FINANCING ENERGY EFFICIENCY AND HFC REDUCTIONS IN THE RAC SECTOR

GIZ Side Event: Coordinating Finance for Sustainable Refrigeration and Air-conditioning

Quito

7 November 2018

WORLD BANK GROUP
Climate Change

STAYING COOL
Working Together on a Triple Win

Financing EE and HFC Reductions in RAC

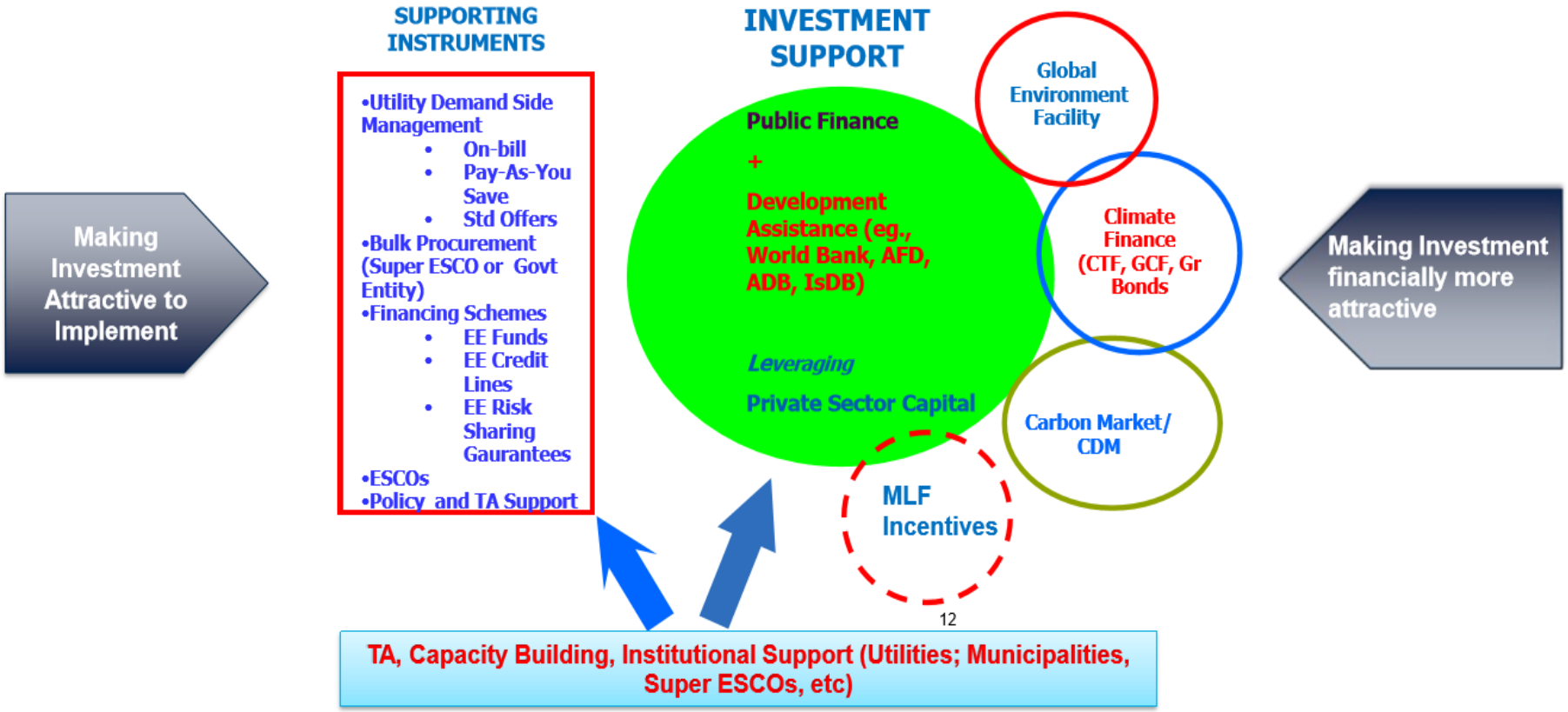
- **Context**: World Bank (WB) decades of experience in financing energy efficiency (EE) – unique issues (requiring differentiated financing)

