

THE KNOWLE GAP

Energising Development

Impact

Creating Markets

Accountability

Output

Causal Inference Problem

Evaluation

Donor Harmonisation

Energy Access

Usage Factor

Monitoring

Outcome

Institutional learning

Knowledge Management

Counterfactual

Sustainability

DGE



1. A Results-Based Model to Development Cooperation
2. Outcome Monitoring
3. Impact Monitoring
4. Sustainability Studies
5. Challenges
6. Knowledge Sharing



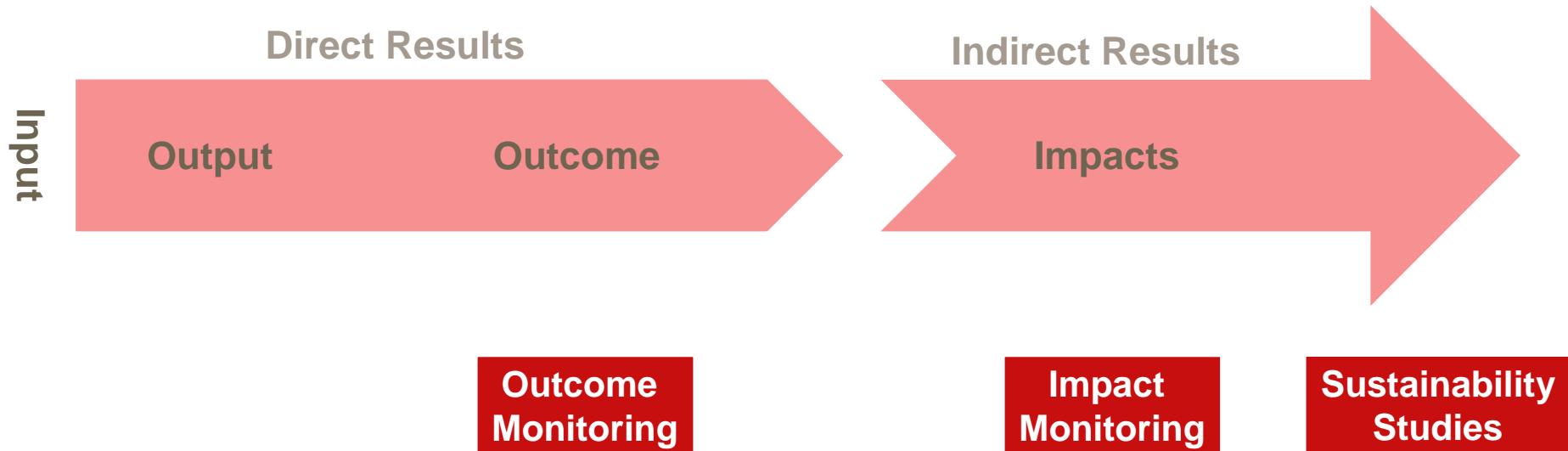
EnDev: A results-based model to development cooperation



Goal: Access to modern energy products and services via a market-based approach



Theory of Change





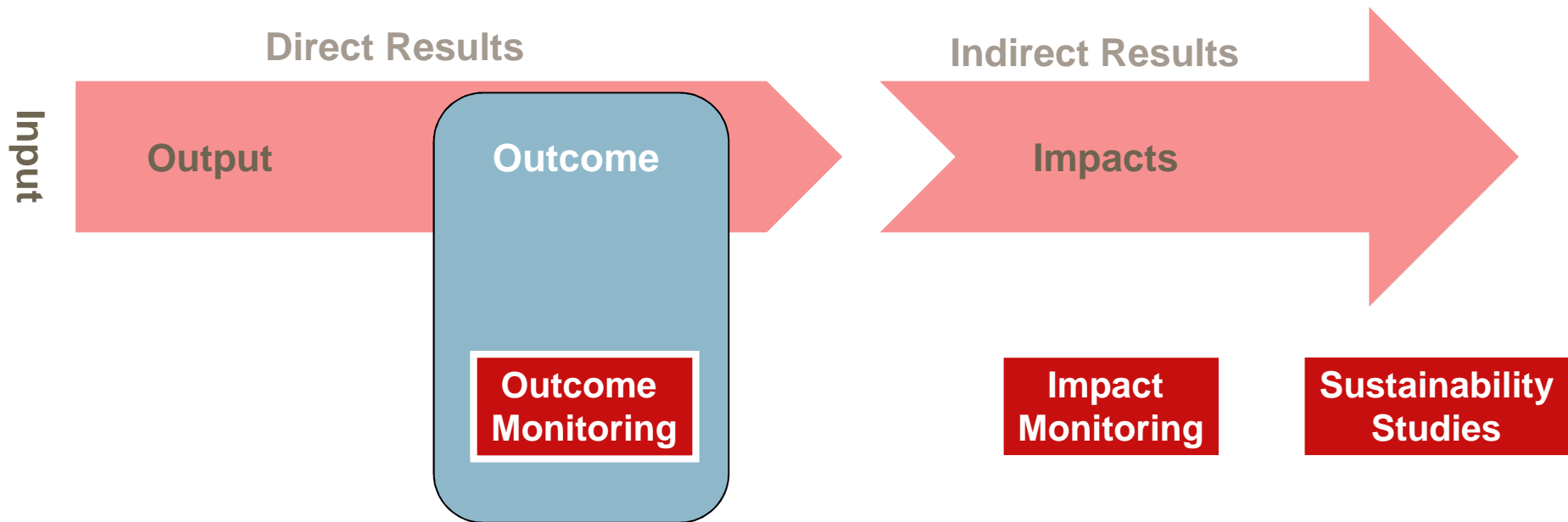
Output



Outcome









Outcome Monitoring (1)

1. Data collection on target group level

List of customer/ beneficiaries from
NGO/salesman or counting of
beneficiaries in villages
Beneficiary must be identifiable (full name
and address; possibly GPS data)

→ Data transfer to EnDev Country Project

2. Data quality

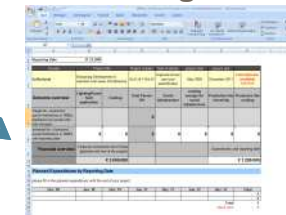
Spot checks and plausibility checks

→ Data transfer to EnDev Head Office
through wiki entries and excel files

www.endev.energypedia.info
Country Sheet



Monitoring Sheet

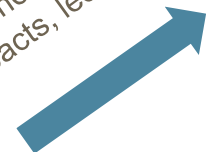


Name, Village (GPS)



**EnDev
Country
Project**

General progress,
Impacts, lessons learnt



Numbers of
beneficiaries

Gross figures!





