

Meta-Evaluation for Climate Change Mitigation Evaluations in the Energy Sector: A Theory of No Change

Presentation

Climate Evaluation Community of Practice

Webinar Series

Dr. Christine Wörten

Objective of this talk

Present the research approach and preliminary results for a meta-evaluation of climate mitigation evaluations

Drawn from the evaluations library of the
Climate Change Evaluations Community of Practice

www.climate-eval.org

Outline

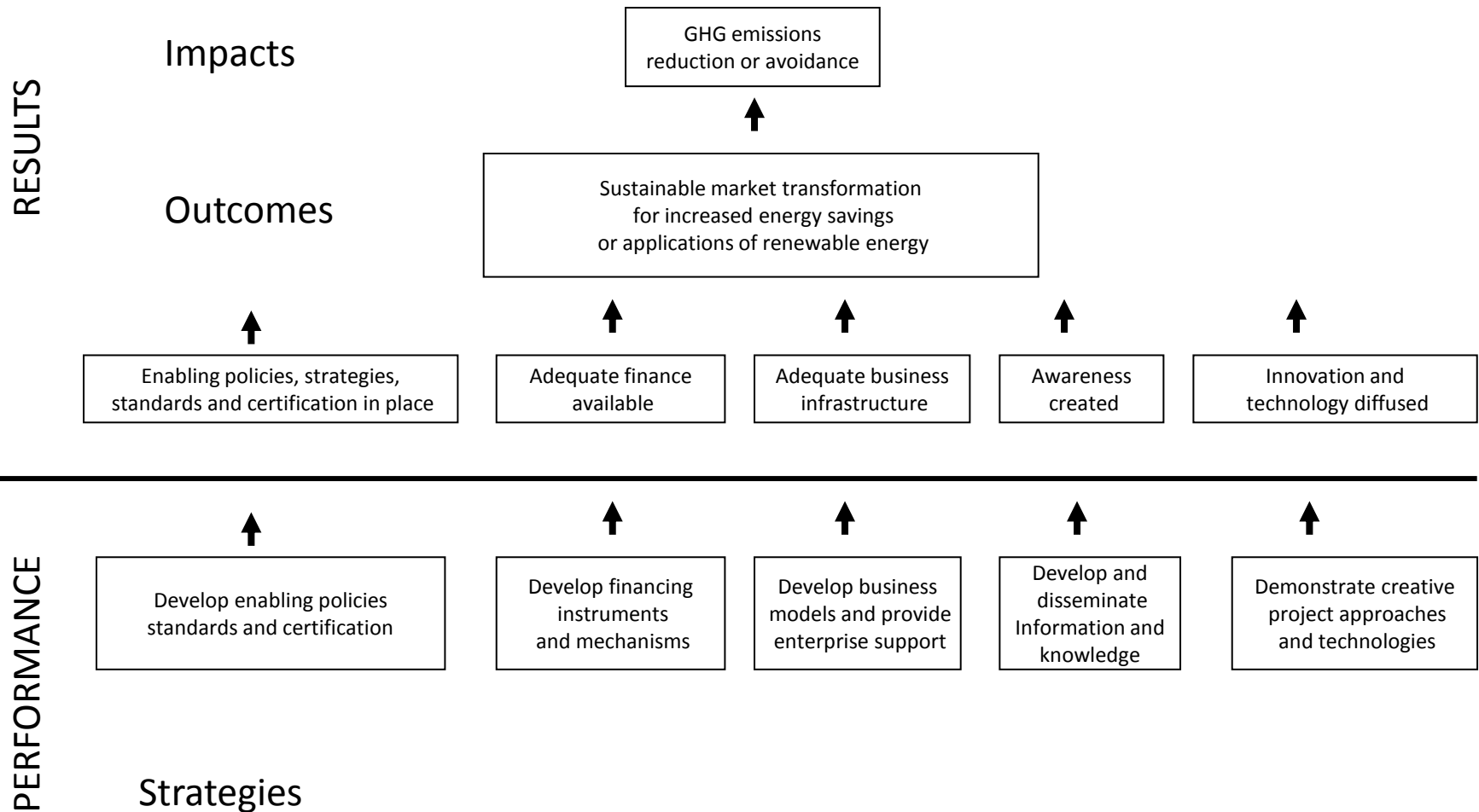
- Standard challenges of climate mitigation evaluations
- A Framework Theory of Change for CC Mitigation Interventions
- Example: Thailand
- Discussion and outlook, further research needs

Typical climate change mitigation evaluation challenges (I)

- Dual objective: GHG-emissions reduction together with economic development (→ indicator and measurement challenges)
- Baseline issues: what would have happened if nothing would have happened? Counterfactual can be very difficult.
- Objective is typically removed from project by several logical steps; as
- Interventions target changes in behaviour (investment, utilization) of GHG emitting actors and their supply chain (→ program theory / evaluation framework challenges)

Evaluation Framework (Tokle and Uitto (2009))

Evaluation framework



Typical climate change mitigation evaluation challenges (II)

- Not only one group of stakeholders plays a role in achieving that result, but a whole sector; consisting of users, suppliers, financiers and policy .
- But: many climate mitigation interventions affect only one group of stakeholders (e.g. users OR supply chain OR policy makers OR financiers).
- Typically, not only one intervention affects the GHG-emitting system.
- Issues with attribution and context complicate „usual“ measurement challenges – even for the evaluation of a single awareness or capacity building measure, the context and other initiatives need to be taken into account.

Evaluation of mitigation interventions requires...

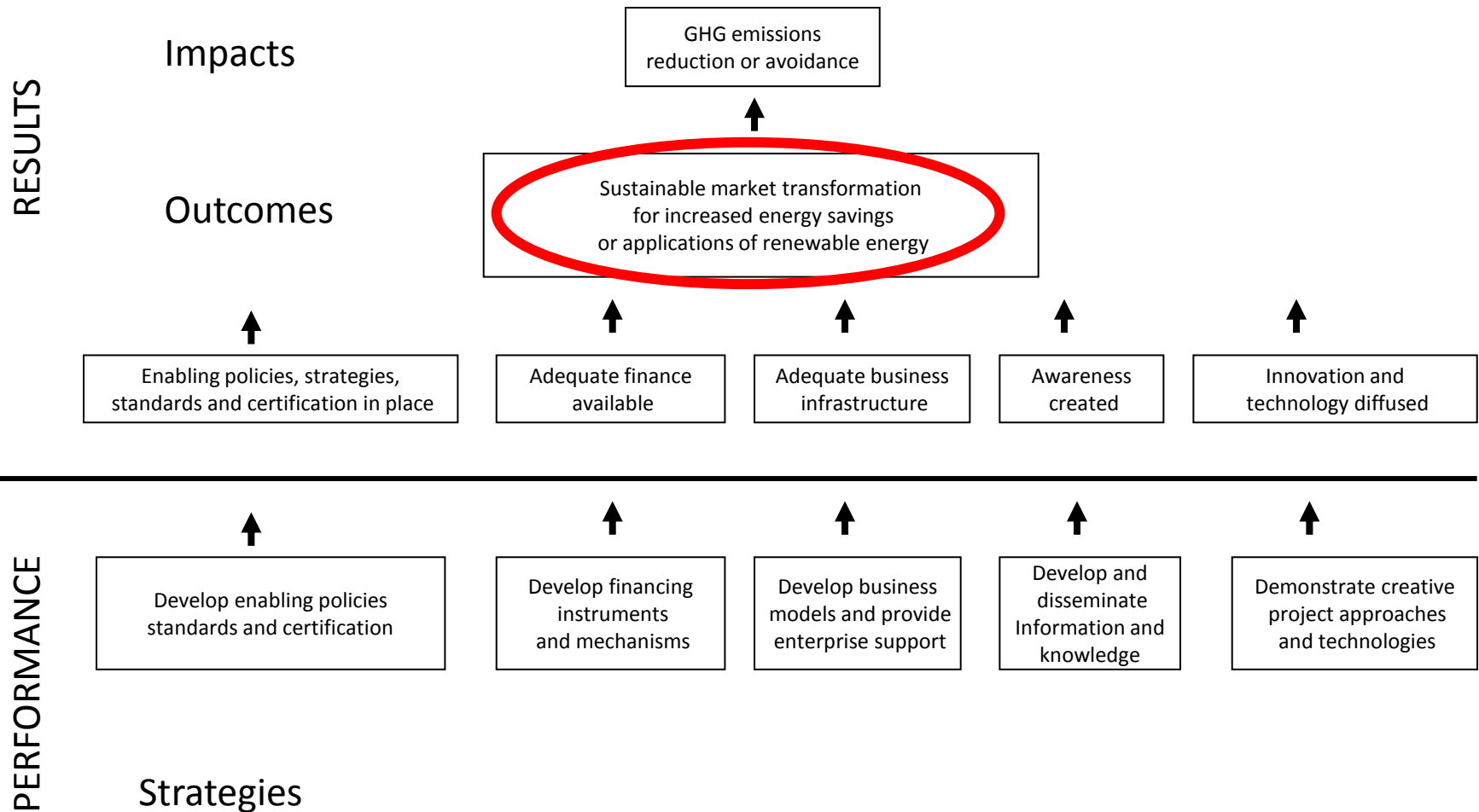
- ...a clarification of attributability. For this we need...
 - ...an analysis of context
 - ...a theory of change that accounts for multiple stakeholders and multiple barriers / necessary preconditions,
 - in order to derive appropriate outcome indicators
 - and weigh the relative importance of interventions.
-
- (NB: all of this is also very helpful when designing or monitoring projects...)