- **Approach** in developing an intervention:
  - Identification of national priority areas (in a Country Partnership Framework, national/sector strategies, NDCs, etc.)
  - WB strategic priorities (Maximizing Finance for Development, Climate Change Action Plan, SDGs, Paris Accord)

  - Impact analysis and other upstream analytical work
  - Convening stakeholders and dialogue
  - Development of a business model to advance objective and address barriers
  - Financing plan for various project elements and requirements:
    - Criteria for sourcing finance:
      - Purpose
      - ease of accessibility and fast deployment,
      - governance structure
      - type of finance
    - Available sources: Public (multilateral, national, bilateral) and Private

Tools and Guidance such as "Coordinating Finance," GIZ 2018

How to Leverage Financing for Energy Efficiency Programs: *Role of Multilateral Finance Institutions and Climate Finance*



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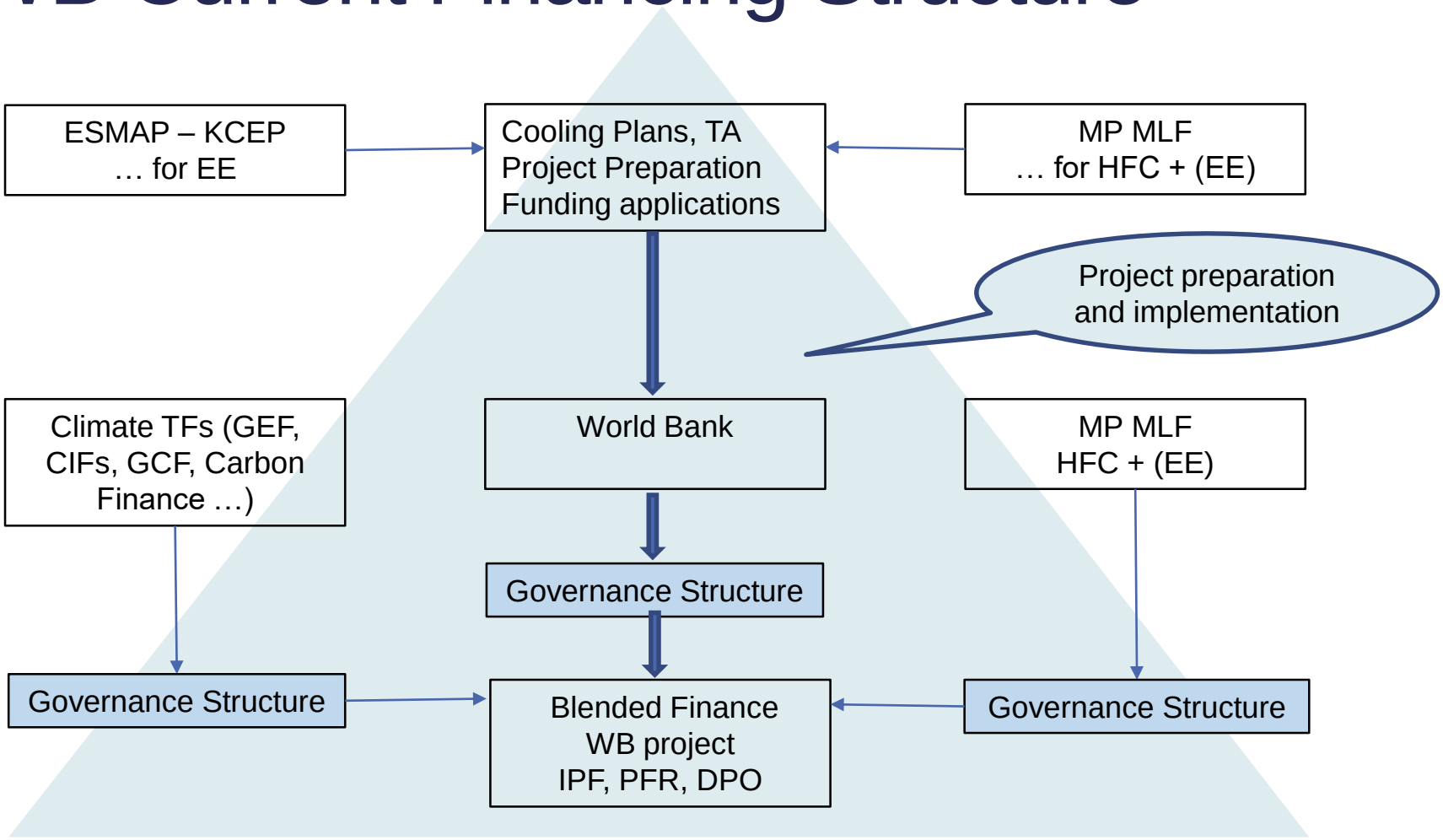
Financing EE and HFC Reductions in RAC

