



**The Theory of No Change**  
**A tool for analyzing capacity building needs**  
**for low carbon development**

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Dr. Christine Wörlen

# Background Dr. Christine Wörlen



- Founder Arepo Consult (since 2009)
- Head of Renewable Energy Division at the German Energy Agency (dena), 2007 – 2009
- Program Manager Renewable Energy at the Global Environment Facility (GEF) 2002 – 2007
- Research Associate German Parliament, Study Commission „Sustainable Energy Supplies in View of Globalization and Liberalization“
- Ph.D. 2003, Boston University: Technical and economic aspects of renewable energy innovation policy
- Book: „Erneuerbare Energien – wissen was stimmt“. Herder Verlag, 2010



## Arepo Consult

- We specialize in policy advice and analysis in renewable energy, energy efficiency, climate change policies.
- Design and evaluation of projects, programs and policies.
- Sustainable energy market analysis and overview products
- National and international scope
- Governments, international organizations, NGOs

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## Outline

- The challenge of conceptualizing barriers to market transformation
- The Theory of No Change
- Outlook
- The Climate-Eval community of practice



## Typical climate change mitigation evaluation challenges (I)

- (Baseline issues: counterfactual can be difficult)
- (Ultimate impact:
  - GHG-emission reduction AND
  - economic development
  - (→ indicator and measurement challenges))
- Impact is typically not reached directly but through changes in behaviour (investment, utilization) of GHG emitting actors and their supply chain.



## **What is market transformation?**

**(narrow definition)** labeling energy efficient products (e.g. light bulbs).

**(broader definition)** market for products are changed through consumer choices (information, sometimes rebates, standards).

**(even broader definition) any kind of adoption of a new technology**

General idea underlies many interventions (policies, programs, projects) and is a necessity for low carbon development.

## **Developing a Theory of Change for market transformation:**

Starting point for analysis: barriers that impede the „better choice“.

The leading question is for the development of the theory of change is:  
„Why is the energy-efficient product not being used already?“



## Typical challenges in market transformation

- Not only one group of stakeholders plays a role in achieving that result, but a whole sector: users AND suppliers AND financiers AND policy makers.
- But: many climate mitigation interventions / strategies affect only one group of stakeholders: users OR supply chain OR policy makers OR financiers.
- Analysis (evaluation) and intervention design: 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.



## **Framework Theory of Change Concept for climate mitigation**

**– what is it? What is it good for?**

**It helps:**

- Get clarity on how GHG is saved**
- Solve attributability question for „partial“ interventions („logical gap“)**
- Solve context questions**
- Help identify lessons for better projects**


