestation commitments

Source: <https://www.tropicalforestalliance.org/en/our-work/>

PAYMENT FOR ENVIRONMENTAL SERVICES (I): VIETNAM

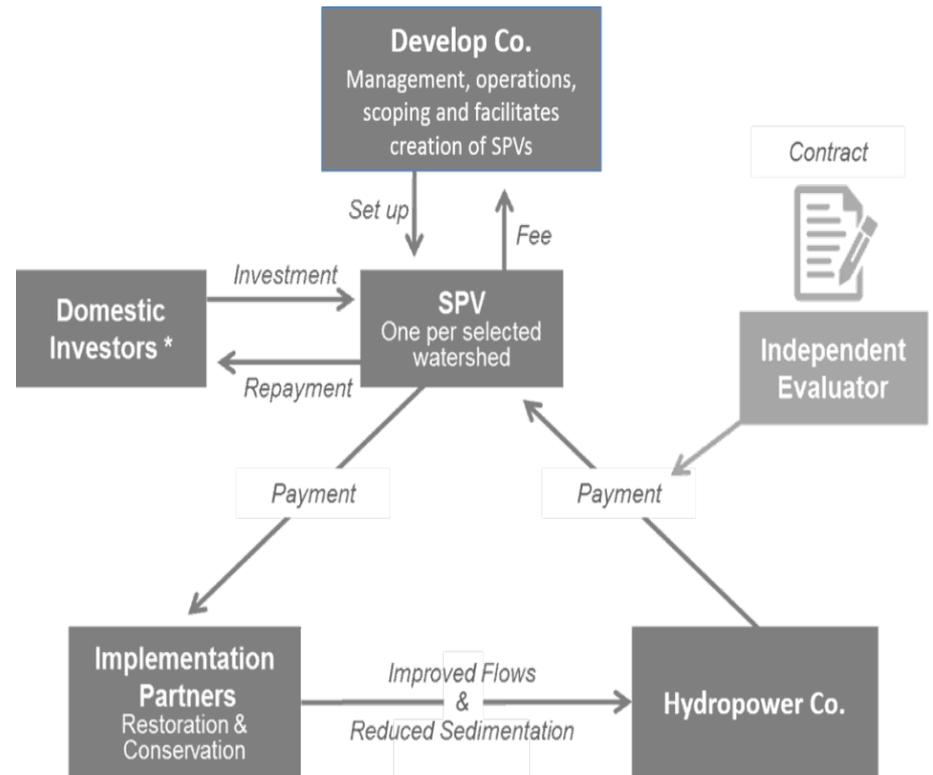
- USAID funded Winrock International to help Vietnam draft legislation, assess benefits, and design Payment for Forest Ecosystem Services (PFES) in 2006
- PFES payments deposited in Forest Protection and Development Fund (PFDF)
- \$500 million in voluntary contributions received from hydroelectric companies, municipal water companies, and tourism companies (2012-2019)
- Thousands of households in 44 provinces have received grants or loans
- Vietnam piloting carbon–PFES program in 2020
 - \$1.35/ton of CO₂ from cement factories
 - \$2.00/ton of CO₂ from coal-fired power plants



Photo: <https://www.climatelinks.org/blog/vietnam%E2%80%99s-payment-forest-environmental-services-safeguarding-resources-and-improving-lives>

PAYMENT FOR ENVIRONMENTAL SERVICES (2): CLOUD FOREST BLUE ENERGY

- Pay for results financing for better land and water management
- Downstream hydropower owners pay for measured water supply and quality benefits
- Finance and implement improved sediment management for hydropower dams
- Global Innovation Lab for Climate Finance supporting Conservation International and Nature Conservancy
 - Stage 1 (2017-2019): R&D to identify watershed of potential interest
 - Stage 2 (2020-2025): Demonstrate business case and raise \$30 million of blended finance
 - Stage 3 (2026 on): Commercial roll-out



* At commercial stage. Prior to commercialisation, investment will be met by philanthropic and concessional sources of capital

MITIGATE INVESTMENT RISKS THROUGH INSURANCE, PRICE COMMITMENTS, OR HEDGING

- Promote insurance use to reduce risks
 - Actuarial-risk based
 - Weather-indexed
 - Political risks
- Design price contracts as incentives for production
 - Advance purchase agreements
 - Guaranteed minimum price
 - Formula-based price
- Hedging: Costly, where available
 - Domestic or foreign currency values
 - Put or call options for major cost or revenue items