WB experience in coordinating different sources of finance on EE suggests:

- **Blending** multiple sources of finance for a comprehensive program to transform a sector **is complicated** and often prohibitory:
  - Multiple donors with different governance structures (attribution, accounting)
  - Various country actors involved: ministries for energy, environment, climate and development/finance; national banks, utilities, private sector
  - Series of financial instruments may be needed depending on the elements/aspects targeted (policy, institutions, technical, implementation
  - Time-sensitive (MLF compliance based)

- Requires **high-level commitment** at multiple levels and a **tailored implementation model** and stakeholder buy-in at the working level

WB Current Financing Structure



Financing EE and HFC Reductions in RAC

Type	Financing Mechanisms	Example of Financing Sources
PUBLIC	Investment subsidies	National budgets
	Fiscal incentives	National budgets
	Dedicated funds (EE, MP)	MLF, ESMAP, GEF, bilateral agencies
	Concessional loans	MDBs (WB), GCF
	Lines of credit	IFC, CIF, GEF, GCF
	Revolving funds	National funds
	Risk mitigation products	GCF, GEF, CIF
PRIVATE	ESCO financing	
	Utility financing	
	Customer financing	
	Industry / businesses	

MDB=multilateral development bank

Mapping Activities, Measures & Financing for Delivery of EE-MP Co-benefits

Value Chain

Element	Manufacturing				Demand Side				
Type of intervention	**Financing**	**R&D**	**Production**	**Trade (import/ export)**	**Financing**	**Acquisition (by end user)**	**Use**	**Mainte-nance**	**Disposal**
Financial Instruments	Concessional loans, Grants,	Subsidies, financial incentives	Production taxes, fees, quotas, subsidies	Green tariffs, export/import fees/ subsidies	Loans/ grants, preferential terms, installment plans, leasing, ESCOs	Purchase tax, deposit schemes, subsidy	Usage fee/subsidy, on-bill payment for equipment, energy pricing, RECs/EECs, ESCOs		Take-back, disposal fees, deposit schemes
Policy and Regulations		Tax policy, industrial policy	Standards, prohibitions, testing, labelling	Trade restrictions, quotas	Financial disclosure rules (life cycle costs)	Public procurement, proc. rules, guarantees	Codes and permits, operating standards	Codes & standards, inspections, licensing, training	Disposal system, obligations
Information		Access to information	Market coordination			Product info, labeling, samples	Env./energy audit, consumer awareness		Labeling
Technical Capacity		Public education programs	Technical assistance, technician training		ESCO training	Bidding documents	Audit training, env./energy management systems	Trade organiza-tions, technician training	
Institutions (public, private)	Green banking	Public research	Liability for (env.) damage	Trade agreements	Green banking, ESCOs	Warranty requirements	Insurance, ESCOs	Performanc e bonds	Waste manage-ment system

Types of Intervention

Mapping of Activities, Measures and Financing

Target	Manufacturing				Demand Side				
Type of intervention	**Financing**	**R&D**	**Production**	**Trade (import/ export)**	**Financing**	**Acquisition (by end user)**	**Use**	**Mainte-nance**	**Disposal**
Financial Instruments	Enterprise Financing (commer-cial loans, etc.)	Concessio nal Finance for conversion			PH: Chillers: Subsidy MEX: Guarantees, Line of Credit	MEX: Vouchers / rebates for RAC appliances			MEX: Take-back program Protocol for VCM ODS destruction
Policy and Regulations				Bans in imports of R-22 RAC					
Information		Sharing of experience with regulators							
Technical Capacity	Access to patents	Testing and Training	Technical assistance					PH Chillers: Training	PH Chillers: Refrigerant recovery
Institutions (public, private)			Associations manufacturer Gov. agencies						

MLF + GEF Demand-side Example: Philippines Chiller Replacement Project

Barriers: market, economic and technological. ***C***hiller owner's opportunity cost and up-front capital costs prevented replacement of inefficient chillers, prior to the end of their useful life, with energy efficient chillers.