Outcome Monitoring (2)

www.endev.energypedia.info
Country Sheet



EnDev Monitoring Sheet



Gross figures!

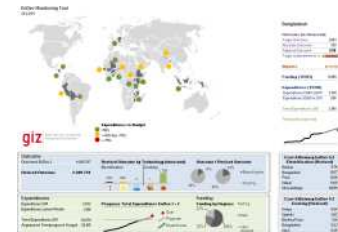
3. Data processing at Head Office

- Cross-checking of Country Sheets
- Cross-checking of Monitoring Sheet
- Data entry into Outcome Calculation Sheet
- Adjustment of numbers
- Automatic data transfer into Monitoring Tool

Outcome Calculation Sheet

Net figures!

Monitoring Tool



4. Compilation of Progress Report and Annual Planning

EnDev semiannual Report

Progress Report 2012

on
Energising Development – Phase 2
Partnership between

The Netherlands Ministry for Foreign Affairs
ANNUAL PLANNING 2013

on
Energising Development – Phase 2

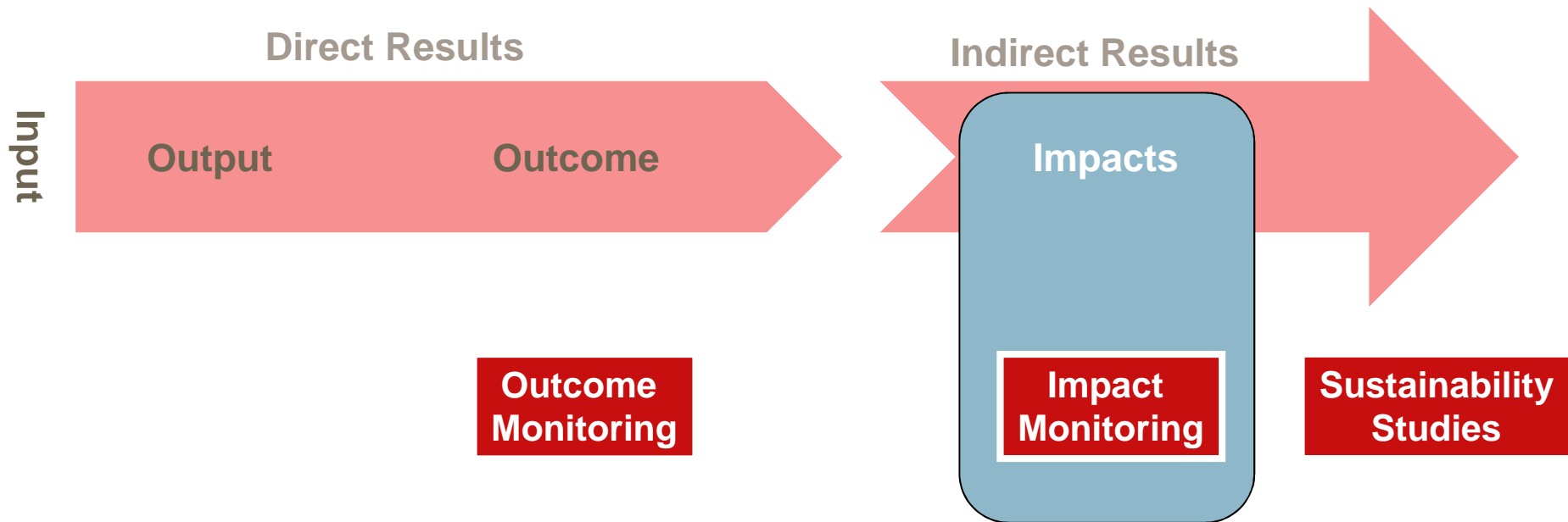
Partnership between:
The Netherlands Ministry for Foreign Affairs
The Norwegian Ministry of Foreign Affairs
The Australian Agency for International Development
The UK Department for International Development

The Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung (BMZ)
Executed by:
The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

In cooperation with
Agentschap NL

With co-financing from IrishAid and the EU

Final version based on decisions of the EnDev governing board and email follow-up with DGIS













