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## **Monitoring and Evaluation in Slum Electrification**

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### **Presentation Overview**

- ✓ Description of USAID Slum Electrification and Loss Reduction Program
- ✓ Key Monitoring and Evaluation Issues
- ✓ Monitoring Project Outputs
- ✓ Evaluation Framework
- ✓ Complicating Factors



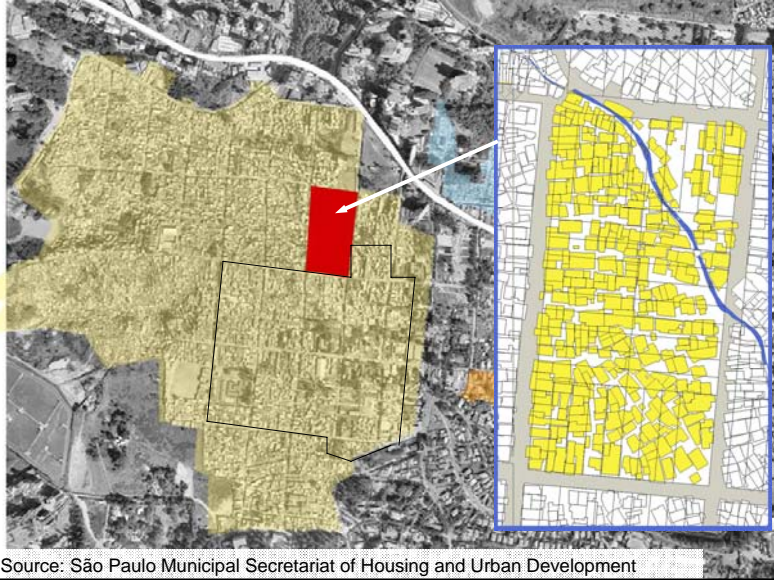
## USAID Slum Electrification and Loss Program

- ✓ **Development Problem:** Economic and social development hindered by unsafe, illegal and unreliable electricity service provision to slum households.
- ✓ **USAID Slum Electrification and Loss Reduction Program (SELR) Objective:** To develop and demonstrate a sustainable, affordable and widely-replicable approach to legal electricity service provision in slums.
- ✓ **Approach:** Global Development Alliance partnership with the International Copper Association (ICA).
- ✓ **Target areas:** Mumbai, India and Sao Paulo, Brazil



## SELR Project Sao Paulo, Brazil

- ✓ **Project partners:** USAID, AES – Eletropaulo, ICA, Nexans
- ✓ **Target group:** About 4,770 households and businesses in the favela (slum) of Paraisopolis.
- ✓ **Project cost:** About \$2m
- ✓ **Pre-project electricity service:**
  - 100% theft
  - High waste of electricity
  - Consumption on average of 325 kwh/ month
  - Ability to pay of 50 Reais (about \$25)/ month



Source: São Paulo Municipal Secretariat of Housing and Urban Development





### SELR Project Components

- ✓ Develop project M&E framework
- ✓ Community campaign/ survey
- ✓ Upgrade distribution network, including installation of meters
- ✓ Energy audits
- ✓ Efficiency improvements (distribution of CFLs and refrigerators, re-wiring)
- ✓ Commercial enterprise assistance
- ✓ Post-pilot financial analysis and socio-economic impact assessment
- ✓ Workshop



### Monitoring and Evaluation Issues

- ✓ Key M&E concerns: Efficacy, efficiency, and sustainability
  - Efficacy*: the extent to which the project objectives have been (or are expected to be) achieved;
  - Efficiency*: the project objectives are achieved without using more resources than necessary
  - Sustainability*: the extent to which the project's benefits will be maintained.
- ✓ Performance monitoring and post-project evaluation

### Monitoring Outputs During Project Implementation

- ✓ Development of household database
- ✓ Tracks progress by household
- ✓ Identifies households for priority efficiency interventions
- ✓ Identifies problems