Keep developing Framework Theory of Change so that it will be able to :

- Reproduce „complete“ theory of change – not just the groups / capacities / factors / aspects that are the subject of the project**
- Reflect sectoral context in a complete but „lean“ manner**
- Reflect relative importance of impeding / supportive factors for intervention results**
- Allow for the development of (outcome) indicators across stakeholders and interventions and GHG savings potentials**
- Be flexible and comprehensive at the same time so that explanatory value is optimized**
- High explanatory value (tested on a significant number of case studies) enhances predictive value for project, program and policy design**

Evaluation Framework (Tokle and Uitto (2009))

Evaluation framework

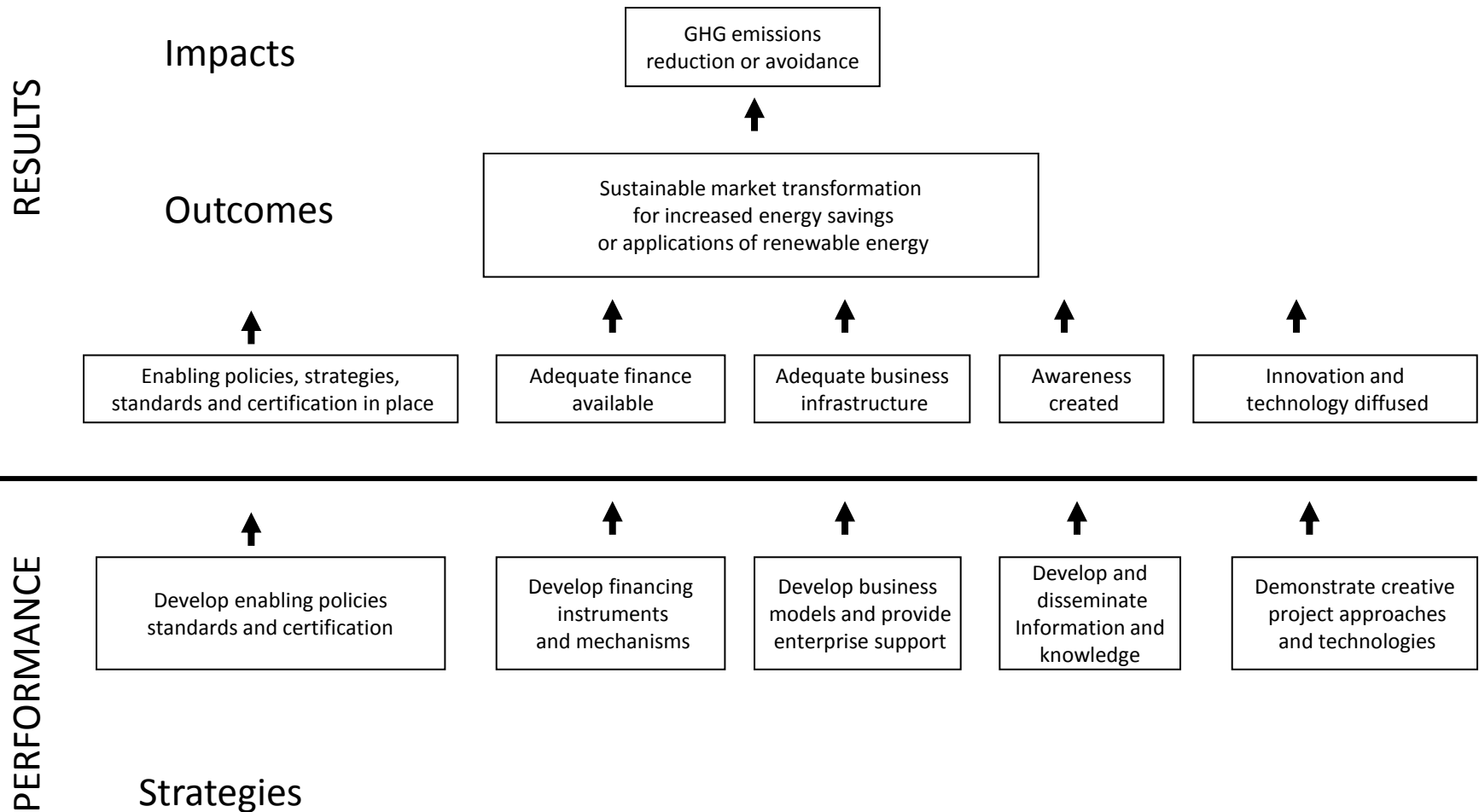


The concept of „market transformation“

- „Market transformation“ in the traditional sense is associated with labeling energy efficient products (e.g. light bulbs). The market for products is changed through consumer choices (information, sometimes rebates, standards). Typically market transformation creates economic opportunity so that it aligns economic development with GHG abatement.
- For building a sectoral Theory Of Change, we start with energy efficient products market transformation, and identify the potential barriers that impede this transformation. Later on, we will expand it to other mitigation opportunities and the associated interventions.
- The leading question is „Why is the energy-efficient product not being used already?“ (hence „Theory of No Change“...)

Evaluation Framework (Tokle and Uitto (2009))

Evaluation framework

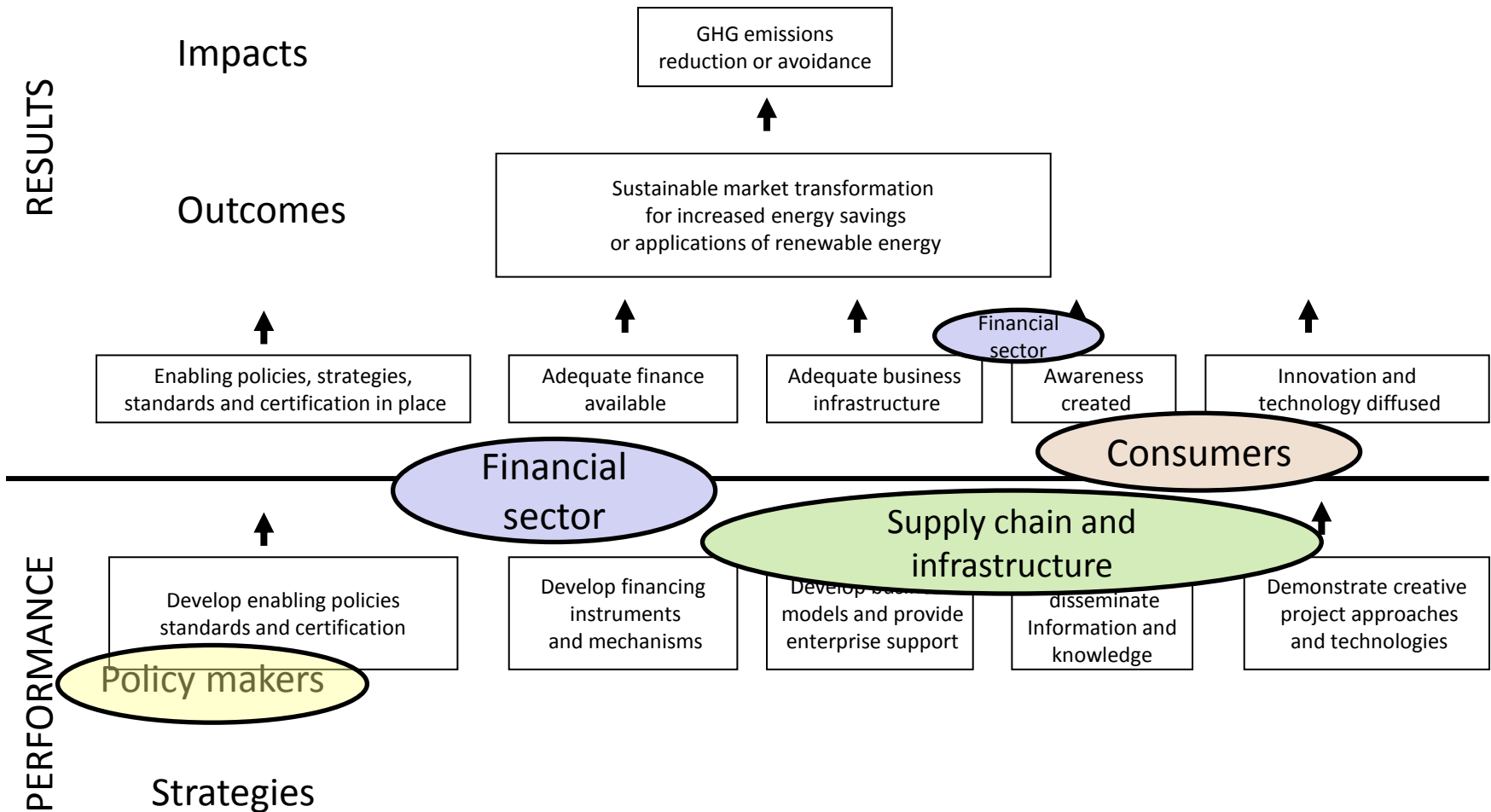


Important Stakeholder Groups

- Users of GHG-emitting equipment
- Suppliers of GHG-emitting equipment
- Financiers (for equipment that needs loan financing and for financing new production processes)
- Policy makers: need to state political will, identify targets, set political framework conditions