Physical Risks

- Theft and vandalism
- Insects
- Climate variability
- Disease

Financial and Economic Risks

- Volatility of supply, demand, and prices of inputs and products
- Domestic currency risks

Institutional Risks

- Policy and regulatory
- Tenure conflicts or uncertainty
- Resource conflicts
- Corruption
- Expropriation



MITIGATE RISKS THROUGH ADVANCE PURCHASE AGREEMENTS AND BUNDLED ASSISTANCE

- Rocky Mountain Arabica Coffee Co. in the Philippines
 - Coffee producer/processor contracts with farmers near its own plantations
 - Helped contract farmers secure land use rights
- Bank Andara (commercial bank established by Mercy Corps) gives loan to local bank (BPR Pesisir Akbar) in Indonesia
 - Local bank provides microfinance loans through maize farmer groups
 - Local traders deduct farmer loan repayments from sale proceeds
 - Farmer advisory service and crop micro-insurance through Syngenta, Mercy Corps, and ACA
- Minh Phu Co. buys aquaculture shrimp in Vietnam
 - Donors fund upfront costs of Naturland certification and monitoring
 - Company pays mangrove restoration fee

PROJECT PREPARATION AND FINANCING FACILITIES: INDONESIA TROPICAL LANDSCAPES FINANCE FACILITY (TLFF)

- Non-deforesting sustainable landscape and renewable energy investments
- United Nations Office for Project Services provides technical assistance and training on sustainable and certified production and traceability
- ADM Capital manages loan finance facility to capitalize BNP Paribas
- BNP Paribas provides long tenor loans for large, private investments



GREEN BOND FOR SUSTAINABLE LANDSCAPES: TROPICAL LANDSCAPES FINANCE FACILITY

- First green bond for sustainable landscapes
 - Secured, fixed rate, Moody's rated Aaa bond
 - Issued by UN Environment, BNP Paribas, ADM Capital, and ICRAF
 - For 88,000 ha of degraded land in concessions for rubber in Indonesia
 - Joint venture Michelin and PT Barito Pacific (PT Royal Lestari Utama)
- 5 loans: Tenors of 5-15 years, various interest rates and amortization schedules
 - 1st tranche: \$95 million in 2017 (including \$40 million for small-scale farmers)
 - 49% for high-yield, rubber tree plantations (company and small-scale farmers)
 - 51% for community partnerships, ecosystem restoration, and biodiversity conservation
 - Improved inputs and practices to increase rubber yields from 0.8 t/ha/y to 1.7 t/ha/y
 - Buffer zone to reduce land speculation and encroachment around national park
 - Expected to provide 10% of Michelin's natural rubber supply and 16,000 fair-wage jobs

ENCOURAGE PRIVATE SECTOR GREEN BONDS: STARBUCKS

- First U.S. corporate sustainability bond (use of proceeds for social purposes)
 - \$500 million in 2016 with 10-year maturity
 - 2.54% coupon rate
 - Senior, unsecured bond; rated A/A2/A
- First yen-denominated corporate sustainability bond
 - ¥85 billion (nearly \$800 million) in 2017
 - 7-year maturity
- Second U.S. corporate sustainability bond; \$1 billion, 30-year
- Increase purchases of certified, ethically grown coffee
 - New and refinanced loans to coffee farmers
 - Debt financing for producer organizations



Photo: <https://www.comunicaffe.com/new-guide-to-coffee-production-in-ethiopia-presented-in-addis-ababa/>



PROMOTE IMPACT INVESTMENT FUNDS: ALTHELIA CLIMATE FUND

- Began in 2014 for sustainable landscapes in Africa and Latin America
- USAID Development Credit Authority (DCA) loan guarantee of \$133.8 million
- \$118 million closed-end investment fund with 20 public and private investors
 - Credit Suisse, Church of Sweden, FMO Bank, European Investment Bank, and AXA
 - Acquired by Mirova Natural Capital Ltd.
- Fully committed to 12 investments in 2017
- Investments generate returns from commercial production and sale of carbon credits
- Target rate of return to fund = 8%
- Environmental benefits
 - 2.1 million ha under improved management for conservation
 - Protected habitat for 102 threatened species
 - 22.4 million tCO₂e emissions avoided (34.2 million tCO₂e by 2021)