Route	AES ID	Meter No.	Name	Street	St NP	House No	Cons Feb	Daily Avg	Avg 30 Days	Refrigerator Condition			Very Bad	Replace refrig? Y/N	Date of refrig replac
										Good	Avg	Bad			
01	123827116	9885829	OSMAR LLU	R.MELCHIC	269		00451	15.03	450.9	X					
01	124062482	9246169	HELENA LIM	R.MELCHIC	259		00230	7.67	230.1	X					
01	124062491	9308003	SEVERINA	R.MELCHIC	255		00265	8.83	264.9		X				
01	124062504	8990598	EDNA DOS	R.MELCHIC	251	1	00313	10.43	312.9	X					
01	124062512	7778166	ADRIANA D	R.MELCHIC	251	2	00250	8.33	249.9						
01	124062521	9862942	JENIFHER V	R.MELCHIC	247		00142	4.73	141.9	X					
01	124062911	9617169	AILTON FER	R.MELCHIC	241	1	00306	10.20	306	X					
01	124062938	6970033	DILSA HELE	R.MELCHIC	241	2	00245	8.17	245	X					
01	124156525	8993661	MIRABA MI	R.MELCHIC	245	1	00238	7.93	237.9		X				
01	124062954	9643198	MARCCOS D	R.MELCHIC	245	2	00000	0.00	0	X					
01	124062971	9010303	WALDERCOY	R.MELCHIC	235		00694	23.13	693.9			X			
01	124062997	9788830	MARIA SAN	R.MELCHIC	229		00531	17.70	531						
01	124063012	8983020	MARIA SAN	R.MELCHIC	225		00050	1.67	50	X					
01	124063039	7065394	FRANCISCO	R.MELCHIC	221	1	00064	2.13	64	X					
01	124063055	7774030	LUCIA CORI	R.MELCHIC	221	2	00122	4.07	122						
01	124063071	2647197	FRANCISCO	R.MELCHIC	215	1	00041	1.37	41		X				
01	124063098	7651550	ALDO TELE	R.MELCHIC	215	2	00617	20.57	617	X					
01	124063241	7659480	MARIA JOV	R.MELCHIC	209	1	00323	10.77	323						
01	124063268	220840	MIRIAN DOS	R.MELCHIC	195		00330	11.00	330	X					
01	124156533	8352290	CARLITOSA	R.MELCHIC	187		00160	5.33	160						



### Evaluation Framework

- ✓ Responds to each project partner's specific interests
- ✓ Captures project outputs, outcomes and impacts
- ✓ Key Performance Indicators
- ✓ Baseline information: recent municipal survey and audits
- ✓ Main instruments: database/ audit results, post-project consumer survey



### Financial viability to utility

KPI	Measures	Instrument
Change in company revenues	Increase in collections; debt reduction; change in size and duration of outstanding late payments	Database
Change in company costs	Costs of each technical alternative, cost of project components (per hh), operational costs	Database
Cost/ benefit	Return on investment	Calculated

### Socio-economic impact

KPI	Measures	Instrument
Change in affordability of service	% of income used to pay electricity bill; change in bad debt; change in kWh consumption	Database; survey; metered results
Change in reliability of electricity service	Change in perception of power quality; measured changes	Survey; AES measurements
Change in status within society	Change in perception of status	Survey
Change in personal safety	Change in perception of safety, reduction in number of electricity-related injuries or deaths	Survey
Degree of satisfaction with service	Level of satisfaction	Survey
Change in economic activity	Perception of economic changes; actual change in number of businesses operating in area	Survey; database



### Complicating Factors

- ✓ Short time horizon to measure actual socio-economic impact
  - reliance on perception rather than actual, future changes
- ✓ Attribution
- ✓ External factors
  - utility decision to cap household bills over long term
  - rely on results from similar projects



### Lessons Learned

- ✓ Develop M&E framework up-front
- ✓ Identify proxy data sources when resources/ time constraints or other barriers exist
- ✓ Time lag in socio-economic impacts
- ✓ Attribution
- ✓ M&E critical for informing scale/up replication plans