Evaluation Framework (Tokle and Uitto (2009))

Evaluation framework



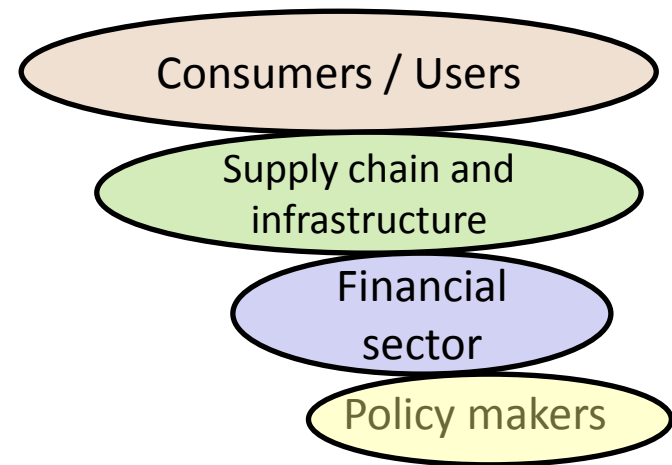
Typical project strategies and the associated barriers

- Information campaigns
- Incentives (financial / nonfinancial)
- Buildup of infrastructure
- Capacity building
- Business model development and demonstration
- Reduce cost (economies of scale, economies of scope, subsidies)
- Make financing available
- IGNORANCE,
- LACK OF MOTIVATION,
- LACK OF ACCESS;
- LACK OF EXPERTISE;
- LACK OF BUSINESS MODELS,
- LACK OF COST EFFECTIVENESS;
- LACK OF AFFORDABILITY

Theory of No Change: Barriers to energy-efficiency behavior

- IGNORANCE,
- LACK OF MOTIVATION,
- LACK OF ACCESS;
- LACK OF EXPERTISE;
- LACK OF BUSINESS MODELS,
- LACK OF COST EFFECTIVENESS;
- LACK OF AFFORDABILITY

Not the same for each
group of market participant.



Potential barriers to market transformation and intervention strategies (expansion of Tokle/Uitto)

GHG emission reduction / reduced climate change impact

Overarching objective

Market transformation from GHG-emitting to GHG non-emitting behavior

- motivation
- awareness
- expertise
- affordability

- awareness
- expertise
- affordability
- Business model

- awareness
- expertise
- access
- business model
- cost effectiveness
- affordability

- awareness
- motivation
- expertise
- access
- cost effectiveness
- affordability

Necessary precondition for MT and immediate outcome of intervention

Policy makers

Financial sector

Supply chain and infrastructure

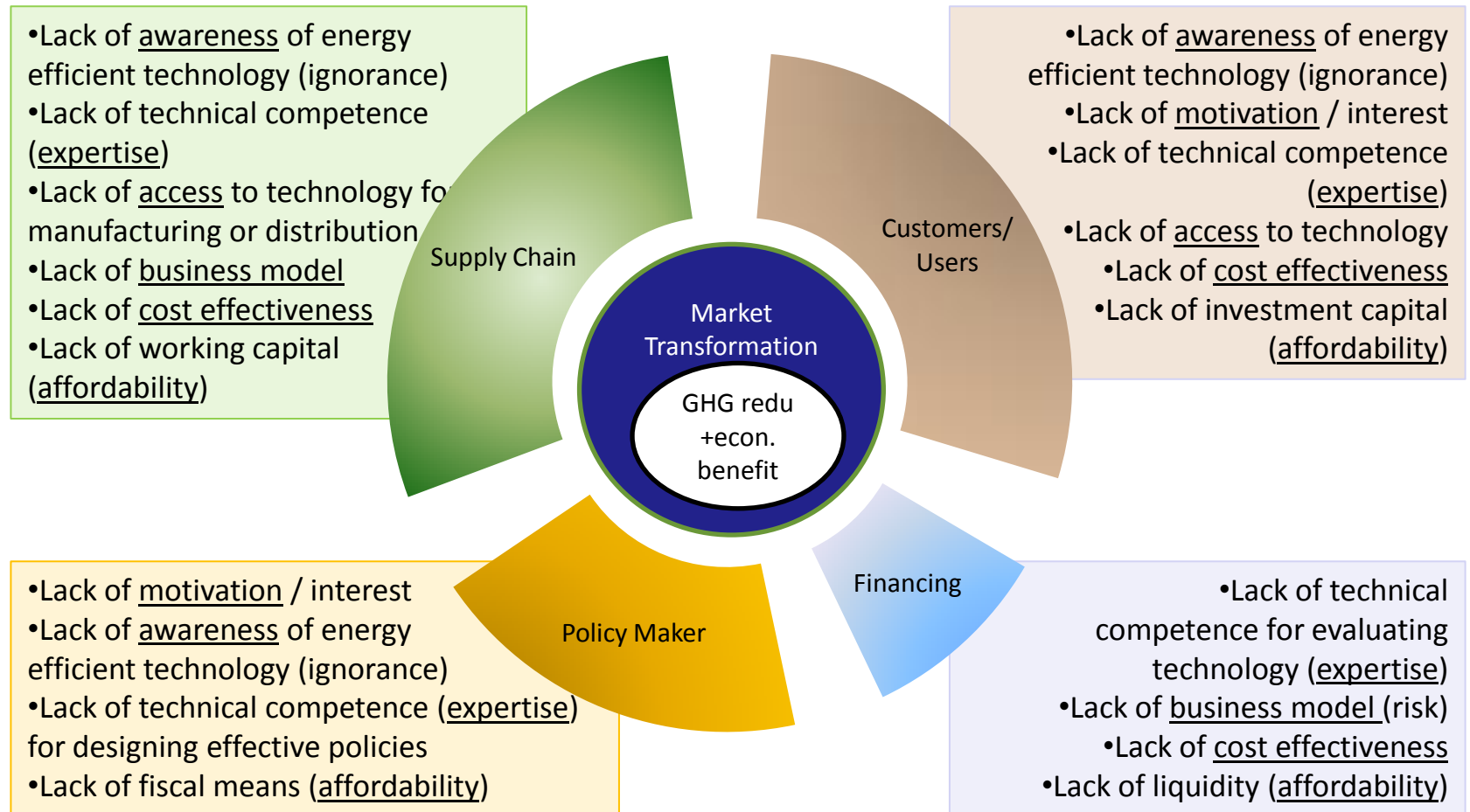
Consumers / users

Stakeholder Group

	Develop and disseminate information and knowledge for awareness	
	Technical training	
	Financial assistance (investment subsidies, loans, financial risk guarantees)	
	Provision of external advice and best practice models	
	Develop enabling policies standards and certification	
	Develop locally adapted solutions (business models, contractual arrangements, technologies)	

