

# Results-Based Financing (RBF) & Output-Based Aid (OBA) in Climate-related Operations



The Global Partnership on Output-Based Aid

# RBF and Carbon Finance

Similarities	Differences
Service independently verified before payments are made.	Carbon finance is an established market-oriented and results –based instrument while RBF is a generic project-driven approach
Payments to businesses or households after measurable pre-agreed actions have been achieved and verified. ( e.g. Payments on reduction in carbon emission)	Some of the RBF mechanism e.g. OBA, link service outputs with associated costs and the disbursements are made according to the actual cost of service; While others where the cost can't be predetermined, e.g. carbon finance, consider a conditioned outcome for reference of funding without the unit cost linkage.
Help close the funding gap and generate value for investment money, addressing both affordability and externalities.	Not only carbon but a broader range of services related to climate and ecosystem, e.g eco system resilience /services improvement could be addressed through RBF.
Stringent but reliable definition and verification of results is not feasible in all sectors and for all mitigation opportunities	Comparing to Carbon Finance, RBF frameworks are flexible to be locally tailored.

# Clean Energy

## Nepal Biogas

**Project Scope:** Increase the number of households sustainably using biogas by proving subsidy support for biogas plants in rural Nepal.

### RBF Features

- Supported by GPOBA using OBA subsidies
- Biogas companies signed installation contracts with households,
- Three-year guarantee on performance of the concrete structure of the plant
- OBA subsidy payment occurred on receipt of a plant completion report, with independent verification.

### Climate Features

- 2 tons of firewood/year savings
- Use of bio-slurry as fertilizer improved the soil fertility, leading to better carbon retain capacity of both the soil and the plants
- Delivered biogas plants to about 261,100 rural beneficiaries

### Results

- 27,734 biogas plants were installed in the GPOBA districts by April 2012
- Monetary benefits in terms of value of firewood saved or time saved in collecting firewood alone ranged from NPR 7,500 to NPR 10,000 per year per plant

# India: Residential Solar Hot Water (SHW) system

Project Scope: Increase the deployment of SHW systems in urban residential buildings in India

## RBF Features

- The RBF subsidies were introduced to encourage vendors to reach out to consumers in rural areas, where the demand is suppressed.
- The subsidy mechanisms varies and is calculated either as percentage of an agreed benchmark cost or in fixed prices terms per m2 of SHW system collector area.
- The verification was designed ensure the operational quality of the SHW according to the agreed standards after the installation.

## Climate Features

- The energy savings from the implementation of the project is substantial since water heating comprises a significant share of the total energy consumption of a residential building in India
- In New Delhi and Bangalore, the energy units saved per year is estimated at 750 kWh and 1500 kWh, respectively.
- The estimated GHG emissions reduced are 0.73 tons and 1.5 tons, respectively.

# Bangladesh: Solar Home System (SHS) Project

**Project Scope:** Enhance energy access and provide affordable electricity to rural households.

## RBF Features

- The project designed using OBA subsidies. It was implemented by the Infrastructure Development Company Limited (IDCOL), a government-owned finance company in partnership with participating organizations (POs).
- POs offers microfinance loans to households and were responsible for installation. Following installation of the system, POs submitted a loan refinancing and grant application. With inspections and verification done by IDCOL and a third party technical audit company. IDCOL released the credit and the subsidy to the POs.

## Climate Features

- The Solar Home System (SHS) provides rural household with access to clean energy at affordable price.
- The energy generation from solar resources, the utilization of LED bulbs reduced the operation and maintenance (O&M) cost for lighting while cutting carbon emissions.

## Results

- Installed SHS reached half million, benefiting over 2.2 million people. The original aim of the project was to support installation of 315,000 SHSs, benefiting about 1.4 million people.
- Project benefits include: Reduced levels of household air pollution, enhancement of mobility and security, particularly for women and girls with extended lighting-hours at night.

# India: Rajasthan Public Street Lighting

- **Project Scope:** The project objective was to improve public lights system operated by the Jaipur Municipal Corporation (JMC) in Rajasthan (India), through a PPP scheme.
- JMC engaged IFC as the transaction advisor to structure a PPP for financing, upgrading, operating and maintaining the public lights system in Jaipur.

### RBF Features

- The project is built around the Energy Service Companies (ESCO) industry, applying performance based business models.
- A consortium led by a large Indian energy services company and manufacturer of LED lights won the bid for a 10-year energy performance contract.
- The project involves retrofitting the public street-lamps with energy efficient lamps and their operation and maintenance. It also allowed inclusion of additional lights, if required.
- In addition to the lamps, the ESCO will install a fully computerized centralized control and monitoring system as well as create a round the clock public grievance system dedicated to public lights. For these investments and services, JMC agreed to pay a share of the energy savings achieved by the ESCO.