**For project planners:**

- Choose appropriate strategies and/or partners**
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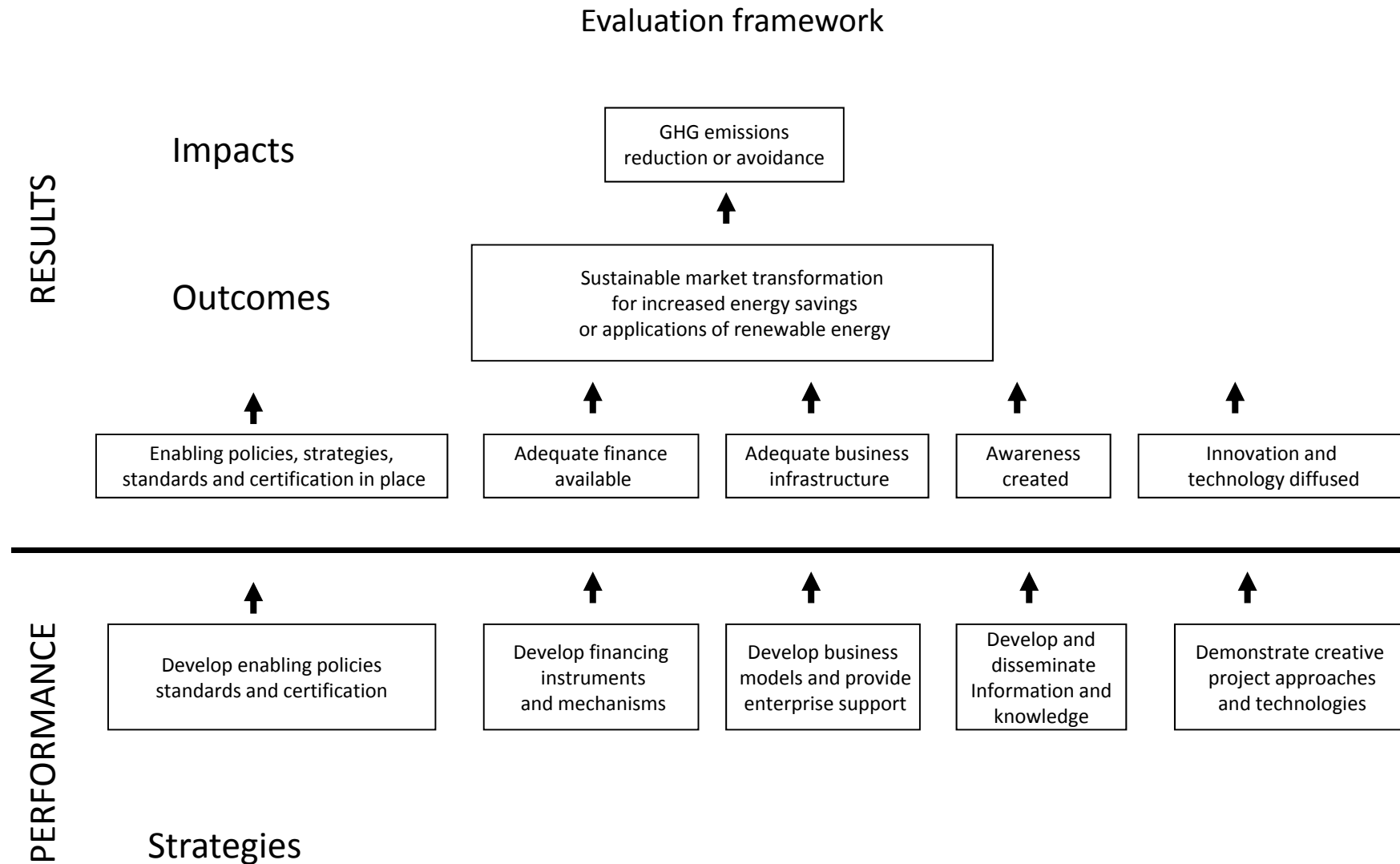




## **Keep developing this Framework Theory of Change so that it will be able to :**


- 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 rigorous at the same time**
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# Typical climate mitigation strategies and outcomes (Tokle and Uitto (2009))