LIVELIHOODS VENTURES FUNDS

- Social business based in Paris with climate finance and development goals
 - Sourced capital from companies interested in offsetting future greenhouse gas emissions (mainly in EU)
 - Selected, co-designed, financed, and monitored projects implemented by NGOs in developing countries
 - Focused on agroforestry, mangrove restoration with rice or aquaculture, and improved household wood fuel stoves to balance risks and timing of carbon credits
 - NGOs repay financing costs by signing over all carbon credits (equity-like financing, no cash loan repayments)
 - NGOs receive 50% of higher-than-expected proceeds from carbon credits (bonus for outperformance or carbon price increases)
 - Investors receive certified carbon credits (Gold Standard or Verra) over 10-20 years

Source: https://www.livelihoods.eu/lcf/#investors_lcf

LIVELIHOODS VENTURES FUNDS

- Livelihoods Carbon Fund 1 launched in 2011
 - €40 million invested in 9 projects (no donor funding)
 - 130 million trees planted, 120,000 improved household stoves, 10 million tCO₂ sequestered
- Livelihoods Carbon Fund 2 launched in 2017 (no donor funding)
 - €100 million to be invested
 - Target of 12 million tCO₂ sequestered



Source and photo credit: https://www.livelihoods.eu/lcf/#investors_lcf

RESULTS-BASED FINANCING: REDD+

- Purpose: Create financial value for carbon stored in forests in developing countries
 - Donor and multilateral development bank results-based funding
 - Market-based mechanisms allowing transfer of mitigation outcomes (many developed countries supported to have option for forest carbon offsets)
- REDD+: Reducing GHG Emissions from Deforestation and forest Degradation Plus
 - Conservation of forest carbon stocks
 - Sustainable management of forests
 - Enhancement of forest carbon stocks
- Social benefits viewed as co-benefits



triplepundit.com

TREND FOR JURISDICTIONAL OR NESTED REDD+

- Jurisdictional: Based on national or subnational strategies, action plans, and measurement, reporting, and verification (MRV)
 - UNFCCC emphasized importance of national or subnational administration of REDD+ from beginning
 - Now supported by Forest Carbon Partnership Facility's Carbon Fund, Green Climate Fund, and most bilateral donors
- Nested: Project-based REDD+ embedded in jurisdictional system
 - Accounting, management, certification system, and emissions reporting at national or subnational level
 - Higher-level coordination of strategies and safeguards recommended
- Verra standards exist for jurisdictional and nested REDD+

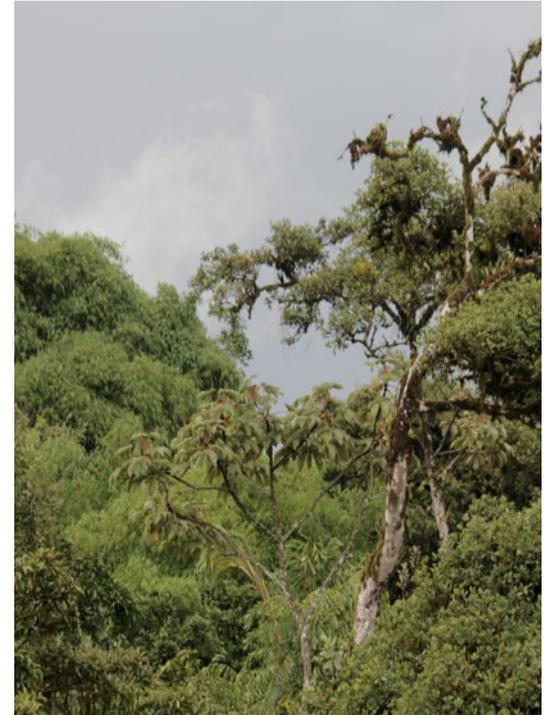
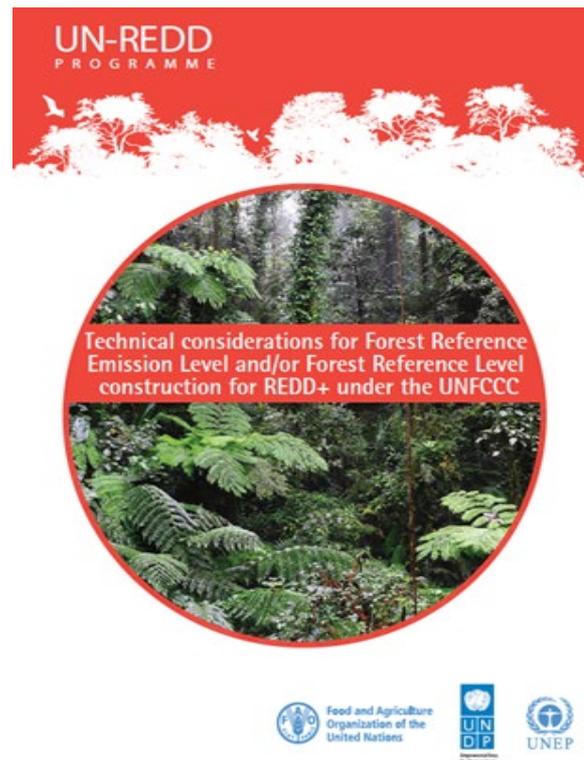


