

Improving Electricity Service for the Urban Poor

Section 1: Dimensions of the Problem and Opportunities

Carlos Rufín

Assistant Professor of Management

Babson College

UN CSD Learning Center Course

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Dimensions & Opportunities: Agenda

1. Urban Poverty and Energy
2. Effects of Government Policies
3. Opportunities

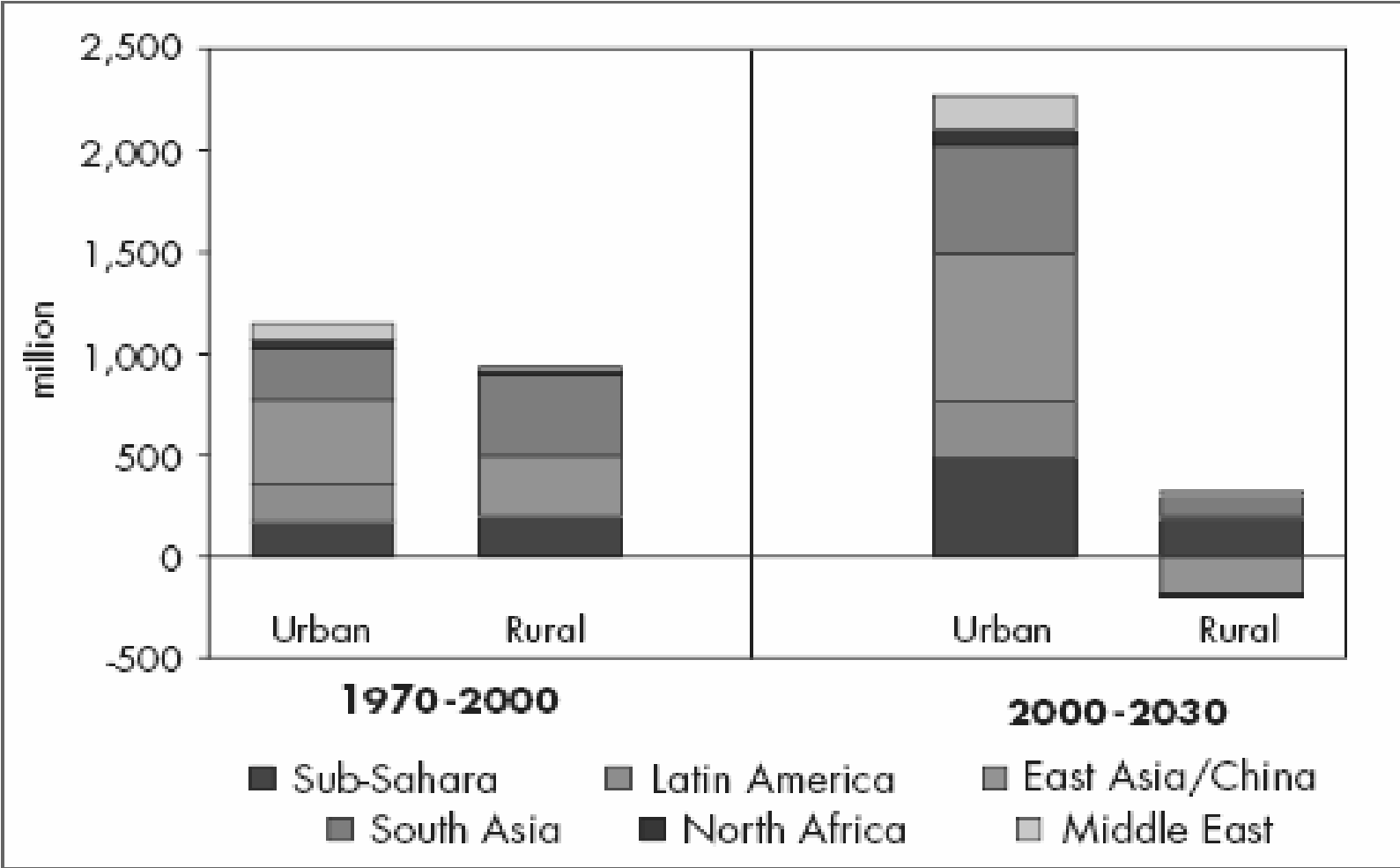
Dimensions & Opportunities

- 1. Urban Poverty and Energy**
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The Setting: Urban Poverty