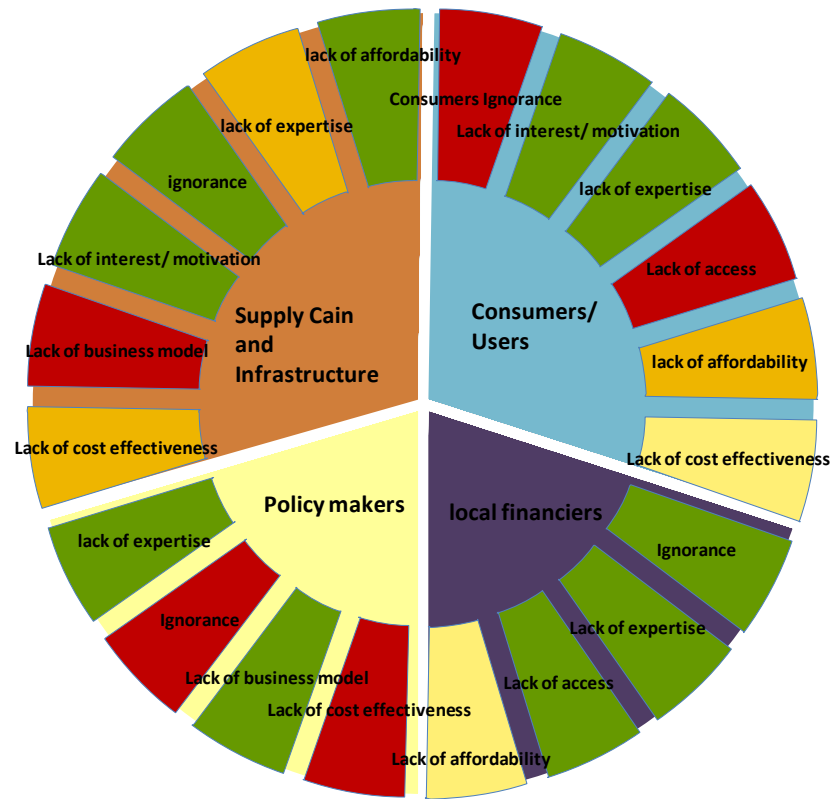
Barrier Removal Strategies (sel)

Stakeholder and potential barriers to market transformation (circular display)

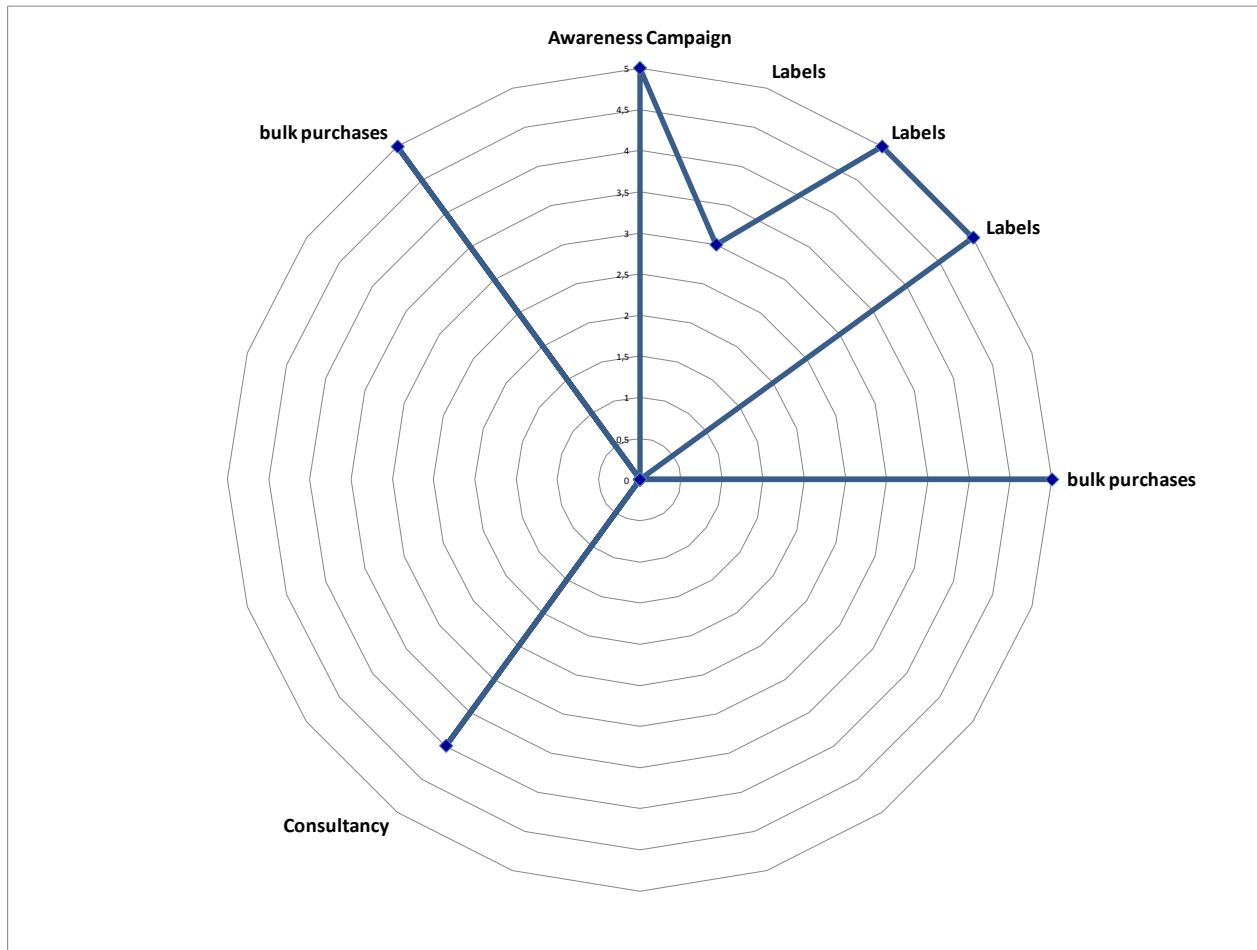


Simplification: leave off inner two circles (intermediate and ultimate objectives)

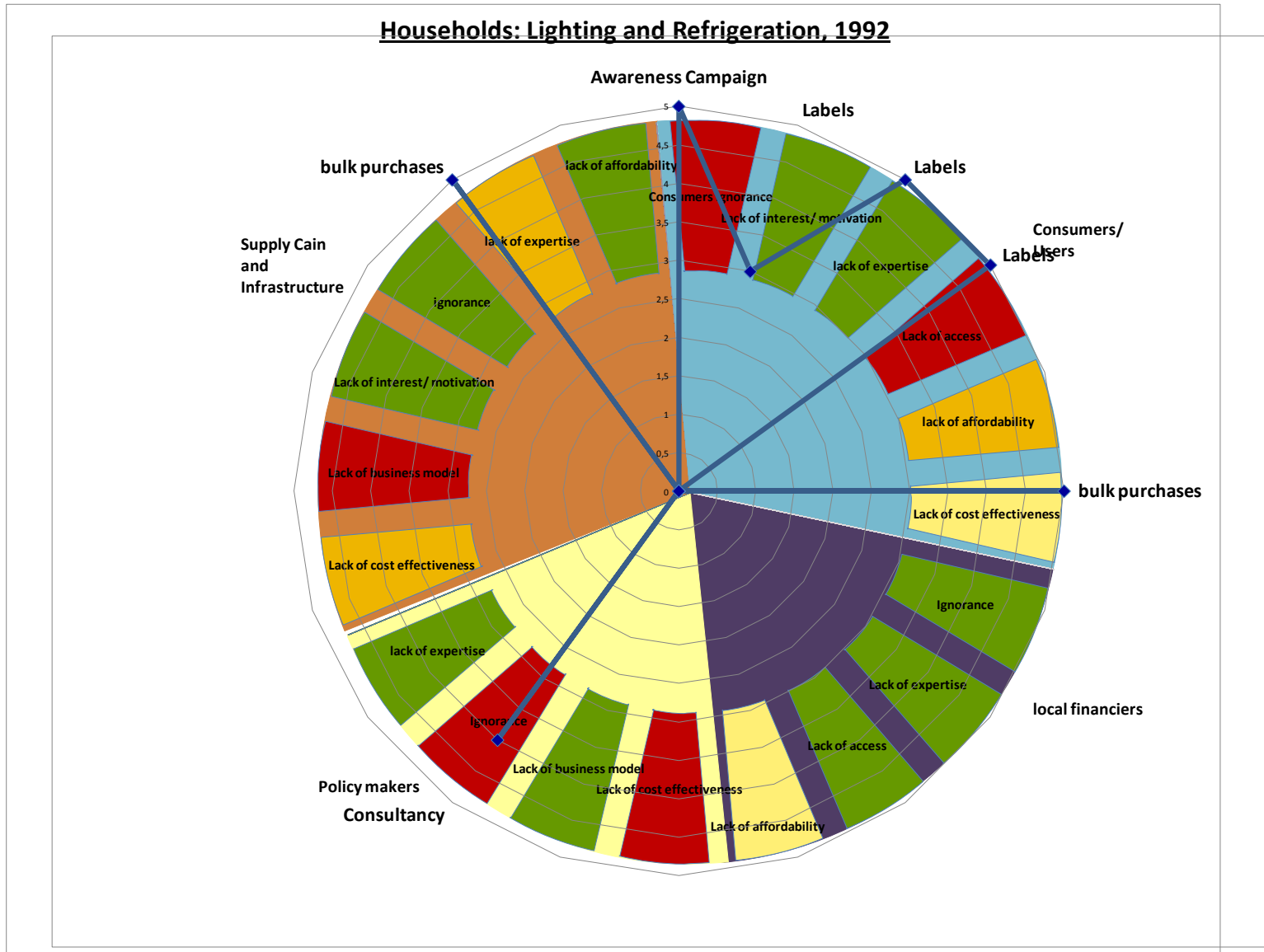
Households: Lighting and Refrigeration, 1992



Project strategies can be aligned with the respective barriers.