Photo: Eric Hyman

REQUIRED ELEMENTS FOR REDD+

- National REDD+ strategy
- Governance and legal structures
 - Carbon rights and ownership
 - Dispute resolution mechanisms
- Social and financial structures
 - Consultation process and mechanisms (national and multilateral requirements)
 - Funding streams and distribution of payments
- Action plan/road-map
- National forest reference level (baseline)
- National measurement, reporting, and verification (MRV)
- Safeguards information system
- <http://www.fao.org/3/a-i4847e.pdf>





RECENT TRENDS IN REDD+ AND CARBON MARKETS

- New domestic compliance markets (e.g., California and Colombia) and ambitious country targets (e.g., Netherlands)
- Higher carbon prices for REDD+ than on voluntary markets (and large variation in voluntary market prices)
- Shareholder pressure on transnational corporations for ambitious mitigation targets
- Many countries working on nesting REDD+ projects within jurisdictional approach (including Forest Carbon Partnership Facility's Carbon Fund)
- Other countries incorporating projects into national REDD+ and NDCs
- Connection to sustainable supply chain movement (Tropical Forest Alliance 2020)
- Increasing global commitment to restoration (e.g., Norway)
- Increasing developing country interest in reforestation (e.g., Ethiopia and India)

JURISDICTIONAL COMMODITY SOURCING LINKED TO REDD+

- Companies commit to buying commodities from country, state, or province committed to reducing deforestation and making progress
 - Buyers must be able to track targeted commodity flows
 - Jurisdictions with authority to work with stakeholders in controlling deforestation
- More efficient than project level or farm-level certifications
- Approved standards
 - Forest Carbon Partnership Facility's Carbon Fund Methodological Framework
 - Verra Jurisdictional and Nested REDD framework
- Search by commodities or jurisdictions at <https://commoditiesjurisdictions.wordpress.com/>



Photo: <https://www.waystocap.com/blog/cocoa-production-in-ivory-coast-and-the-challenge-of-sustainability/>

NEW FUNDING SOURCES FOR REDD+

- CORSIA: International Civil Aviation Organization's new sectoral cap-and-trade program
 - Voluntary 2021-2026
 - Mandatory 2027-2035
 - Guidance currently under development
 - Only allows jurisdictional REDD+ to avoid leakage
 - Cannot be double counted toward country NDCs
- California's Tropical Forest Standard
 - Criteria for jurisdictional offset credits that reduce GHG emissions in tropical forests
 - Eligibility for California's cap-and-trade program



Images: <https://www.icao.int/environmental-protection/CORSIA/Pages/default.aspx>;
<https://ww3.arb.ca.gov/cc/ghgsectors/tropicalforests.htm>



Charlotte Mack-Heller

- Director of Natural Capital, Resonance
- Formerly, CEADIR Climate Finance Specialist, Abt Associates
- 13 years working at nexus of climate change and international development

ADAPTATION

- Generally more cost-effective to prevent or reduce negative impacts from climate variability or change since economic damages from impacts of these stressors can be quite large
- However, willingness to make adaptation investments is often limited by uncertainty about the types, extent, and timing of climate impacts
- Also challenges in identifying appropriate adaptation measures for the public and private sectors and estimating their potential benefits against their relative costs
- As a result, most developing countries are not sufficiently well-adapted to existing climate variability (such as a typical five-year flood), let alone the projected impacts from potential future with climate changes