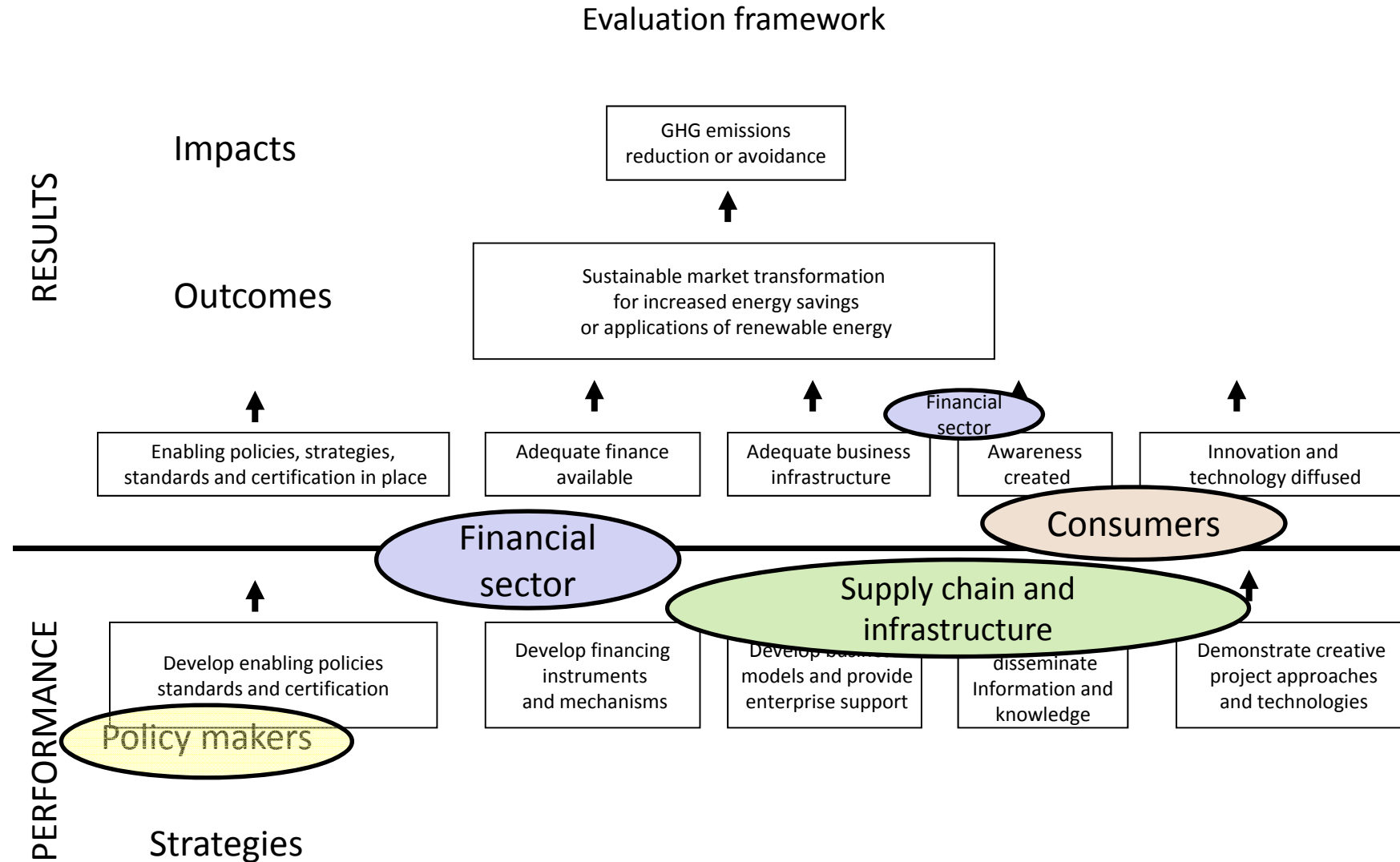




## Important Stakeholder Groups

- 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
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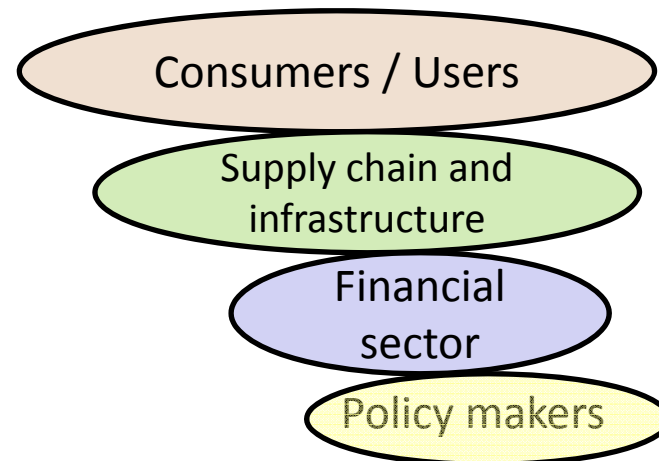
# Evaluation Framework (Tokle and Uitto (2009))



# Theory of Non-Change: Barriers to energy-efficiency behavior

Every group of stakeholders can slow down the diffusion of new technologies / behaviors. Typically, they are impeded by