- **Urban growth** has outpaced the supply of public services
 - Close to 1 bn people in slums already
 - 95% of population growth in developing countries will take place in urban areas
 - 70% of world population will live in conurbations of more than 1m people in 20 years
 - 60% of them will be below poverty level

Population Increase in Developing Countries



Source: IEA, World Energy Outlook 2002 based on OECD, World Bank, and UN data

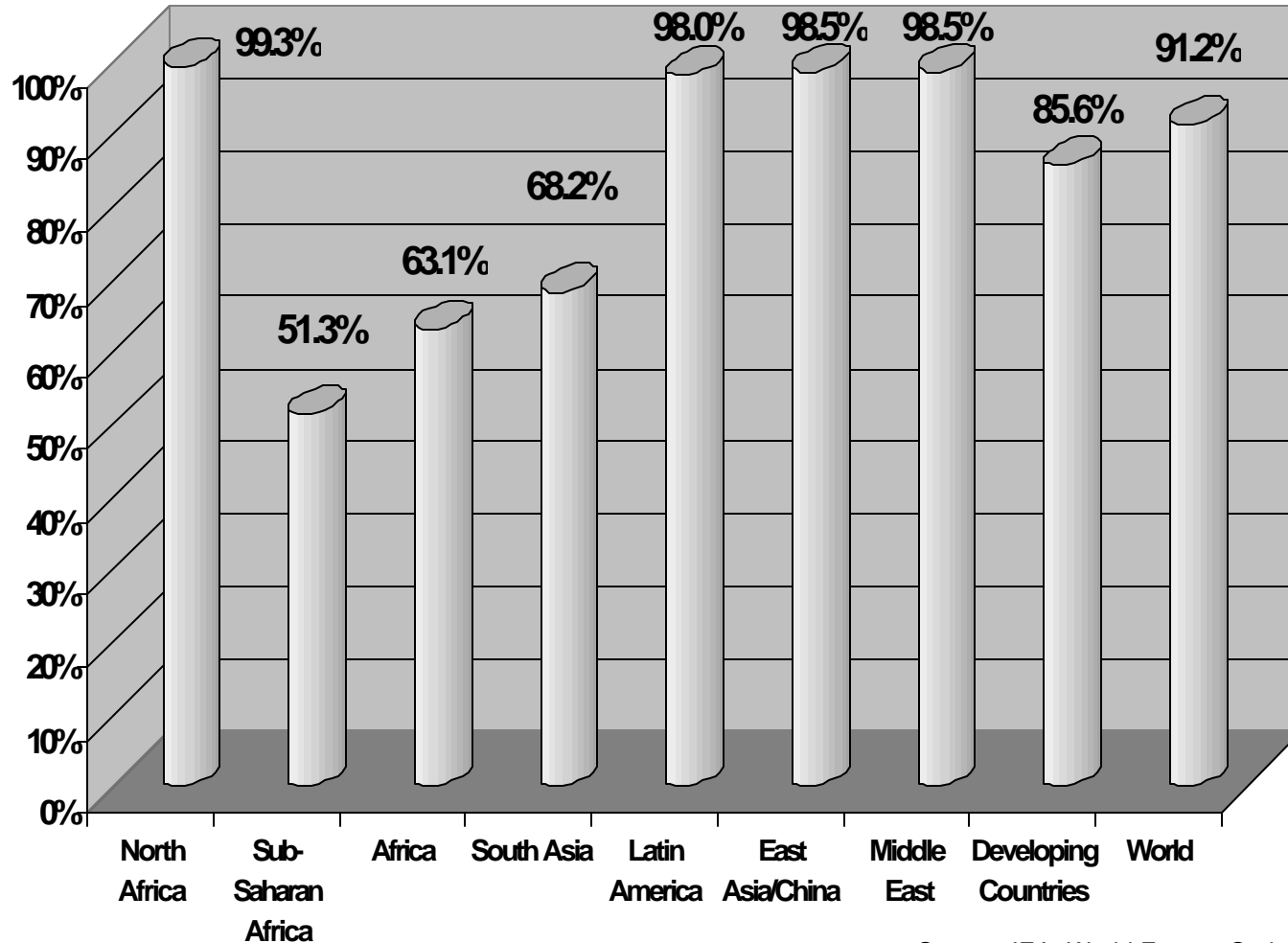
Urban Poverty: Obstacles

- Supply of energy and other services is aggravated by characteristics of poor urban populations
 - Lack of land tenure and other rights
 - Difficulty of physical and market access
 - Transience of poor communities
 - Lack of “voice” in the public space; reliance on informal governance processes