PROGRESA



- Conditional Cash Transfer

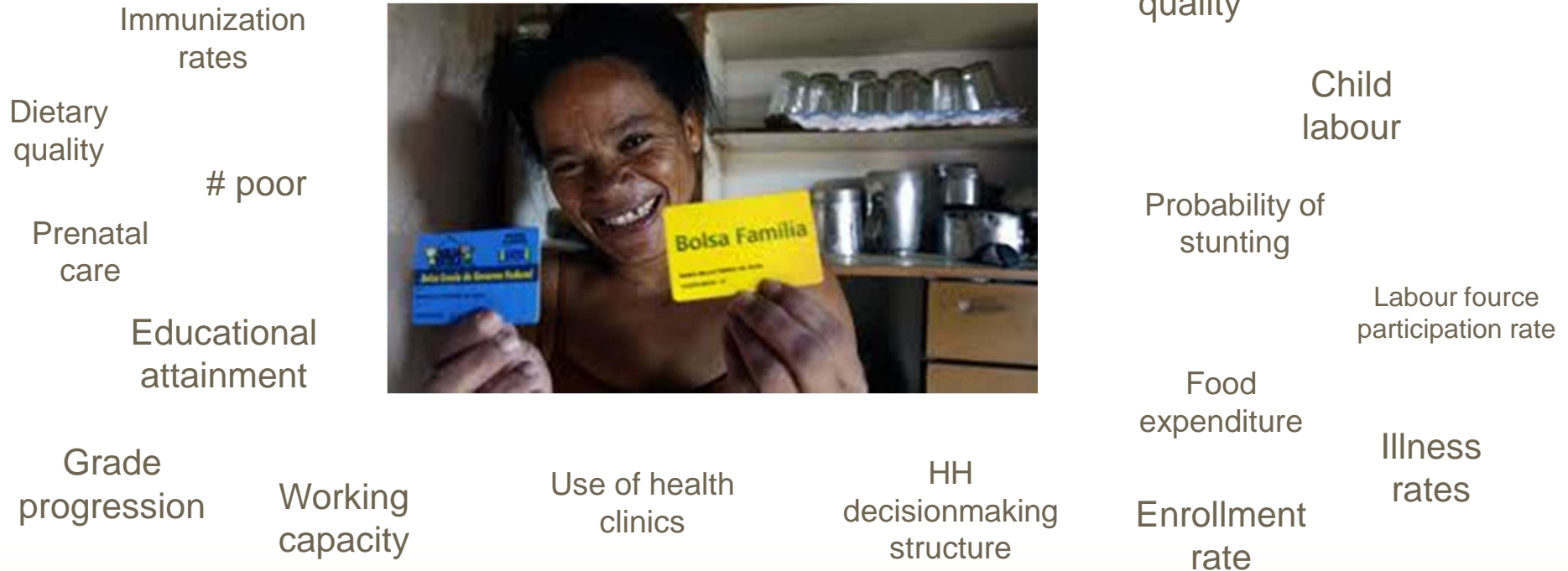


Anti-poverty and human resource programme



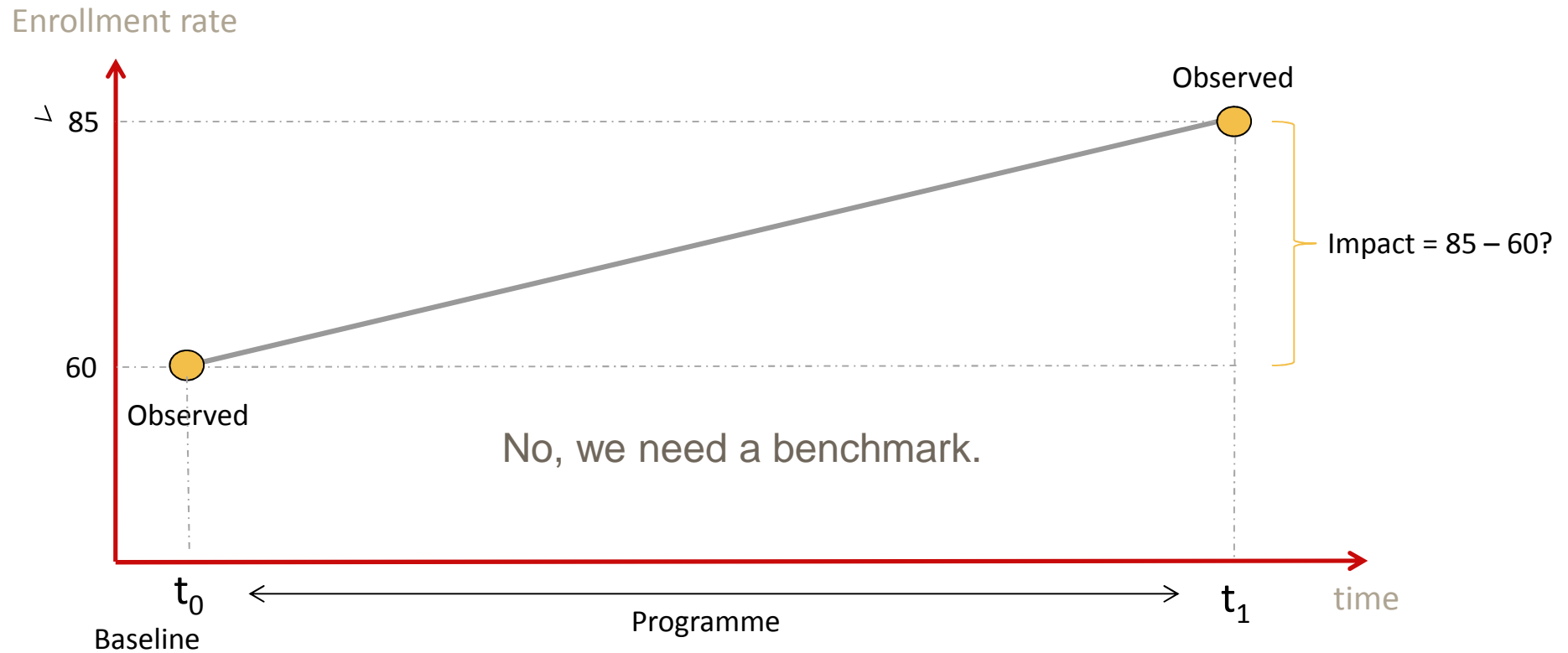
Impacts

- “Positive and negative, primary and secondary long-term effects **produced** by a development intervention, directly or indirectly, intended or unintended” (OECD/DAC)





Secondary School Enrollment Rates. Pre-Post Comparison





Impact Assessment



Family doesn't benefit: $P = 0$

Family benefits: $P = 1$

Outcome variable Y (Enrollment rate, household decision-making structure)

Every family has two “potential” outcomes:

$Y_i(0)$ if $P = 0$

$Y_i(1)$ if $P = 1$

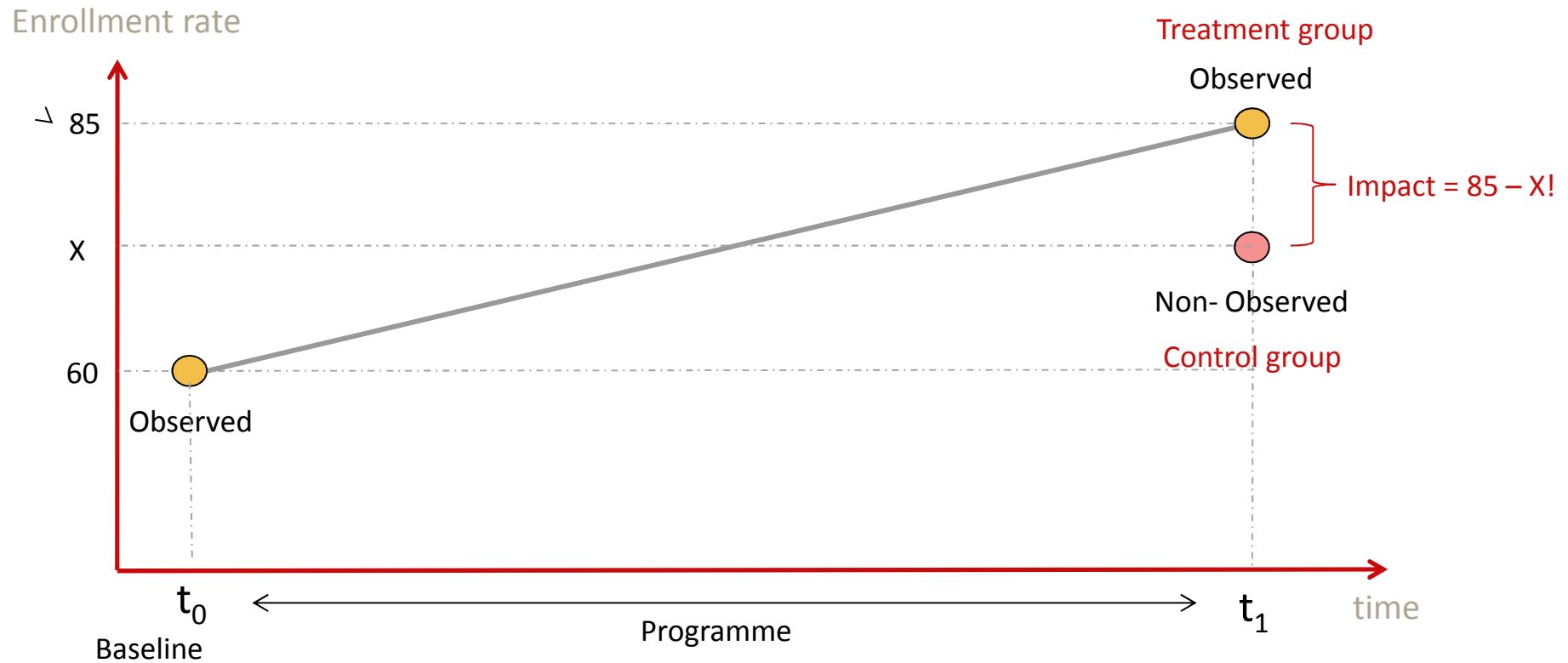
Impact is the difference between

- What happened (with the programme): $(Y|P = 1)$
- What would have happened (without the programme): $(Y|P = 0)$

Causal impact of P for family i : $\Delta_i = Y_i(1) - Y_i(0)$



The Counterfactual and a Comparison Group



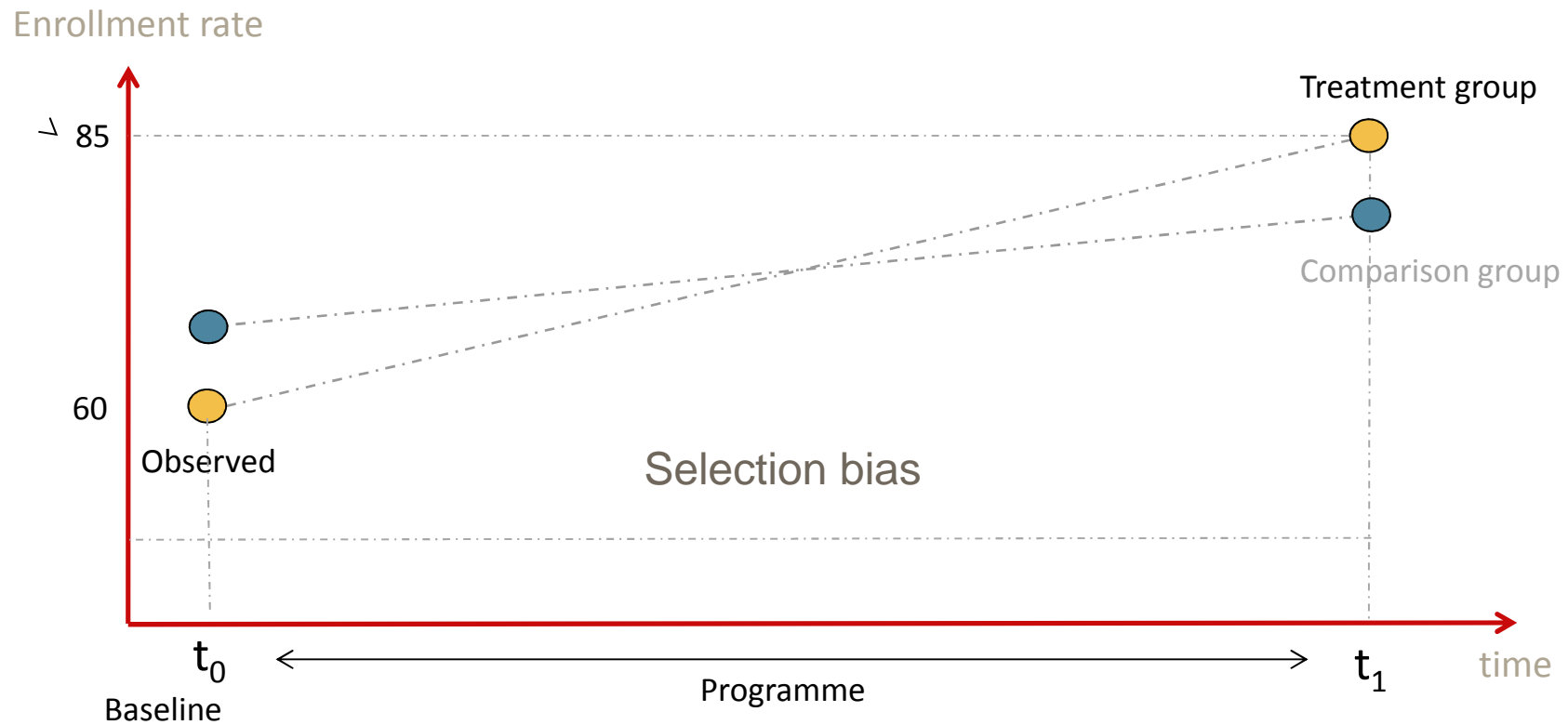


Evaluation Methods

- Pre-post Comparison
- Simple difference
- Difference-in-differences
- Statistical Matching
- Regression Discontinuity
- (Multivariate Regression)