TONC-Circle and Barrier Removal Strategies



Approach of this study

- Test Theory of Non-Change (TONC) on a set of climate mitigation interventions from one sector (e.g. energy efficient products)
- Refine TONC, clarify terminology and barrier-strategy couples
- Test on other sectors
- ...to develop generalized Sector Transformation TOC
- (Develop indicators for the barriers. As barrier removal is the result of the project, these can also be the result indicators for market transformation interventions.)

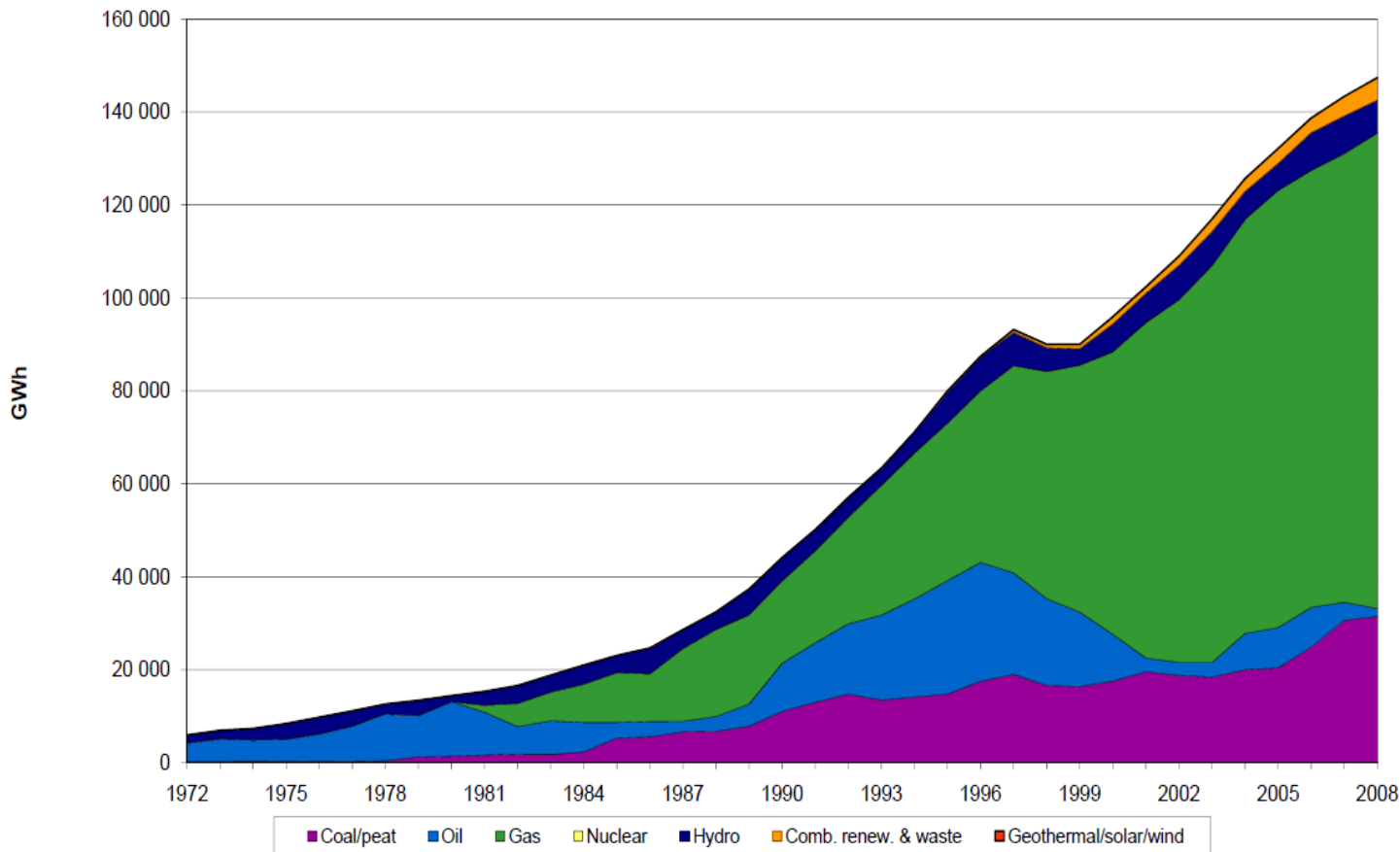
NB: Evaluation studies are the only possible source for this type of analysis. However, due to the variations in evaluation questions and other factors, not all of them are equally useful for this analysis.

Testing the TONC: Market Transformation through Demand Side Management in Thailand since 1992

- Thai economy: 10.6% annual growth between 1986 and 1995
- Energy demand increased in step
- Potential energy supply shortages threaten to dampen economic growth and development