OPTIONS TO INCREASE CLIMATE ADAPTATION FINANCING

	ENABLING ENVIRONMENT	INFORMATION AND CAPACITY DEVELOPMENT	FINANCIAL INSTRUMENTS AND MARKETS
ADAPTATION	<ul style="list-style-type: none">• Improve policies and incentives for adaptation investments• Align adaptation financing with strategies, plans, and targets• Support PPPs for climate resilience	<ul style="list-style-type: none">• Increase readiness for climate adaptation finance• Increase willingness and capacity of FIs to provide finance• Improve quality, accessibility, and use of climate, weather, and hydrological information for adaptation investments	<ul style="list-style-type: none">• Provide technical assistance or grants for pre-investment work• Support investment funds and credit lines for adaptation investments• Support insurance mechanisms



IMPROVE POLICIES AND INCENTIVES FOR ADAPTATION INVESTMENTS



PUBLIC-PRIVATE PARTNERSHIPS: DISASTER RISK REDUCTION IN INDIA

USAID/India \$2.5 million grant in 2016 to UNDP for disaster risk reduction in 4 cities (Cuttack, Navi Mumbai, Vijayawada and Visakhapatnam)

- USAID/W funded CEADIR and The Energy and Resources Institute
 - Identify potential PPPs for disaster risk in the 4 cities
 - Help secure private sector commitments for short-term PPPs
 - 2013 Companies Act mandated corporate social responsibility contributions of 2% of average net profits
- Led to 10 implemented PPPs
 - Funding and procurement of goods and services
 - GIS mapping and analysis
 - Use of private land
 - Logistics support



AFP PHOTO/INDIAN ARMY

PUBLIC-PRIVATE PARTNERSHIPS: DISASTER RISK REDUCTION IN MOZAMBIQUE

- USAID Coastal Cities Adaptation Project
 - National Disaster Management Institute (INGC)
 - Human Network International
 - Vodacom
- Launched 3-2-1 service for cellphone customers
 - Disaster preparedness messages
 - Specific disaster messages
 - (<http://hni.org/blog/2016/12/19/life-saving-information-the-3-2-1-service-in-mozambique/>)



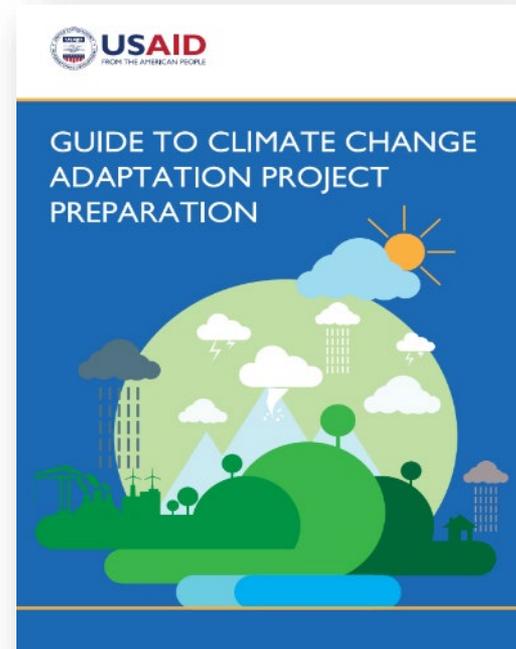
Photo: <https://www.nytimes.com/2019/03/18/world/africa/cyclone-idai-mozambique.html>

INCREASE READINESS FOR CLIMATE ADAPTATION FINANCE

- Strengthen public and private sector effectively to design, finance, implement, and manage adaptation investments
- Improving government readiness will:
 - Improve strategy behind adaptation financing
 - Strengthen capacity to receive and manage funds and comply with fiduciary standards
 - Build the case for public and private sector engagement in adaptation

CLIMATE FINANCE READINESS: ADAPT ASIA-PACIFIC PROJECT PREPARATION FACILITY

- Helped governments prepare proposals for external financing
- Connected implementers to financing sources
- Strengthened government capacity to manage climate finance
- Guide can help governments and NGOs prepare grant proposals and loan applications and leverage private investment for climate adaptation



AECOM International Development (2017)