Project Design Approach: Demand Side (Financial Incentives + ESCOs)

- **Partially funded with GEF and MLF grants** (carbon finance cancelled).
- **Financial incentive to chiller owners:** Up-front grant subsidy of 15% of the cost of new chillers. The level of incentive was determined by aggregating opportunity costs using the model developed in the India Chiller Sector Strategy undertaken by the Bank in 2002. **85% of the cost: Private sector financing**
- **Financial incentive to Energy service companies (ESCOs):** to ensure ESCOs participation in implementation they received a guarantee on the return on their investment generated by energy savings gained thru technical conversions
- **Capacity Building:** technical training in the handling and management of alternative technologies & servicing
- **Leveraging carbon finance** through the Clean Development Mechanism, to generate additional revenues, but was cancelled due to global carbon market downturn.

Results (2011 – 2016)

- **71 new chillers installed**
- **Net GHG emission reduction:** 111.9 ktCO2eq
- **Reduced power demand** of 18.95 MW
- **Sustainable market transformation in the chiller sector**: Philippines' ESCO market grew from 2 to 4 companies and generated interest amongst chiller owners in undertaking further replacements to maximize space cooling energy consumption

Key Findings

Small-scale financial subsidies for chiller replacement delivers major impact by:

- **building confidence** in technical advancements and energy savings potential
- **promoting commercialization** of EE products
- **accelerating private sector engagement** and fostering **market transformation** by promoting supporting market mechanisms, such as ESCOs.

World Bank Demand-side Example: Mexico Efficient Lighting & Appliances Project

BARRIERS to adopting EE technologies in Mexico included: (i) high initial investment costs; (ii) lack of incentives; (iii) absence of credit profiles of customers; and (iv) lack of any banking experience in energy efficiency savings

Project Design Approach: Bulk procurement + Vouchers and Credit + utility on-bill payment

Upstream Work (Preparation): Use of the voluntary carbon markets to pay for the collection, reclamation and destruction of CFCs. **MLF** funded the development of a project document for submission to the voluntary carbon markets to finance destruction of CFCs recovered from appliances.

Component 1: Replacement of incandescent bulbs with CFLs through bulk procurement

- **Funding Sources**
  - **World Bank funding**
  - **Carbon Finance**

Component 3: TA - Communications

- **Funding Source**
  - **GEF grant and other financing**

Component 2: Replacement of appliances (refrigerators and AC) through financial incentives + utility on-bill payment

- **Financial incentive:** Vouchers as instant discounts and credit loans by NAFIN (Nacional Financiera)
- **Credit guarantee** by World Bank on these loans.
- **Consumers** pay the balance & surrender old appliances
- **Utility-on-bill payment:** Credit repayments made thru electricity bill to Federal Energy Commission which transfers repayments to the Operator, which transfers them to NAFIN.

- **Funding Sources:**
  - World Bank Loan (Vouchers + Guarantee)
  - Gov. of Mexico - NAFIN (Credits)
  - Clean Technology Fund Loan (line of credit at national bank)
  - GEF Grant (Guarantee Facility)
  - Carbon Finance

Results & Key Findings

- **CFLs delivered** = 45.8m; Energy Savings per yr = 2,955 GWh; Emission reduction per yr = 1,502.03 tonCO2e
- **Appliances delivered** = 1.9m; Energy Savings per yr = 324.210 GWh; Emission reduction per yr = 163.436 tonCO2e
- **Innovative procurement strategy**: The awarded contractor was responsible not only for supplying the CFLs but also for distributing, collecting and disposing old bulbs, and implementing a dissemination campaign. This enables bidders to benefit from economies of scale and make efficient use of IBRD resources.
- Co-benefits potential

Financing EE and HFC Reductions in RAC

How do we address the existing complexity of coordinating multiple sources of financing:

- Ongoing discussions on climate finance architecture to address these challenges and complexities.

- In the mean time a programmatic approach with several projects under one national platform (NDC, cooling plan, etc.) may be more realistic and allows time-sensitive commitments to be achieved.