### Climate Features

- The winning proposal after the bidding process included a commitment to invest approximately US \$12 million for retrofitting at least 70,000 street-lamps with energy efficient LED lamps.
- Once completed, the project is expected to:
  - Benefit 1.65 million people with improved street lighting
  - Reduction of GHG emissions by 36,750 metric tons/year.

# Bangladesh: Solar Irrigation Pumps (SHS) Project

Project Scope: Provision of solar powered irrigation facilities to off-grid areas.

## RBF Features

- The project is applying an OBA scheme and GPOBA has supported the provision of solar irrigation technology through targeted subsidy grants
- Infrastructure Development Company Limited (IDCOL) is providing financial support to solar irrigation projects based on a debt, equity and grant ratio of 30:20:50. As the uptake of solar pumps increases, the grant subsidies amount will be gradually reduced.

## Climate Features

- The replacement of diesel pump with solar pumping system leads to decrease of diesel consumption, which also reduces the sequent GHG emissions.
- Currently, 1.34 million diesel pumps are being used, which consume about 1 million tons diesel/year.
- In addition to the climate benefit, PV pumping systems allow low operating cost, unattended operation, low maintenance, easy installation, and long life. These advantages are especially important in remote rural areas which are yet to be grid connected.

# Egypt: Vehicle Scrapping and Recycling Program

- **Project Scope:** To replace the aging fleet with efficient models, help improve the air quality and reduce GHG emission associated with Egypt's aging fleet.

## RBF Features

- Private taxi owners receive financial and other incentives (price reduction, subsidies, discounts on the loan) to surrender their old vehicles for new, more fuel-efficient models.
- Project cost recovery via advance payment funding from the CDM certified emission reductions ( CERs).
- CERs are expected to generate US\$15.8-27.8 million to support program costs.

## Climate Features

- As of 2009, a total of 17,000 taxis replaced with more fuel-efficient models.
- 57,233 tons CO<sub>2</sub>e emissions reduction and a 29% reduction in energy use.
- Replaced taxi fleet have an improved level of fuel efficiency, and it improved the standard of living of residents in the serviced municipalities.



# Malaysia: Diverting organic waste

**Project Scope:** The project focuses on improving municipal solid waste management to meet the increasing demand and reduce methane gas emissions by introducing solid waste source separation programmers, targeting to increase the diverting rate of organic waste. .

### RBF Features

- Incentive payments” (i.e., cash awards) are given to participating high-rise communities if they successfully separate organic waste from all other wastes
- A scoring system is devised to evaluate the quantity and quality of organic waste diverted.
- The communities will receive an incentive payment based on this score, subject to both a minimum score and a maximum incentive payment ceiling
- As organic waste is the largest fraction of waste going to the landfill in Penang, successful source separation will contribute to the financial and environmental sustainability of the waste sector.

### Climate Features

- Diverting organic waste from being disposed into landfill would prolong the service life of the landfill.
- The increased diversion rate contributes to climate change mitigation by reducing the amount of methane , a potent GHG .

## Solid Waste Management

# Mexico: Landfill Methane Management Project

**Project Scope:** The objective of the project is to reduce the methane pollution and greenhouse impact, attributed to waste disposal process in the city of Monterrey in Mexico, either through its capture and use as a fuel for power generation or through flaring.

### RBF/Carbon Finance Features

- The project is structured as Carbon Finance Scheme
- The emission reductions are verified annually by an accredited organization. Payments to the sponsor will occur upon completion of this independent verification process.
- The purchase of Certified Emissions Reductions (CERs) under this project effectively means that transfer of funds is based on the performance of the project – measured by the actual reduction of GHG emissions.
- The Danish Carbon Fund (DCF) purchases the first one million CERs generated by this project. Under this arrangement, the project's sponsor has a clear incentive to maximize the recovery of the LFG, since the sponsor's revenues from the project are directly proportional to the amount of LFG collected and burned.

### Climate Features

- Yielded destruction of 2 million tons of CO<sub>2</sub>e in 10 years
- Sustained 5.3 MW power plants and
- Produced 58,250,000 kWh of electricity with the recovered Landfill Gas (LFG).
- The main social and environmental benefits from improved landfill gas management practices will be a positive effect on health and local environment. The project will also create employment in the local area and will supply renewable energy to the grid.