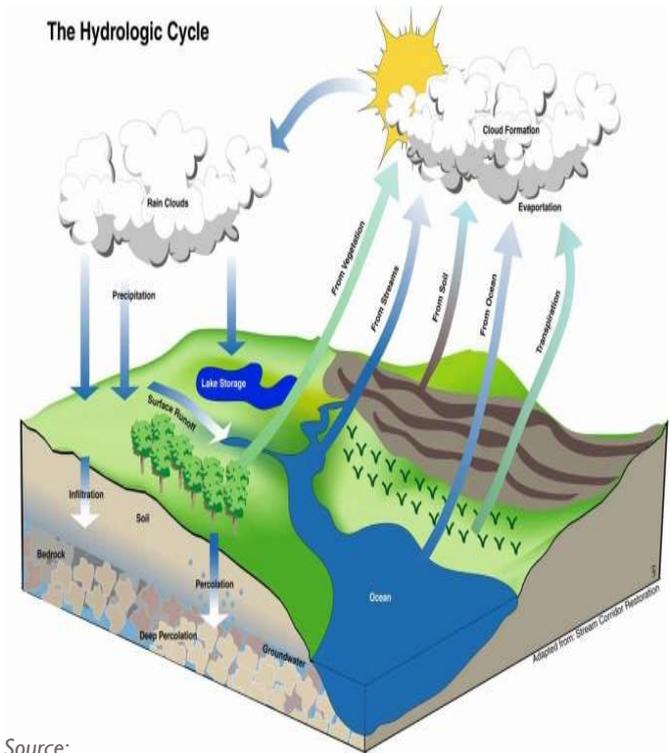
INCREASE WILLINGNESS AND CAPACITY OF BANKS TO FINANCE ADAPTATION

- Change bank perceptions about risks and returns from adaptation lending
- Improve ability of banks to assess market size, opportunities, and barriers
- Train bank staff on technologies and business models for adaptation investments
- Help banks develop appropriate loan products for adaptation
- Help banks obtain capital for lending and partner with governments and development assistance organizations
- Help banks improve loan appraisal and loan tracking systems



IMPROVE HYDROMETEOROLOGICAL INFORMATION FOR ADAPTATION: BURKINA FASO

- Weak hydrology and meteorology data, modeling, and analysis limit public and private sector adaptation planning
 - Improve data collection
 - Improve modeling
 - Develop individual and institutional capacity to use information
 - Strengthen early warning systems
- \$27 million from Green Climate Fund, World Bank, and government
- <https://www.greenclimate.fund/projects/fp074>



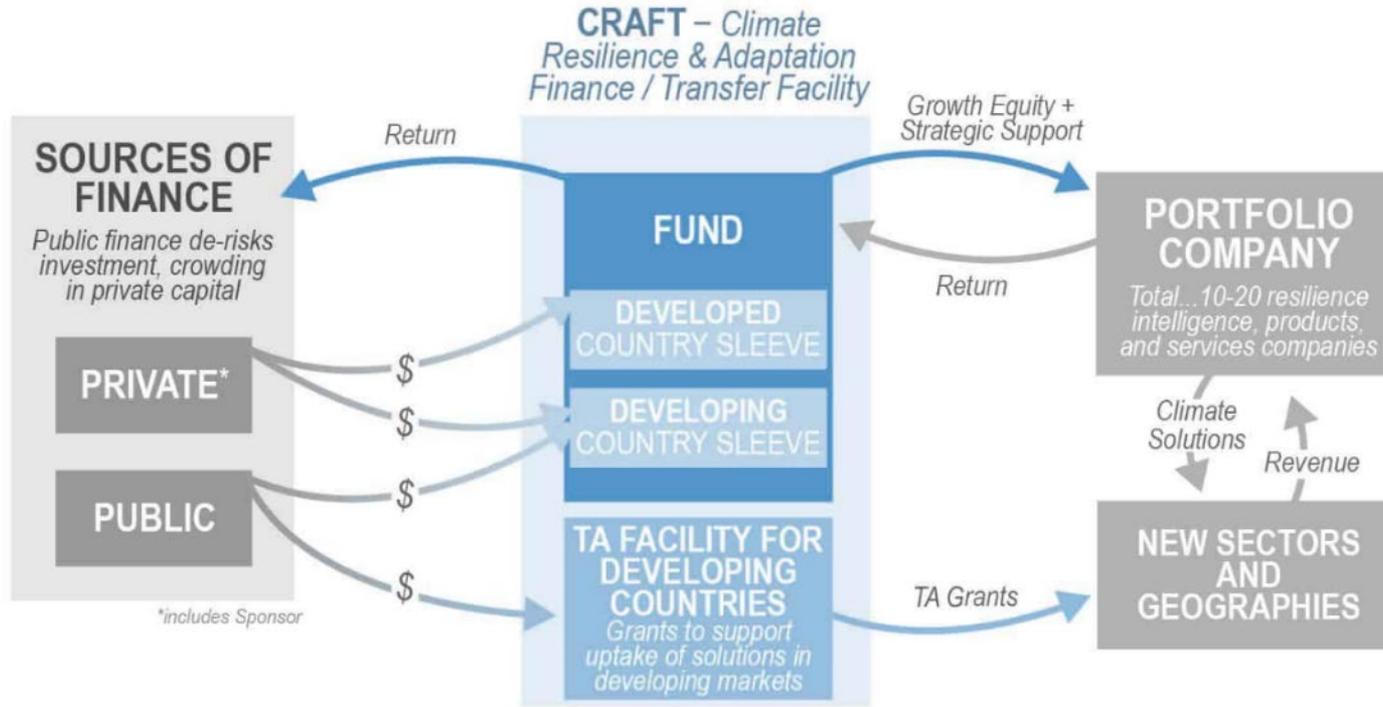
Source:

<https://pangea.stanford.edu/researchgroups/jordan/research/hydrologic-data-gathering-modeling-gorelick>

SUPPORT ADAPTATION TRUST FUNDS AND CREDIT LINES

- Indonesia Climate Change Trust Fund / Indonesia Environment Fund
 - Supports national mitigation and adaptation goals
 - Renewable energy and energy efficiency, sustainable forest and peat land management, marine-based, and adaptation and resilience
- Adaptation Fund
 - Established under the UNFCCC with \$720 million committed for 100+ adaptation projects since 2010
- Climate Action Framework Loan II
 - \$110 million line of credit from European Investment Bank to Caribbean Development Bank
 - Loan for 50% of climate resilience or mitigation investments

SUPPORT PRIVATE EQUITY FUNDS FOR COMPANIES SUPPLYING ADAPTATION PRODUCTS AND SERVICES





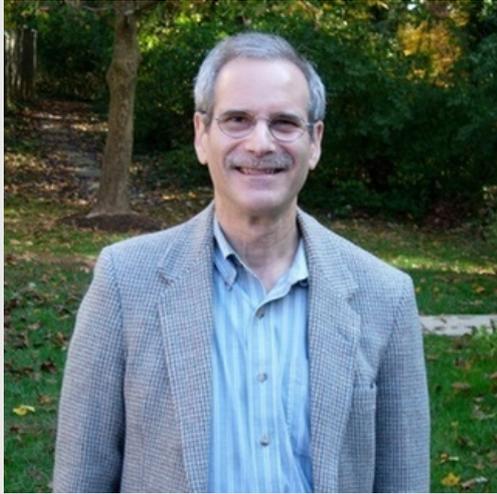
SUPPORT INSURANCE MECHANISMS

- Partner with companies, governments, and donors to test and scale-up new insurance products
 - Analyze insurance market distortions related to subsidy requirements and funding sources
 - Generate market signals about the real cost of climate risks
 - Climate-index based to reduce transaction costs
 - Mobilize private investment by reducing risks the private sector would not accept

Feed the Future Innovation Lab for Markets, Risk, and Resilience

- Index Insurance Innovation Initiative
- 14 efforts focused on improving accuracy, building with other innovations, ensuring consumer have confidence contracts will protect them

QUESTIONS AND ANSWERS



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Glen Anderson, Ph.D



Charlotte Mack-Heller

FOLLOW UP

- Webinar recording will be made available
- Contacts:
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- <https://www.climatelinks.org/projects/ceadir>

REFERENCES (I)

- AECOM International Development. 2017. Guide to Climate Change Adaptation Project Preparation. Los Angeles: AECOM International Development, Prepared for the U.S. Agency for International Development-funded Adapt-Asia Activity.
- Anderson, Glen; Eric Hyman; Zakir Khan; Rezai Khondker; and Charlotte Mack. 2017. Climate Finance in Bangladesh: Situation Analysis. Washington, DC: Crown Agents USA and Abt Associates.
- Anderson, Glen; Eric Hyman; Charlotte Mack-Heller; Alan Miller; Marcia Trump; and Jonathan Cook. 2019. Climate Finance Assessment: Opportunities for Scaling Up Financing for Clean Energy, Adaptation, and Sustainable Landscapes. Washington, DC: Crown Agents USA and Abt Associates.
- BioCarbon Fund. 2019. The BioCarbon Fund Initiative for Sustainable Forest Landscapes: Annual Report 2019. Washington, DC: BioCarbon Fund. https://www.biocarbonfund-isfl.org/sites/isfl/files/2020-03/ISFL%20Annual%20Report%202019_7.pdf
- The Borneo Initiative. 2020. The Borneo Initiative Foundation: 2019 Annual Report. Breukelen: The Borneo Initiative Foundation. <https://theborneoinitiative.org/wp-content/uploads/2020/07/Annual-report-2019.pdf>
- Camp, Lawrence and Amanda Fernandez. 2018. Pay for Results in Development: A Primer for Practitioners. Washington, DC: Palladium Group. https://www.usaid.gov/sites/default/files/documents/1865/Pay_for_Performance_Primer_Final.pdf