Urban Poverty and Energy

- 91% of urban population had access to electricity in 2000
 - But wide regional disparities: >30% of urban population in Africa and South Asia without access
- Major progress from 36% urban electrification rate in 1970
 - But rapid urban growth has kept urban population without access at 250 million

Urban and Rural Electrification Rates by Region, 2000



Source: IEA, World Energy Outlook 2002

Energy Needs of the Urban Poor

- Energy spending patterns
 - Electricity accounts for most spending (42%) on energy
 - Surprisingly, followed by biomass (charcoal and wood), not bottled gas
 - Natural gas negligible
- “Energy transition”
 - Higher spend on electricity and gas as incomes rise; less on biomass

The Impact of Deficient Energy Services on the Urban Poor

- Public health
 - Indoor air pollution from use of wood and charcoal
 - Hazards of illegal electricity tapping: fire, electrocution
- Income
 - Low quality of illegal electricity service: voltage surges, blackouts; results damage to household equipment
 - High cost of energy: even illegal electricity service is more expensive than regular service
 - Limited opportunity to develop income-generating activities
- Education: lack of indoor lighting
- Security: lack of street lighting
- Gender: pressure on, and violence against, women

Impact on Society at Large

- Urban poverty
 - Crime
 - Squalor
 - Social exclusion
- Increased cost and lower quality of energy supply
- Increased pollution
- Gender inequity

Challenges for Distribution Companies

- Expectation of low returns (if any) from selling to the poor
- Lack of experience in dealing with the poor
- High risk to employees of entering slum areas
- Physical access problems in slum areas
- Internal corruption through connivance with fraud or theft
- Lack of legal recourse through law enforcement
- Lack of government or regulatory incentives
- Political opportunism

Challenges for Public Authorities

- Overcoming clientelistic manipulation of energy services
- Coordination across various authorities: municipal, provincial, central
- Coordination across policy areas: energy, social policy, infrastructure, urban planning, security, ...
- Regulation and incentives for energy service providers
- Need for, and level of, subsidies
- Policy towards slum settlements and the poor

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Urban Renewal Policies

- Slums: upgrading or eradication?
- Upgrading: opportunity to enhance access
 - Infrastructure additions: paving, drainage and sewerage, piped water, ...
 - Community goodwill
 - Enhanced income creation opportunities
- Also preventing degradation of public housing

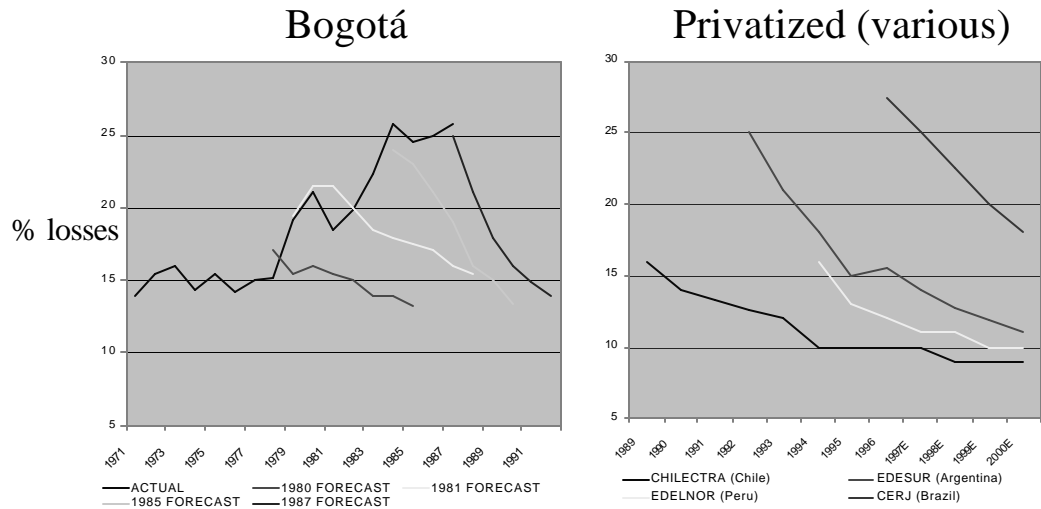
Unimproved Slum: Rocinha in Rio de Janeiro