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



# Intervention strategies enable market transformation through barrier removal.

GHG emission reduction / reduced climate change impact

*Overarching objective*

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

*Necessary precondition for MT and immediate outcome ccm intervention*

- motivation
- awareness
- expertise
- affordability

- awareness
- expertise
- affordability
- Business model

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

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

Policy makers

Financial sector

Supply chain and infrastructure

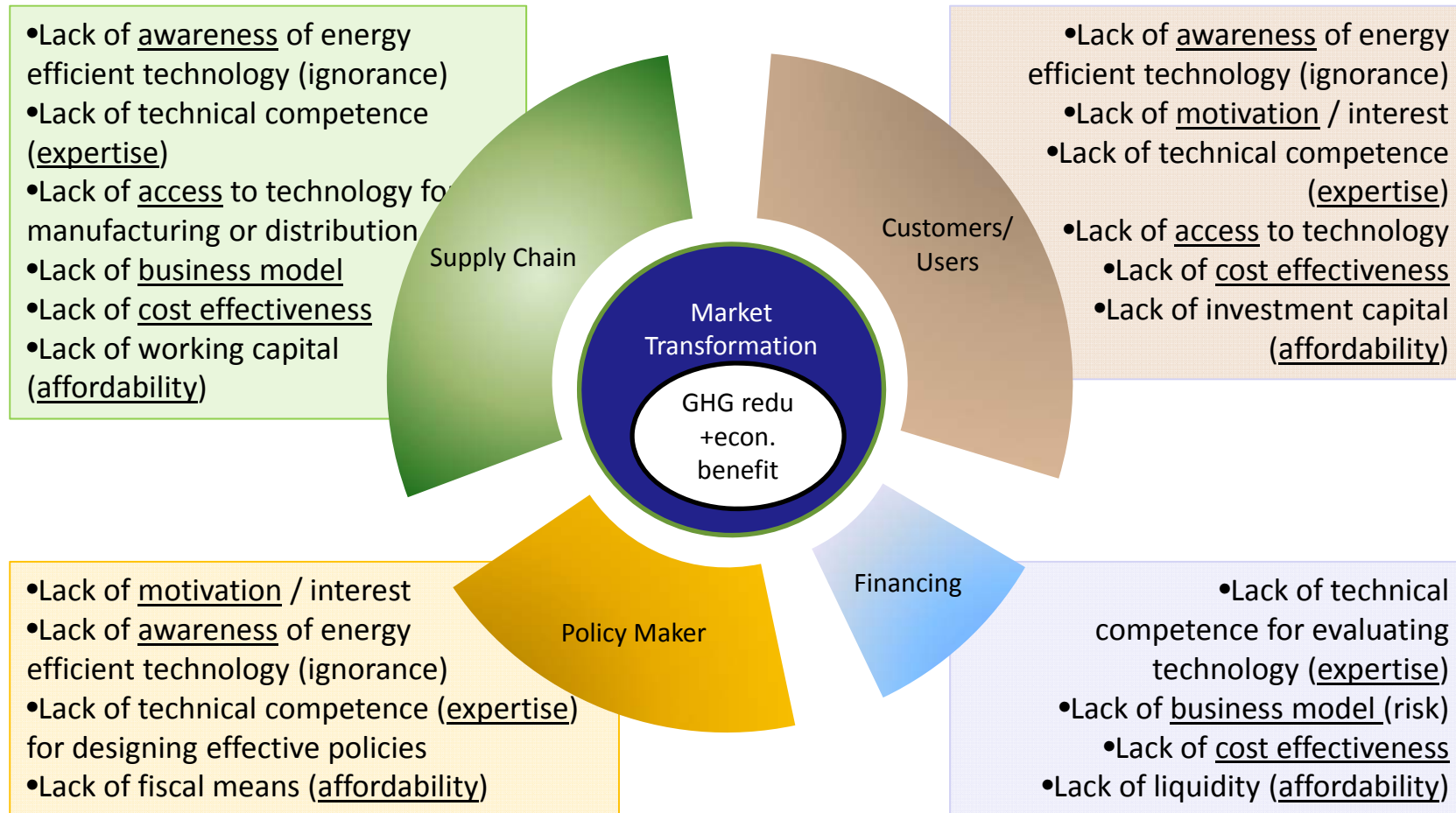
Consumers / users

*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 (incomplete)*

# Stakeholder and potential barriers to market transformation

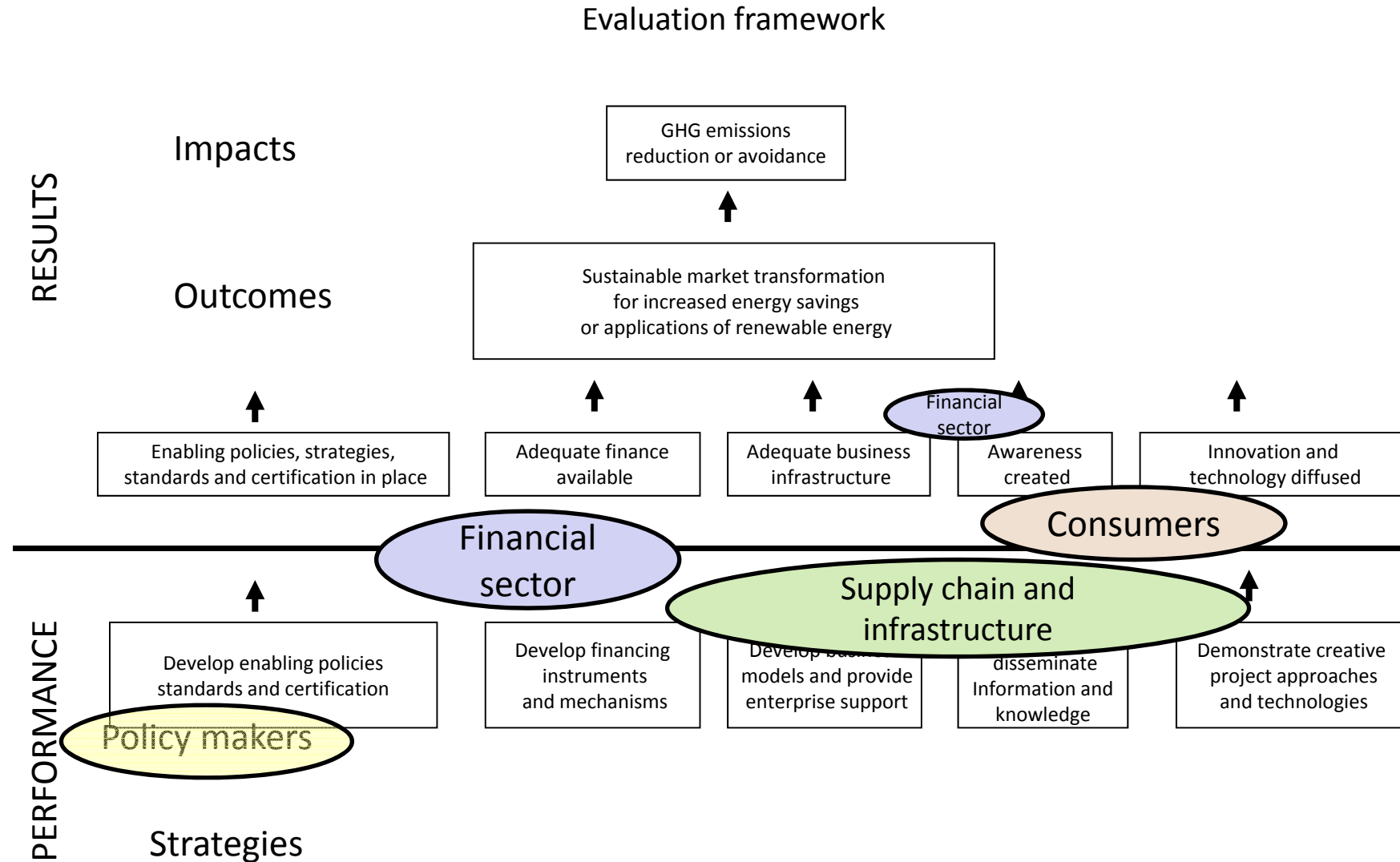


# Meta-Evaluation for arriving at the Theory of No Change

- Starting point: evaluation framework of Tokle and Uitto (2009)
- Evolution into stakeholder / barrier model
- Analysis of two sectoral transformation processes
  - Energy efficiency products (light bulbs, refrigerators) in Thailand
  - District Heating in Poland
  - each over 2 decades,
  - Based on evaluations
- Leads to definition of barrier framework / Theory of No Change and two visualization tools



# Evaluation Framework (Tokle and Uitto (2009))



## Strategies respond to barriers

Strategy from Tokle / Uitto	Barrier
Develop business models and provide enterprise support	Lack of business model
Disseminate information and knowledge	Lack of knowledge, lack of awarenees
Develop financing instruments and mechanics	Lack of cost effectiveness, lack of affordability
Demonstrate creative project approaches and technologies	Access to technology, lack of awareness for mitigation option
Developing enabling policies, standards and certification	Lack of cost effectiveness, lack of affordability, lack of access to technology or mitigation option