Electricity generation by fuel

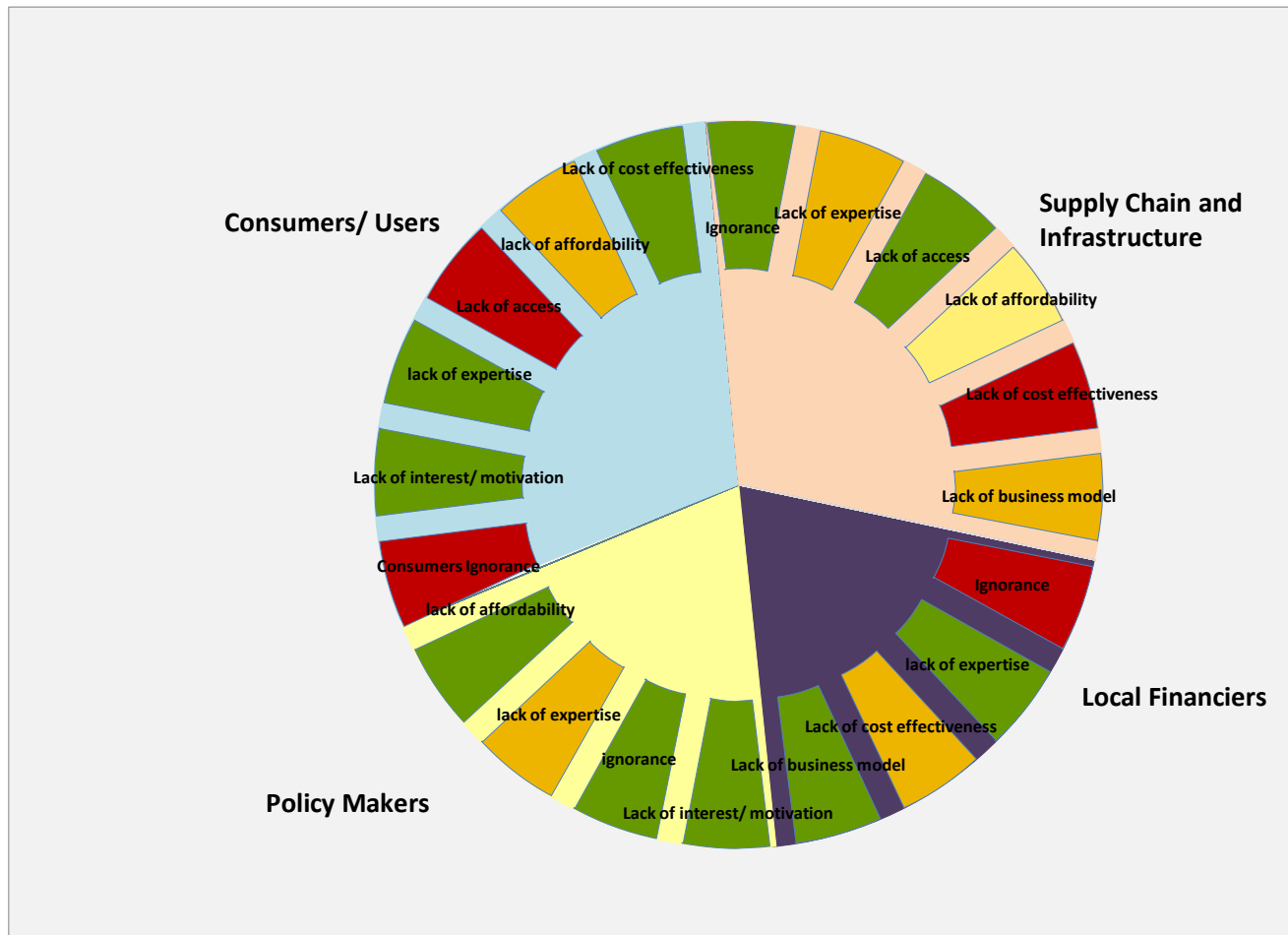
Thailand



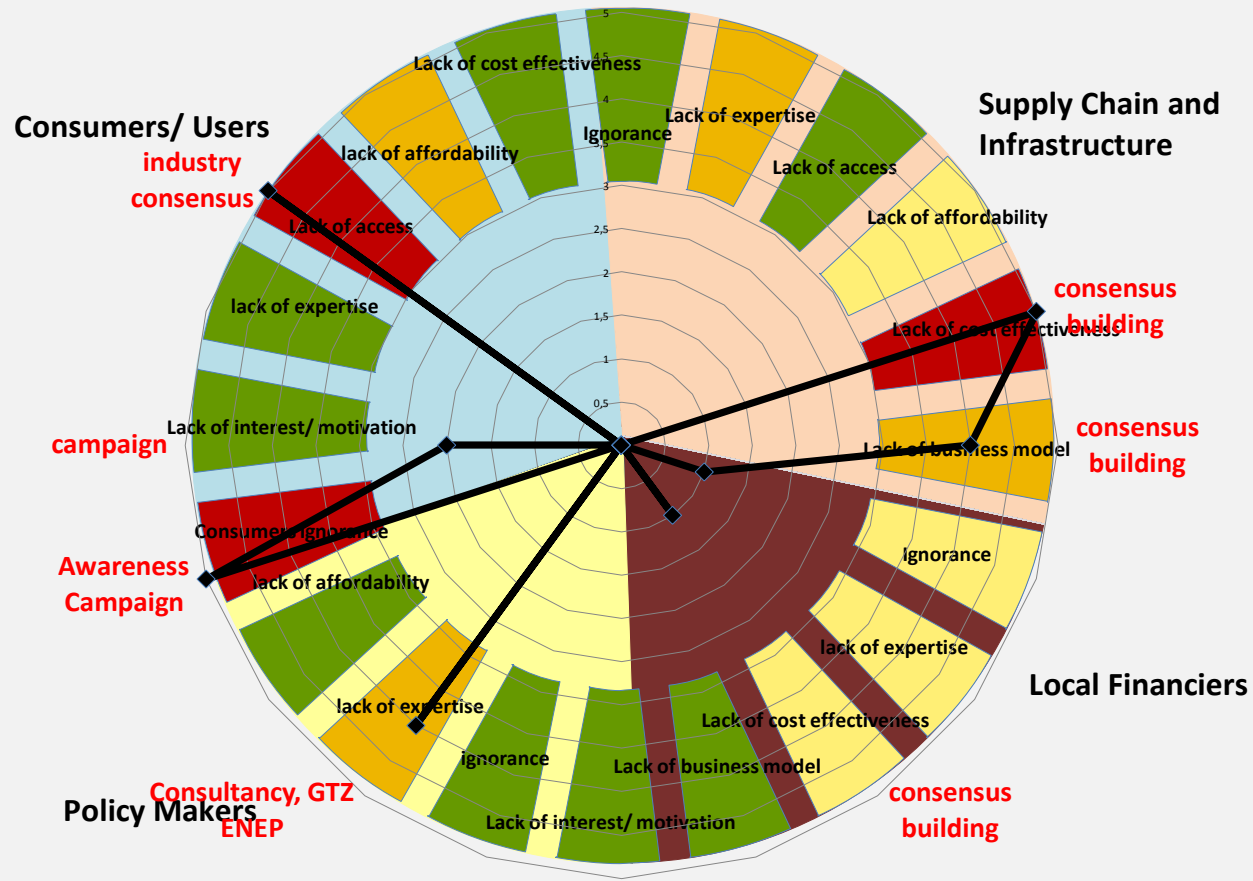
Testing the TONC: Market Transformation through Demand Side Management in Thailand since 1992

- Demand Side Management in order to mitigate potentially impending energy shortage
- In 1992: Energy Conservation Law with obligatory energy reporting for large consumers and other (softer) measures, in particular in the area of market transformation and demand side management.
- We look at 3 groups of cases:
 - **energy efficient lighting (T-8 and CFLs)**
 - **appliances in households (refrigerators, AC units)**
 - **energy efficiency in industrial and commercial facilities**
- Test Question: can the model reflect market transformation successes and failures?

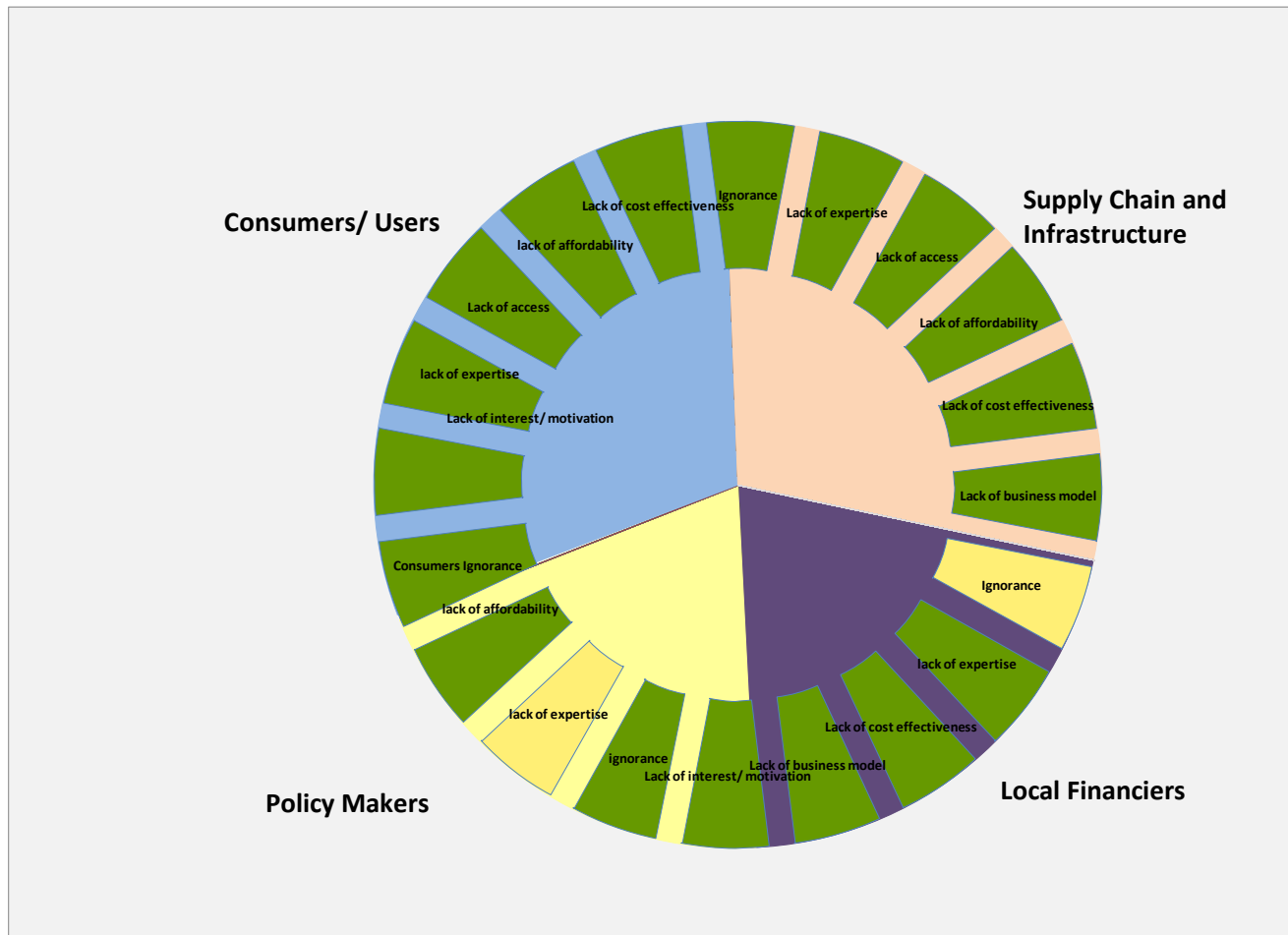
Market barrier circle for efficient T8 light tubes in Mid 1990s (Na Phuket; WB Post-IA)