Improved Slum: Vila Canoas in Rio de Janeiro

Electricity Sector Reform

- Strong incentive to cut losses
- But not always successful
- Failure threatens the viability of private-sector provision



Source: José María Bakovic and Jaime Millán

Company	1996 Losses	2002
CODENSA	22.06%	10.41%
EPSA	21%	12.70%
EPM	15.10%	12.20%
COSTA*	32.70%	26.00%
CARIBE*	34.40%	27.50%

* Atlantic Coast utilities

Limitations of Sector Reform

- Sustaining commitment
 - Legacy of clientelism
 - Unrealistic expectations
 - Lack of transparency
 - Opportunism by private operators
- Lack of regulatory know-how
 - Addressing the special challenges of serving the poor

Poverty Relief

- Poverty requires an integrated approach
- But policy is often split vertically and horizontally
- Traditional policy has been to subsidize cost of electricity and fuels
 - Creation of hard-to-reverse entitlements
 - Very poor targeting of poor populations
 - Resources used for current expenditure rather than infrastructure enhancements
 - Disincentive to conservation and efficiency

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“Bottom of the Pyramid” Business Models

- The context: conditions
- Understanding consumers
- Costs: networks, service, and collection
- Service economics: revenue and cost
- Need for a public-private-community partnership
 - Community involvement in provision of services
 - Public sector support

The Context of Energy Services

- Market characteristics
 - Uses of energy: residential vs. business
 - Amount of usage
 - Quality of housing
 - Physical location and conditions
 - Level and stability of income
 - Community and market organization
- Willingness to pay
- Regulatory capacity
- Policy context

Adaptation to Consumer Needs

- The poor face significant financial constraints
- Irregular income streams which don't match billing cycle
 - Need to facilitate payment
- Difficulty of making lump-sum payments
 - How to deal with upfront costs of access
- Low incomes
 - Need to manage consumption

Cost Structure

- The tyranny of physical networks?
 - Electricity supply requires physical connection
 - How much of a constraint?
- Commercial services
 - Community provision possibilities
- Theft and collections
 - A major cost in low-income areas

Service Economics: Financial Viability

- Lower and more irregular revenues
- Cost of service: higher or lower than for other consumers?
 - Initial or upgrade investments
 - Subcontracted services
 - Anti-theft measures
 - Collection
 - Community relations
- How large is the financial gap?
- How can it be filled?

Community Provision of Services

- Many services traditionally provided by distribution companies are not technically complex
 - Meter reading, billing, collection, payment
 - Maintenance, repair, and efficiency improvements
- They can thus be subcontracted to the community
 - Lower cost
 - Income generation opportunities
 - Goodwill through community involvement
 - Turn illegal providers into legal ones
- Company can focus on core service: physical distribution network