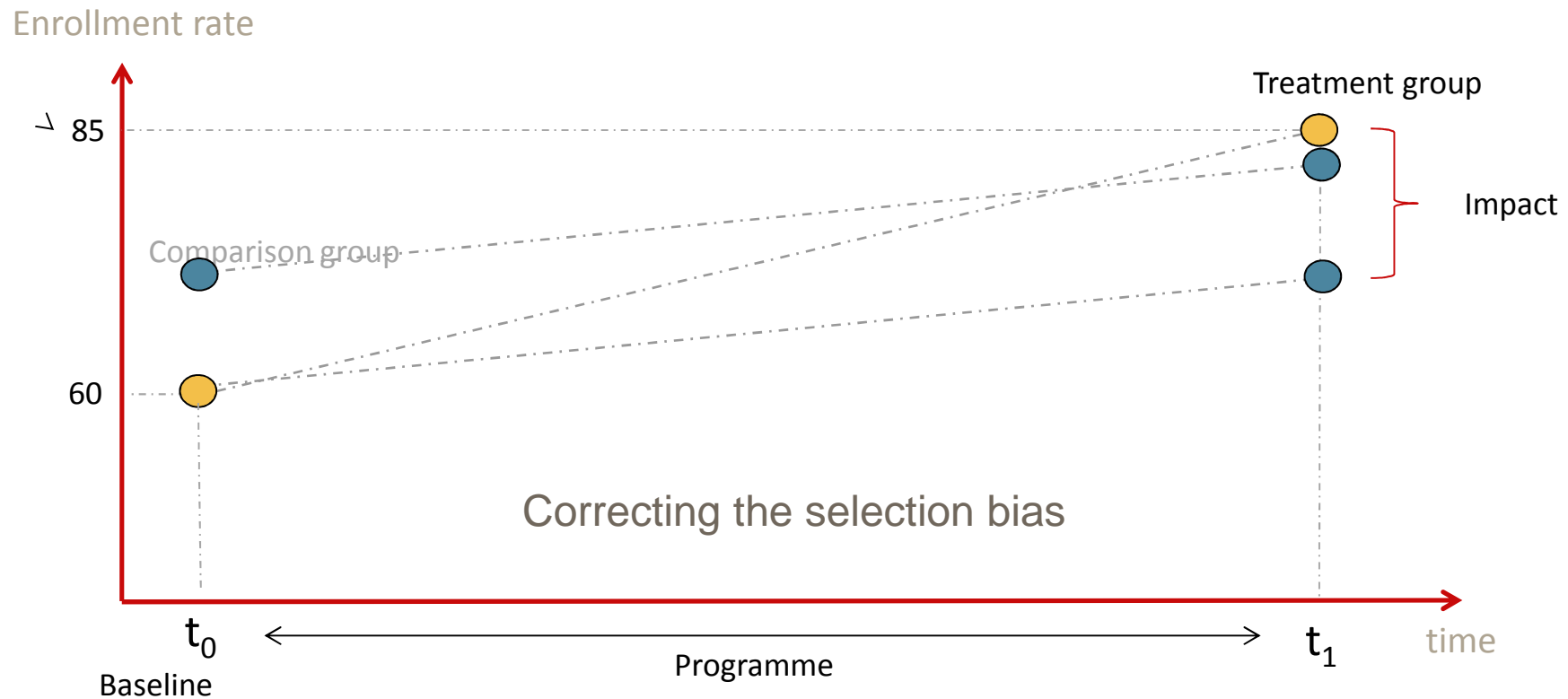


Evaluation Methods. **Simple Difference**





Evaluation Methods. Difference-in-Differences



$$\Delta^{DID} = E(Y_{i1} - Y_{i0} | P = 1) - E(Y_{i1} - Y_{i0} | P = 0)$$

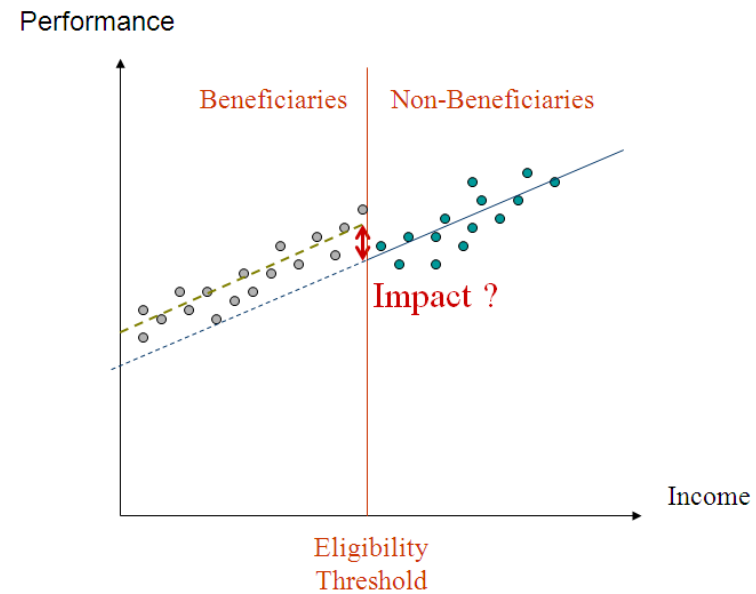
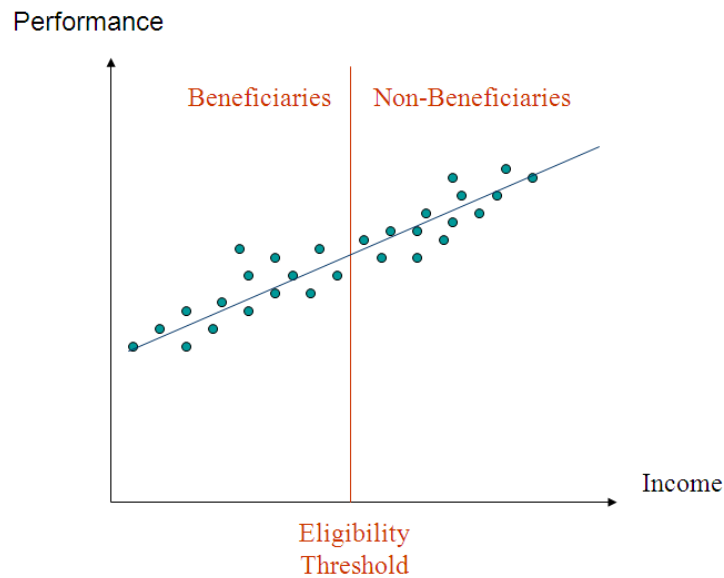