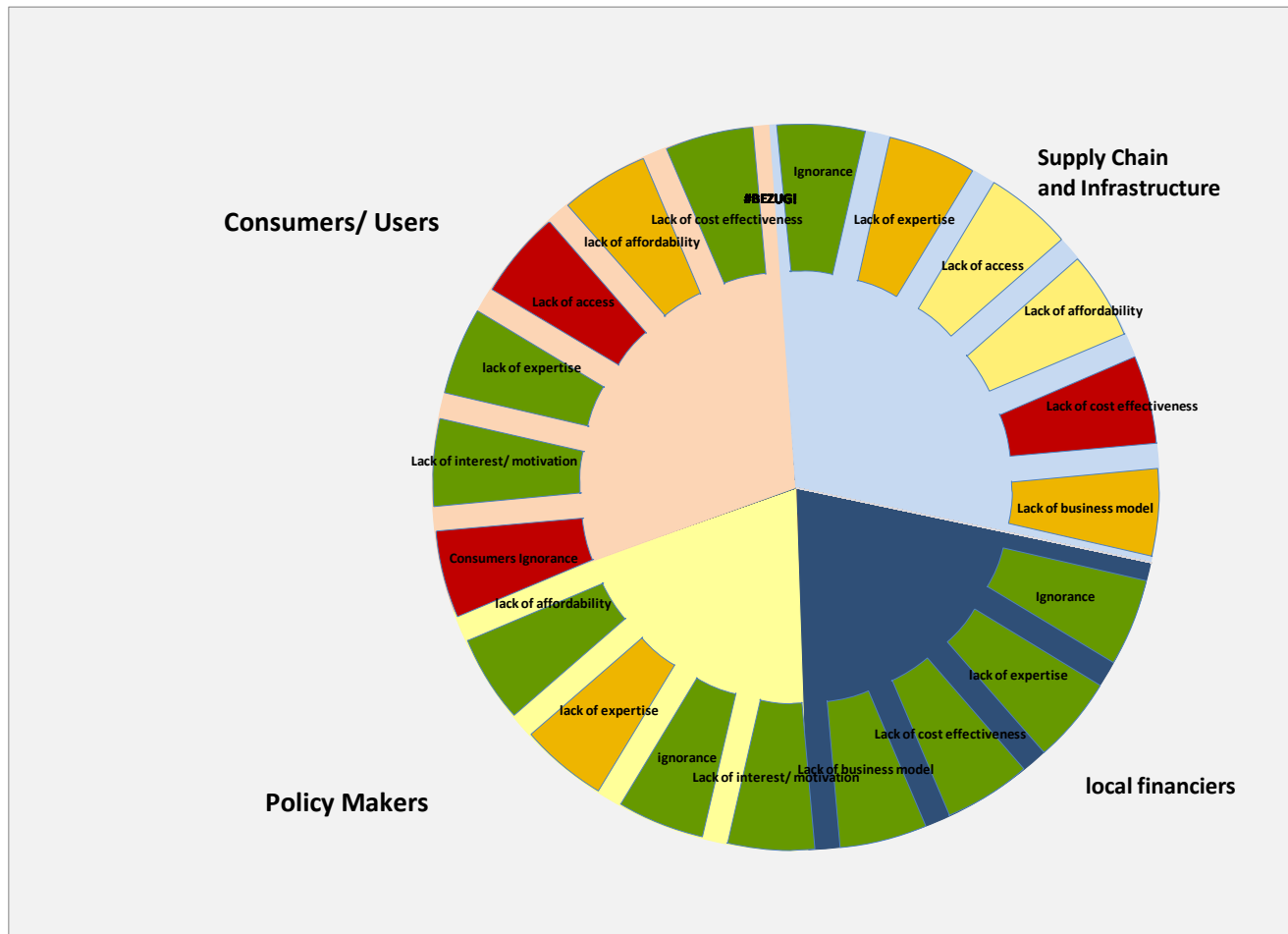
WB DSM + GTZ project activities for T8 light tubes (Na Phuket, Sulyma, WB)



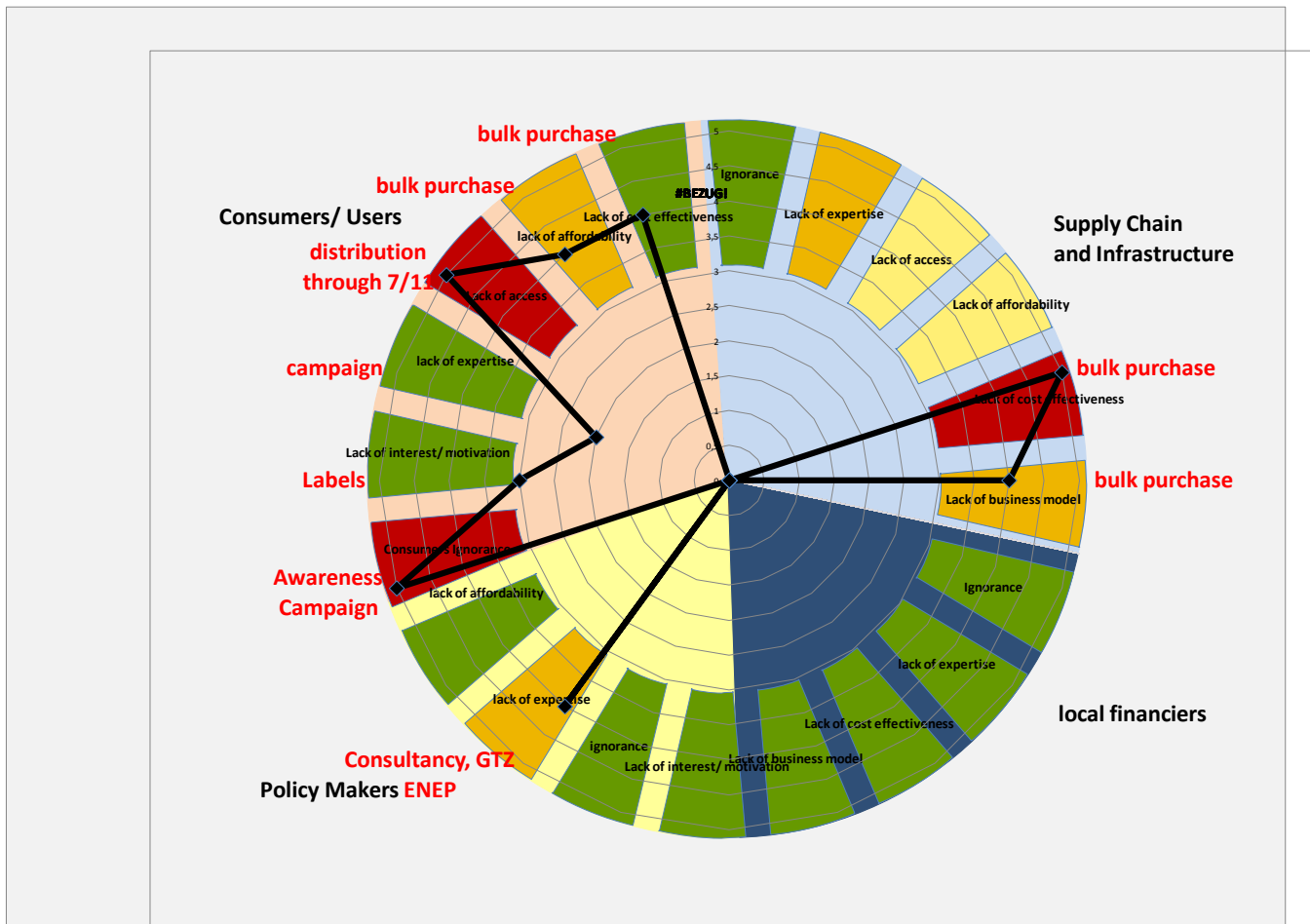
T8 market after DSM Project in 2000 (WB evaluations)