REFERENCES (2)

- Camp, Lawrence and Amanda Fernandez. 2018. Pay for Results in Development: A Primer for Practitioners. Washington, DC: Palladium Group.
https://www.usaid.gov/sites/default/files/documents/1865/Pay_for_Performance_Primer_Final.pdf
- Counts, Lauren; Nienke Stam; Manuel Alegre; Arjan Visser; Alex Blake; Marcia Gowen Trump; and Eric Hyman. 2014. Clean Energy Lending Toolkit. Bethesda, MD: Abt Associates and ENCLUDE.
- FAO. 2015. Technical Considerations for Forest Reference Emission Level and/or Forest Reference Level Construction for REDD+ under the UNFCCC. Rome: Food and Agriculture Organization of the United Nations.
- Flynn, Cassie. 2011. Blending Climate Finance through National Climate Funds: A Guidebook for the Design and Establishment of National Funds to Achieve Climate Change Priorities. New York: United Nations Development Programme.
- Gryszkiewicz, Lidia; Ioanna Lykourantzou; and Tuukka Toivonen. 2016. "Innovation Labs: 10 Defining Features." The Stanford Social Innovation Review, November 3, 2016.
https://ssir.org/articles/entry/innovation_labs_10_defining_features
- Hyman, Eric. 2019. Analysis and Financing for REDD+ and Carbon Markets (Powerpoint). Washington, DC: U.S. Agency for International Development.

REFERENCES (3)

- International Coffee Organization. 2020. Impact of COVID-19 on the Global Coffee Sector: Survey of ICO Exporting Members. Coffee Break Series No. 3. London: International Coffee Organization. <http://www.ico.org/documents/cy2019-20/coffee-break-series-3e.pdf>
- IRENA. 2016. Unlocking Renewable Energy Investment: The Role of Risk Mitigation and Structured Finance. Abu Dhabi: International Renewable Energy Agency.
- Makhijani, Rajen et al. 2017. Assessment of Business Models for Low-Emission Land-Use Management in Asia. New York: Dalberg Global Development Advisors, prepared for USAID/Regional Development Mission for Asia. https://pdf.usaid.gov/pdf_docs/PA00MK9D.pdf
- Molina, Javier; Nadia Scharen-Guivel; and Eric Hyman. 2018. Analysis of Renewable Energy Auctions in Six Countries. Washington, DC: Crown Agents US and Abt Associates. https://pdf.usaid.gov/pdf_docs/PA00T4QN.pdf
- Notman, Evan. 2018. “Approaches to Sustainable Landscapes Programming.” Powerpoint for the USAID Advanced Sustainable Landscapes Training. Washington, DC: USAID.
- Streck, Charlotte and D. Lee. 2016. Partnering for Results: Public-Private Collaboration on Deforestation-Free Supply Chains. Prepared with support from Cooperative Agreement # S-LMAQM-13-CA-1128 with U.S. Department of State. <https://climatefocus.com/publications/partnering-results-public-private-collaboration-deforestation-free-supply-chains>

REFERENCES (4)

TFA 2020. 2018. The Sprint to 2020: TFA 2020 Annual Report 2018. Geneva: Tropical Forest Alliance 2020. <https://www.tfa2020.org/wp-content/uploads/2018/06/TFA-2020-Annual-Report-2018.pdf>

World Bank. 2017. Engaging the Private Sector in Results-Based Landscape Programs : Early Lessons from the World Bank's Forests and Landscapes Climate Finance Funds. Working Paper. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/2726>

World Food Program and Oxfam America. 2017. R4 Rural Resilience Initiative: Building Resilience to Climate Change for Long-Term Food Security and Livelihoods Improvement. Rome: World Food Program.