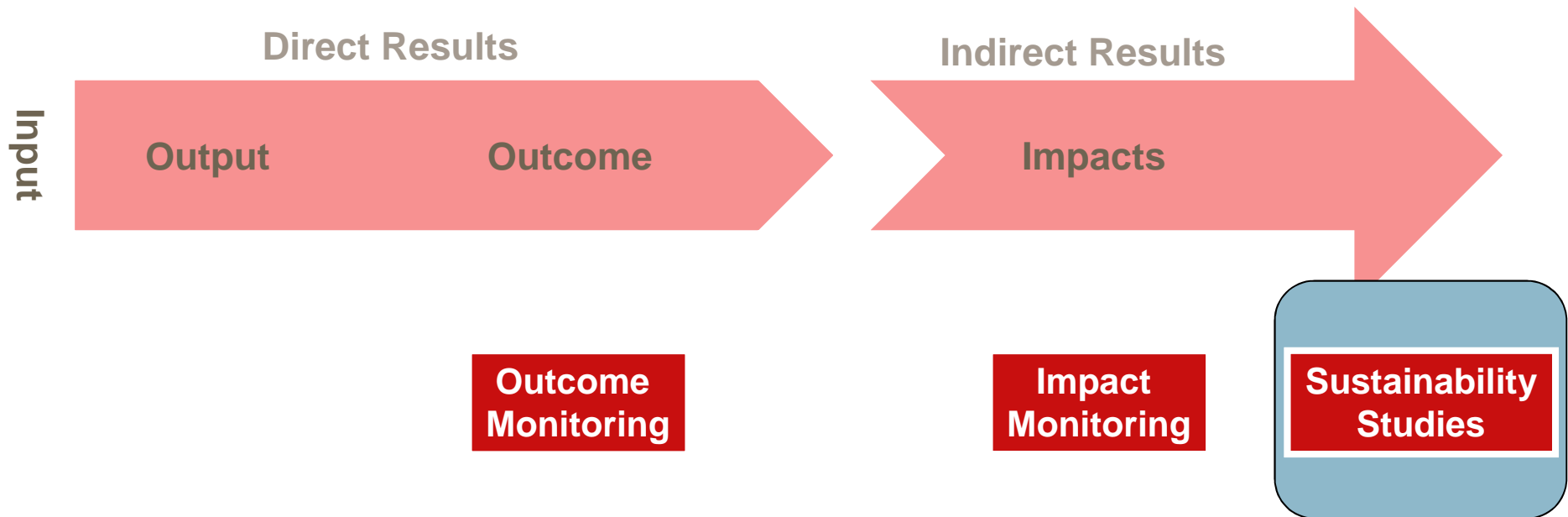
Evaluation Methods. **Statistical Matching**

Treated Households				Non-treated Households			
Male	10	Central	1	Female	12	West	1
Female	12	West	1	Female	11	South	0
Male	13	South	0	Male	10	Central	1
Male	11	Central	1	Male	11	Central	1
Female	13	East	0	Female	12	West	1
Female	10	South	1	Male	13	East	0
Male	12	West	0	Female	10	South	1



Evaluation Methods. Regression Discontinuity Design







Sustainability

Access to modern energy products and services after EnDev pull-out

Sustainability is defined as the

1. “Continuation of benefits from a development intervention after major assistance has been completed;
2. Probability of continued long term benefits;
3. Resilience to risks of the net benefit flows over time.” (OECD/DAC)



Sustainability Frameworks

- Framework for Improved Cook Stoves (HERA)
 1. Penetration rate
 2. Usage rate
 3. Maintenance rate
 4. Replacement rate
- Framework for PicoPV (HERA)
 1. Service for product repair and replacement exists
 2. Distributor and service agent can address warranty claims
 3. Service agent can repair / replace the product
 4. The user is aware of the existence of the servicing and repair infrastructure and can easily access it

Challenges

- Broadening the range of impact evaluation
 - Internal vs. external validity
 - Causality \neq explanation
 - Replication and scale-up
 - Governance, Gender, climate change, democracy, institutional development: randomization unfeasible
 - Interventions are multi-stranded
 - Broader than pure counterfactual but still robust and credible
 - Generative causalism



Challenges

Impact Evaluation

- cost of proper studies often not factored into project budget
 - baseline study
 - follow-up studies
- continuous monitoring necessary to compensate outliers (data quality)
- fine-grained impact monitoring consumes a lot of resources
- studies must be considered right from the start

Knowledge Sharing

- Public Wiki www.energypedia.info
- [Internal project wiki \(M&E\)](#)
- [Publications/Studies](#)

Report on Impacts



Empowering People


Report on Impacts

With the support of EnDev, more than ten million people have gained access to modern energy services.


www.energypedia.info
→ Impact Portal







About ? Help
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Log out



Page
Discussion

EnDev Studies Edit Actions

This page provides a comprehensive overview of studies for the **Energising Development** programme. Below you find a full list with all – finished, ongoing and planned – studies. Currently, there are 158 studies listed:

- 28 baseline studies
- 14 sustainability studies
- 8 technical studies
- 33 other studies
- 54 impact studies
- 8 PFK studies
- 10 socio-economic studies

The studies are part of a study database meaning that you can utilize

- a user-friendly **search function** as well as
- a simple database form to **add new studies**

You can also find an overview of the economic aspects in the impact studies by clicking here:

[Overview on Job Creation, Income Generation, Savings, and Gender in 26 Impact Studies](#)




EnDev Studies - Full List Edit

	Country	Year	Type	Status	Author
Sozioökonomische Wirkungen ländlicher Elektrifizierung mit Solar Home Systemen (SHS) in Bangladesch	Bangladesh	2006	impact	finished	Michael Blunck
Electricity and Sustainable Development: Impacts of Solar Home Systems in Rural Bangladesh	Bangladesh	2007	impact	finished	Michael Blunck
Productive Uses of Photovoltaic Technology in Rural Bangladesh - Potentials, Barriers, Recommendations	Bangladesh	2008	socio-economic	finished	Michael Blunck
Ex Ante Poverty Impact Assessment Improved Cook Stove (ICS) Dissemination Bangladesh	Bangladesh	2008	impact	finished	Michael Blunck

Navigation

- Main page
- Head Office
- RELEX
- EnDev Monitoring
- EnDev Countries

News



Questions for discussion

- How „scientific“ do we need to be? How „scientific“ do we want to be?
 - Can we be „half scientific“ or are there only valid and non-valid results?
- Is there sufficient funding for rigorous impact studies?
- How can we improve comparability of results across studies?