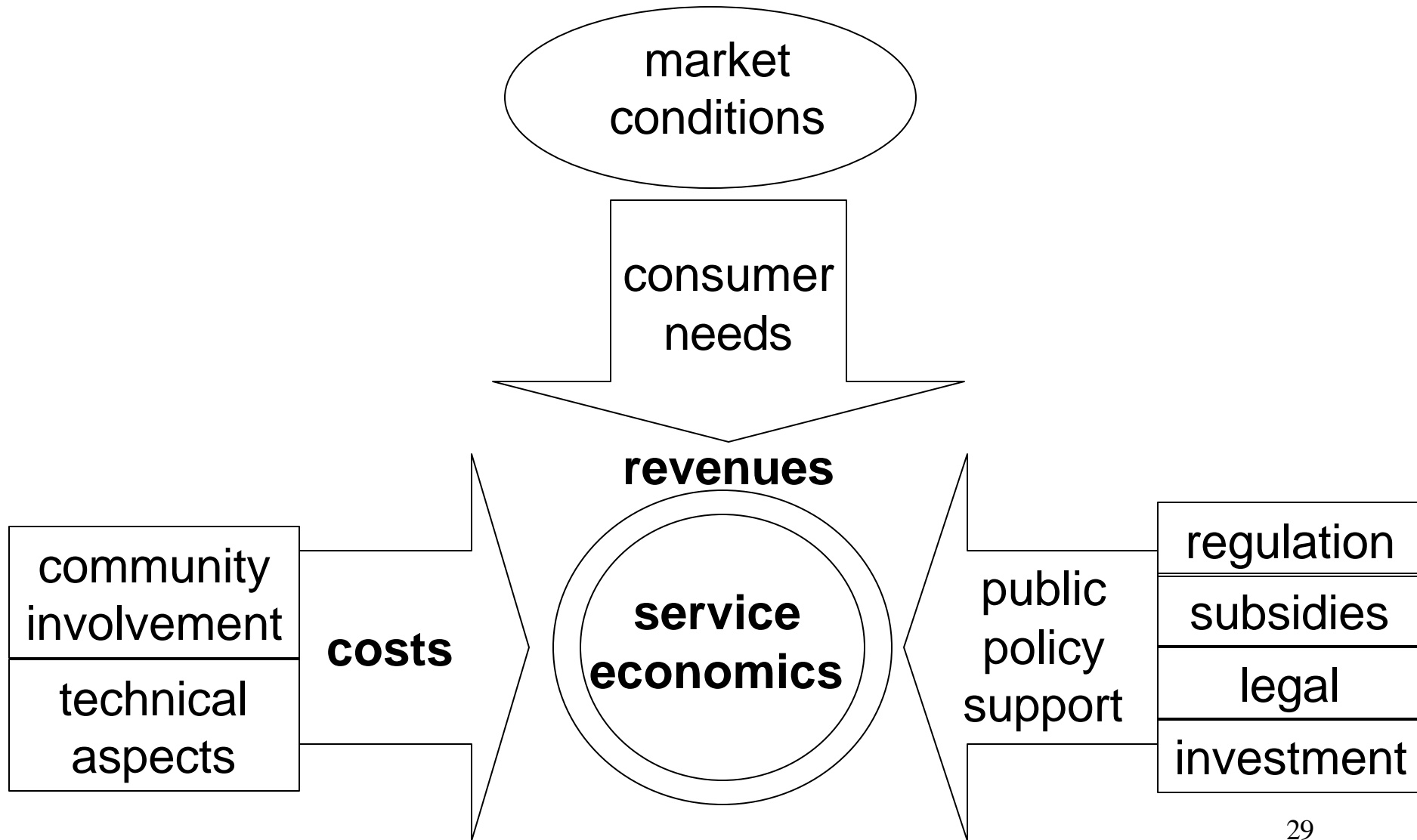
Regulatory Support

- Rates: separate from other consumers?
 - Different cost structure could justify different rates
 - Also different rate structure
- Incentives for reducing losses/increasing collections
 - How much can losses be reduced over time?
- Cross-subsidies
- Consumer protection
 - How to articulate community participation in regulatory process
 - How to facilitate access to regulator for complaints and information

Other Public Policy Interventions

- Subsidies: amount and structure
 - What items should be subsidized?
 - What are the best subsidy vehicles?
 - How do energy subsidies mesh with social policy (e.g. housing subsidies, cash transfers)
- Related investments in local infrastructure
- Legal permissions to enter and operate in slum areas
 - Unwilling to officially acknowledge existence of slums
 - Use informal or interim solutions?
 - Private vs. public land use requires different solutions

A “Bottom of the Pyramid” Model for the Urban Poor



Economic Development Potential

- Enhanced income generation opportunities
 - Access to electricity
 - Agents and service subcontractors for distribution companies
- Improved security
 - Lower risk of extortion and theft
 - More attractive location for business activity
- Indirect impacts: health and education
 - Higher ability to earn income

Social Development Potential

- Better health
- Improved education
- Greater security
- Community organization
 - Involvement in decision making with distributors and local authorities
 - Monitoring of company performance and of theft/fraud by community members