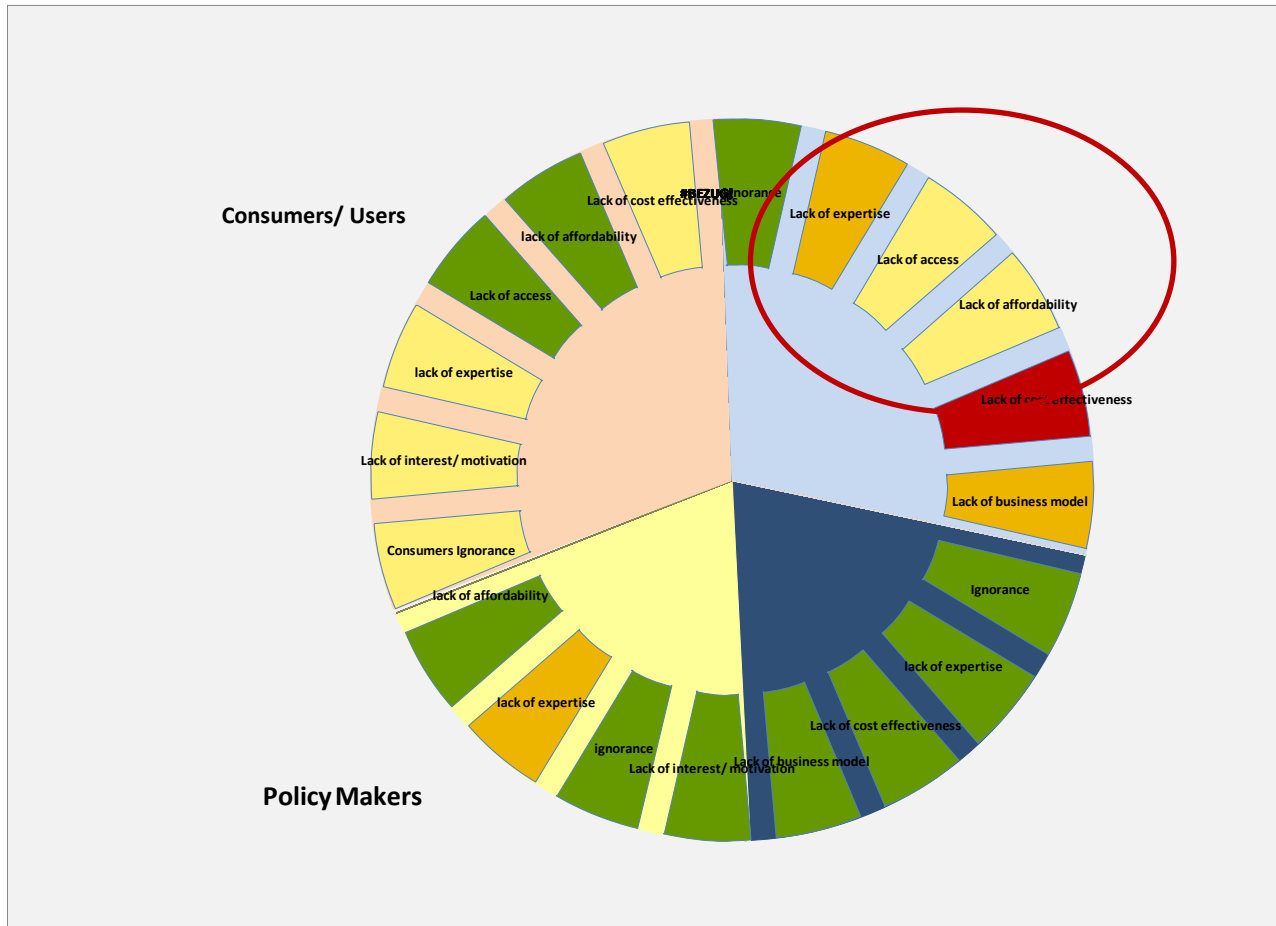
2nd example in lighting: compact fluorescent lamps (CFL) in the Mid 1990s (Na Phuket; WB Post-IA)



Project approach for introducing CFL (Na Phuket; WB Post-IA)

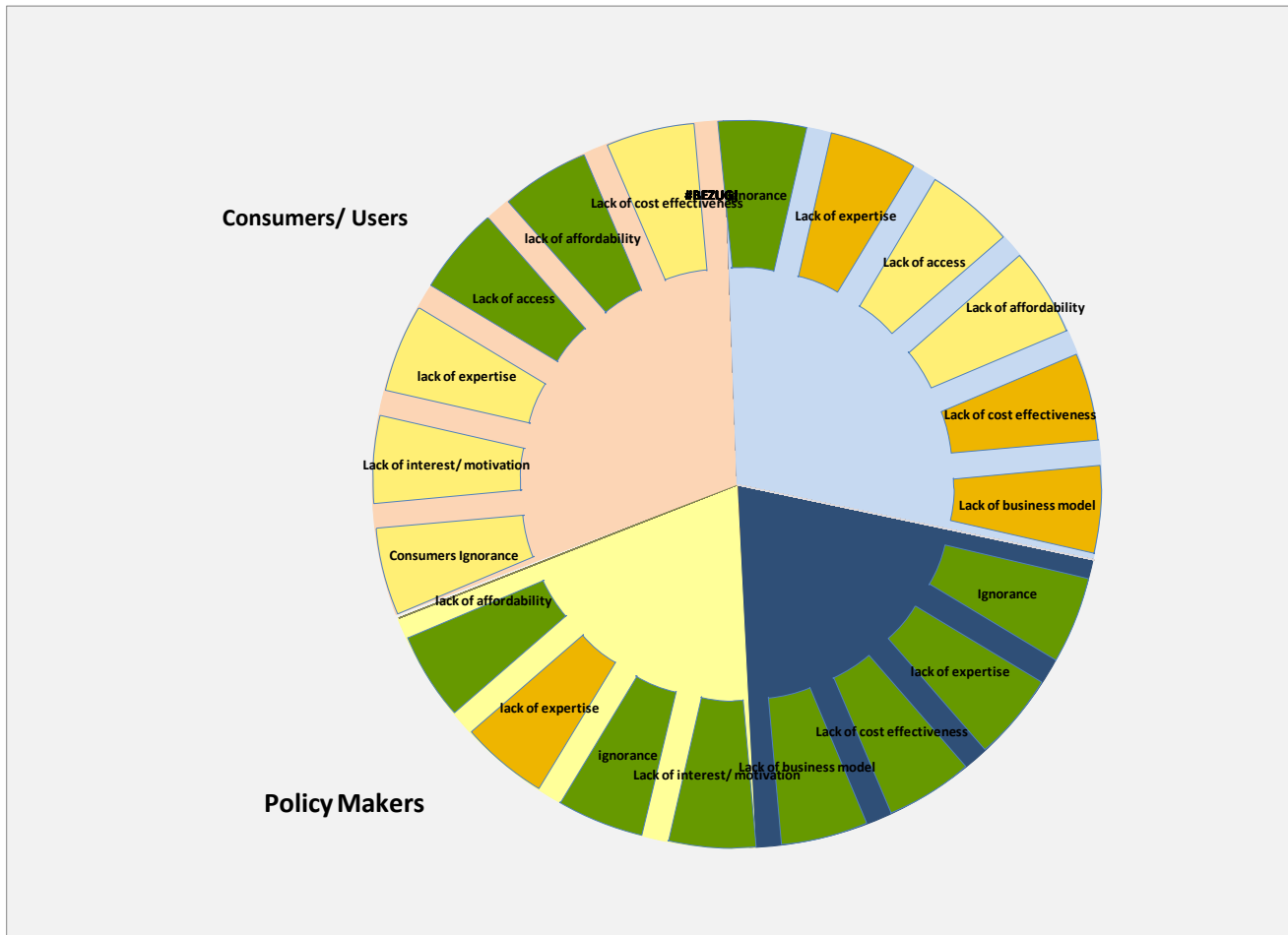


Market barrier cycle for CFLs at the end of project (2000) (WB ICR)



What happened after the project?

No significant follow-up activities, after the project ; in 2004 sales multiply (“second push”)



Interim test result

- Tool can reflect changes in market barriers and barrier removal strategies
- Easy to handle
- It becomes clear that every “market” (in the sense of a GHG emission reducing activity) needs its own set of analyses
- Qualitative analysis reflects relative weight of barriers
- More standardization needed for quantitative analysis (barriers, interventions and outcomes)

Summary

- We started with market transformation theory and developed the TONC model for the number and type of barriers.
- We developed the barrier circle tool to visualize the TONC model and match barriers with strategies.
- Using the Thai example, we reconstructed complete market situations for 5 products over 15 years.
- Evaluations can be a major source for this information but might not show the full picture. Some supplementary data are needed because the projects (and their evaluations) tend to focus insufficiently on their environment.

Summary (II): The tool demonstrates...

- ...that every project has a context, which is not under its control but influences the project outcomes.
- ...the completeness of intervention – are there any “holes” in the logic model that might prevent the project from being successful?
- ...the need for intervention – is there really a gap that the project can fill? Am I doing the right thing?
-possible synergies between different interventions.
- ...the attribution issue: GHG is avoided only by the users, but users are not able to behave climate-friendly without the other stakeholders.
- The tool can be used for project design, monitoring, and evaluation.

Further research:

- **Testing the Theory Of No Change on other project clusters beyond the area of energy efficiency (i.e. replacing products on existing markets) into the area of renewable energy and new construction, so that a Generalized Program Theory for Climate Change Mitigation is created.**
- **Streamlining: In the examples, a number of barriers have not been relevant. The TONC and the tool are more powerful the fewer stakeholder groups and barriers they contain. Therefore, further reducing the tool without losing information is desirable.**
- **Develop outcome indicators for the TONC (incl. measurement methods).**
- **Develop canon of optimal strategy / barrier pairs.**
- **Transfer TONC approach to completely different evaluation contexts. The lead question is “Why is it that behaviour is NOT changed?” (e.g. health, CC adaptation).**

Thank you for your attention.

- Further Questions?
- <http://www.esdevaluation.org/gefeo/?q=node/475>
- www.climate-eval.org
- [Climate-eval\(at\)climate-eval.org](mailto:Climate-eval(at)climate-eval.org)
- Christine Wörten, [woerlen\(at\)arepo-consult.com](mailto:woerlen(at)arepo-consult.com)