Thank you for your attention!

For further information, please visit:

- www.endev.info
- www.energypedia.info

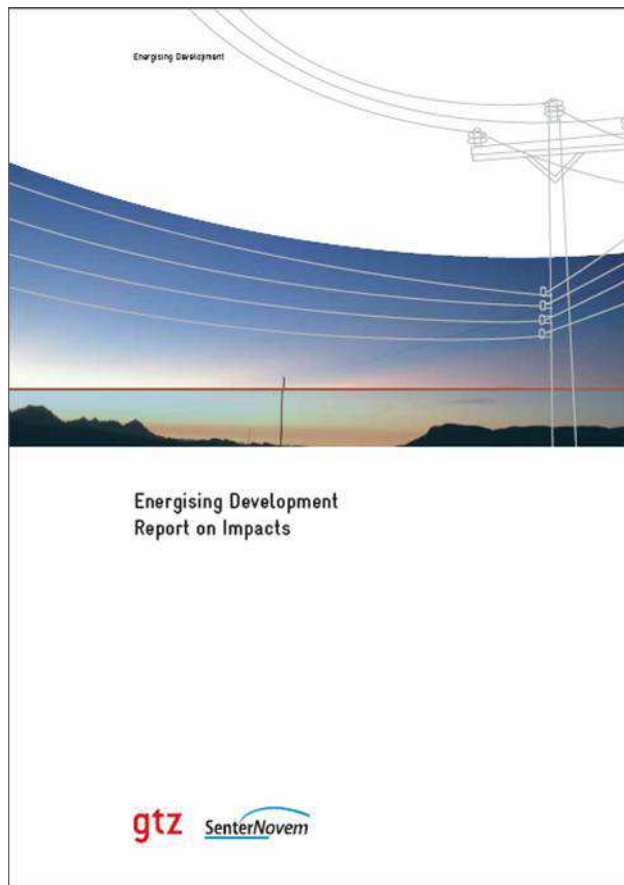
Or get in contact with us directly:

- Gunnar.Wegner@giz.de
- Oezlem.Taskin@giz.de
- Razvan.Sandru@giz.de
- Tim.Raabe@giz.de





EnDev I: Lesson Learnt Impact Assessment



- 22 Projects worldwide
- 7 Impact Assessments (incl. 2 Baseline Studies)
- Used Methods:
 - Quantitative Household Surveys
 - Focus Group Discussions
 - Participatory rural appraisal
 - Cost-Benefit-Analyses



Übung
Biosphäre Metabolismus: 10+15

	N ^o 1	N ^o 2	N ^o 3	N ^o 4	N ^o 5	N ^o 6	
JANUAR	15			05	07	03	05
		07			06		07
		03	10			04	03
		03					03
		03					05
		05	5				
		01	02				
		02	07				
		13	01				
			01				

	N ^o 2	N ^o 3	N ^o 4	N ^o 2	N ^o 3	N ^o 4
FEBRUAR	02					
		16				24
		35				

AMES - Ficha de Monitorio

Nº do Cliente: _____ Distrito: _____

Nome do Cliente: Juho Bene

Telefone/Celular: Partido

Género: M F

Número de agregados: 1

Ocupação: Partido

Localização

Altitude: _____
Posto Administrativo: Kuvulizi

Longitude: _____
Bairro/Regulado: Nhanhazi

Ponto de Referencia: ao pé da estrada

Especificação do Sistema

Painel: <input checked="" type="checkbox"/> 5 Wp <input type="checkbox"/> 10 Wp <input type="checkbox"/> 15 Wp <input type="checkbox"/> Outro: _____	Bateria: <input checked="" type="checkbox"/> 7.2 Ah <input type="checkbox"/> 15 Ah <input type="checkbox"/> 24 Ah <input type="checkbox"/> Outro: _____	Lâmpadas (LED): <input type="checkbox"/> 1W-2W X _____ <input type="checkbox"/> 3 W X _____ <input type="checkbox"/> Outro: _____ W X	Lâmpadas (12 V): <input checked="" type="checkbox"/> 11 W X _____ <input type="checkbox"/> 15 W X _____ <input type="checkbox"/> Outro: _____ W X	Lâmpadas (220 V): <input type="checkbox"/> 11 W X _____ <input type="checkbox"/> 15 W X _____ <input type="checkbox"/> Outro: _____ W X
Fichas para Radio: <input checked="" type="checkbox"/> Sim <input type="checkbox"/> Não	Carregador do Celular: <input type="checkbox"/> Sim <input checked="" type="checkbox"/> Não	Controlador de Carga: <input type="checkbox"/> Sim (____ A) <input checked="" type="checkbox"/> Não	Inversor: <input type="checkbox"/> 120 W <input type="checkbox"/> 150 W <input type="checkbox"/> Outro: _____ W	

Compra do Sistema

Custo do Sistema: _____ Mt	Posto da Venda:	Pagamento do Crédito:
Como Pagou: <input type="checkbox"/> Pronto Pagamento <input type="checkbox"/> Crédito (Individual) <input type="checkbox"/> Crédito (Grupo de Poupança)	Termos do Crédito: 1. Prestação: <u>500,00</u> Mt 2. Prestação: _____ Mt 3. Prestação: _____ Mt	1. Pagamento: _____ Mt 2. Pagamento: _____ Mt 3. Pagamento: _____ Mt

Usos do Sistema

Uso	Nº dos Beneficiários	Comentários
Uso doméstico: <input checked="" type="checkbox"/> Iluminação <input type="checkbox"/> Electrodomésticos:	<u>3</u>	
Uso produtivo: <input checked="" type="checkbox"/> Iluminação de negócio <input type="checkbox"/> Serviços: <input type="checkbox"/> Carrega bateria <input type="checkbox"/> Carrega celular <input type="checkbox"/> Outro:		

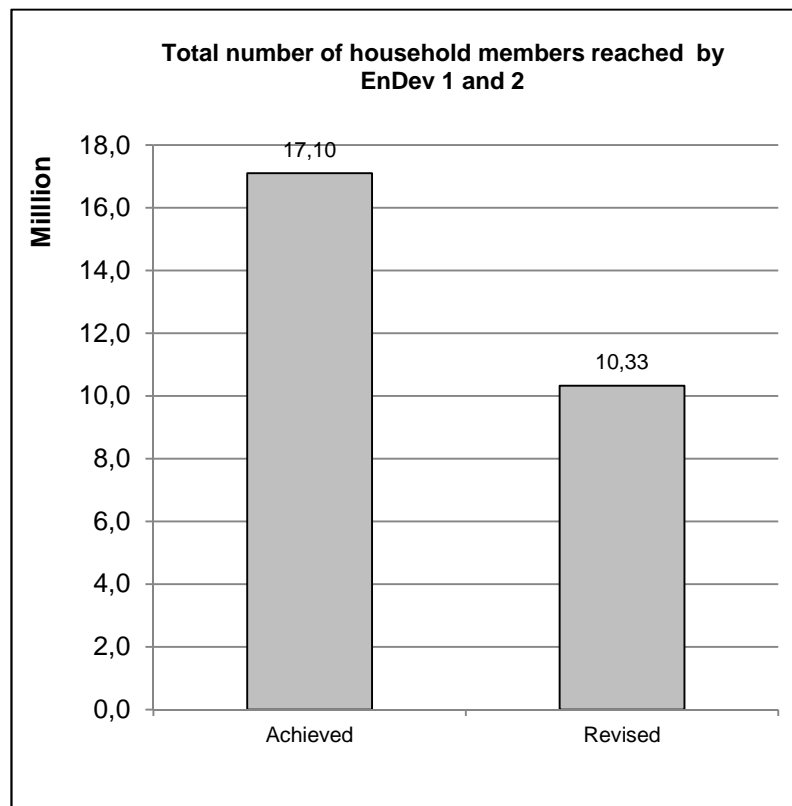
Entrega Sistema: Data 23/11/2008

Jacinto Vardinho
Assinatura do Técnico / Agente

ellenschaft
nate
eit (GIZ) GmbH



Household members reached



Reached

- Reported persons of the country measures
- (Rules for measuring outcomes)

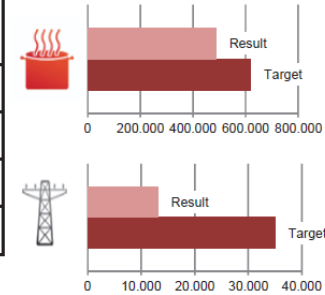
Revised

- Sustainability adjustment factor
- Windfall gain factor
- Double energy factor



Outcome monitoring

	Target (project end)	Result (reporting date)	Position within EnDev 2	Contribution on to EnDev 2
Improved Cooking for Households (n° of persons)	620.000	487.840	4 / 13	7,3%
Electrification for Households (n° of persons)	35.000	13.146	9 / 18	0,9%
Energy for Social Infrastructure (n° of SIs)	450	542	4 / 16	7,0%
Energy for Productive Use (n° of SMEs)	1.000	1.883	4 / 16	11,4%



Impact monitoring

Off-grid Rural Electrification and Fighting Poverty

A Comparative Impact Assessment of Solar Home Systems and Small Solar Home Systems in Rural Bangladesh

Sustainability Assessment 2012/2013

Sustainability studies

Improved Cookstoves in Kenya

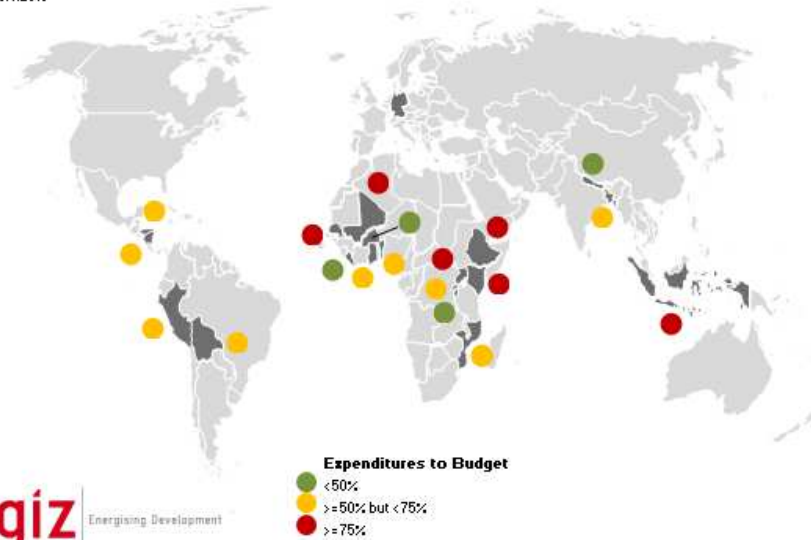
- To what extent has a sustainable market been established? -



Monitoring Tool

- 24 Country Projects
- Outcome Expenditures
- Cost per beneficiary
- Cost per beneficiary and technology
- Project Cost Estimations

EnDev Monitoring Tool
30.4.2013



Bangladesh

Outcome (in thousand)

Target Outcome	1420
Absolute Outcome	1277
Adjusted Outcome	797
Target achievement	90%

Impacts

Funding (TEUR) 8.850

Expenditures (TEUR)

Expenditures until 4/2013	5.688
Expenditures in 2013	1.118

Trend until 12/2012:



Outcome	EnDev 2: 8.151.551	Revised Outcome by Technology (thousand)	Outcome / Revised Outcome
EnDev 1 and 2: 17.102.748	Electrification: 483, 606, 47	Cooking: 10, 4.187	Electrification: 18%, 21%
Revised EnDev 2: 5.314.077	EnDev 1 and 2: 10.326.449		82%, 79%

Cost-Efficiency EnDev 1-2 Electrification (Revised)

Nepal	5,35
Bangladesh	8,75
Peru	11,98
Bolivia	14,74
Mozambique	55,27

Expenditures	Expenditures 2012: 6.357	Prognose Total Expenditures EnDev 1 + 2	Funding Funding by Regions
Expenditures current Month: 2.710	Trend Expenditures 2013: 21.793	Goal, Prognose, Expenditures	Africa: 23%, Asia: 21%, Latin America: 56%

Cost-Efficiency EnDev 1-2 Cooking (Revised)

Kenya	1,41
Burkina Faso	3,45
Bangladesh	5,71
Burundi	7,54
Benin stoves	7,57