Empirical testing with ~ 60 case studies / evaluations in 2 fields

- energy efficient appliances in Thailand
- District heating in Poland

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Policy makers

Financial sector

Supply chain and infrastructure

Consumers / users

*Stakeholder Group*

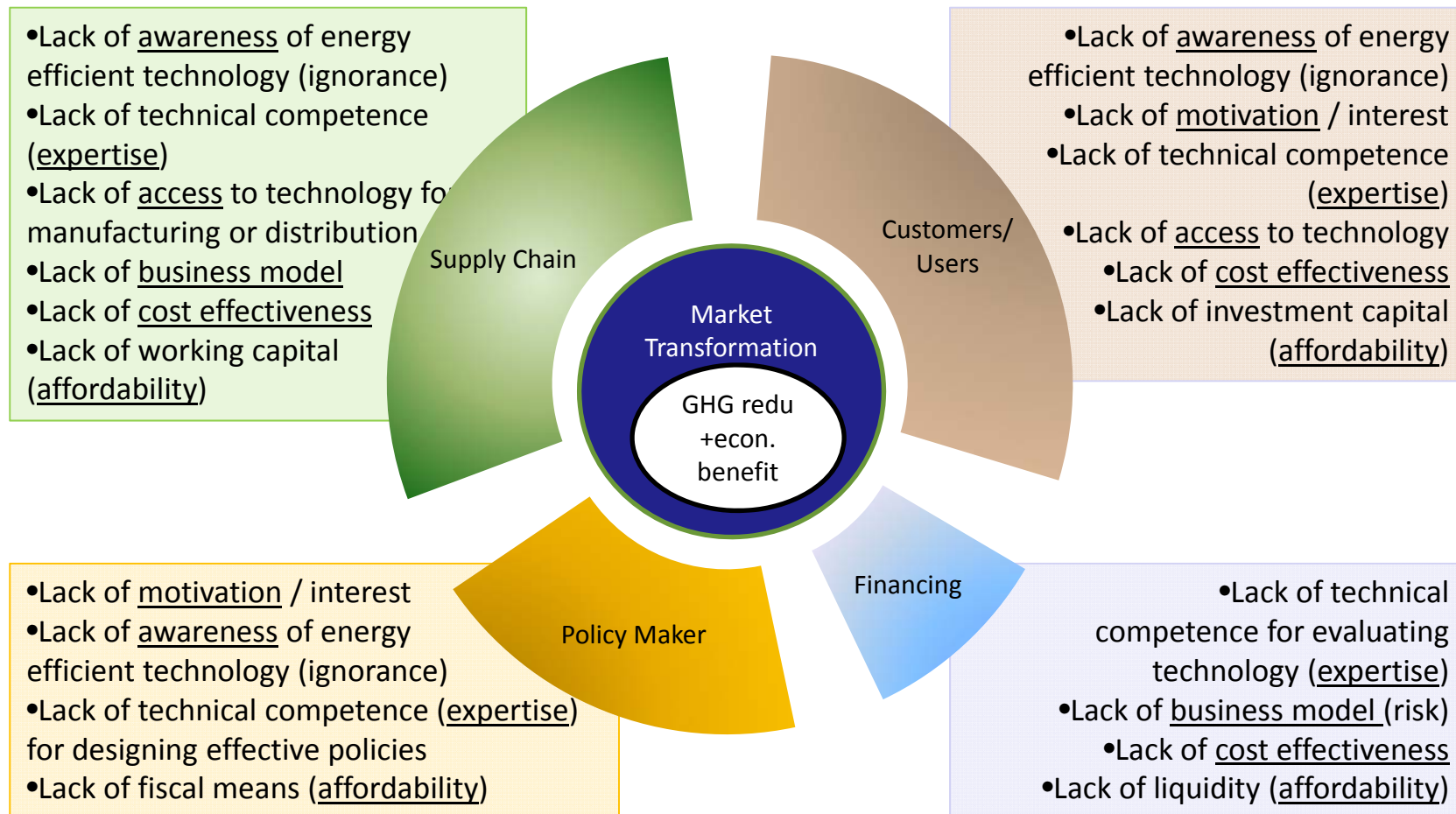
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*Barrier Removal Strategies (incomplete)*

## Full set of barriers (from „Guidelines“)

Potential Barrier	Explanation of the barrier
ignorance	not knowing what causes and does not cause GHG emissions, not aware of how to reduce them
lack of motivation / interest	not minding, not interested in reducing emissions or providing the supporting service even if other benefits would accrue (e.g. saving money, leveraging growth opportunities)
lack of expertise	not being knowledgeable enough for implementing the reduction
lack of access to the mitigation option	the technology is not physically available, e.g. because the next sales point is too far away, no maintenance service is provided ...
lack of affordability	the funds for the investment are not available even if the implementation would save money and be overall cost effective
lack of cost effectiveness	the mitigation option is not cost effective, i.e. would be more expensive than the status quo

# Stakeholder and potential barriers to market transformation – why are things NOT changing?



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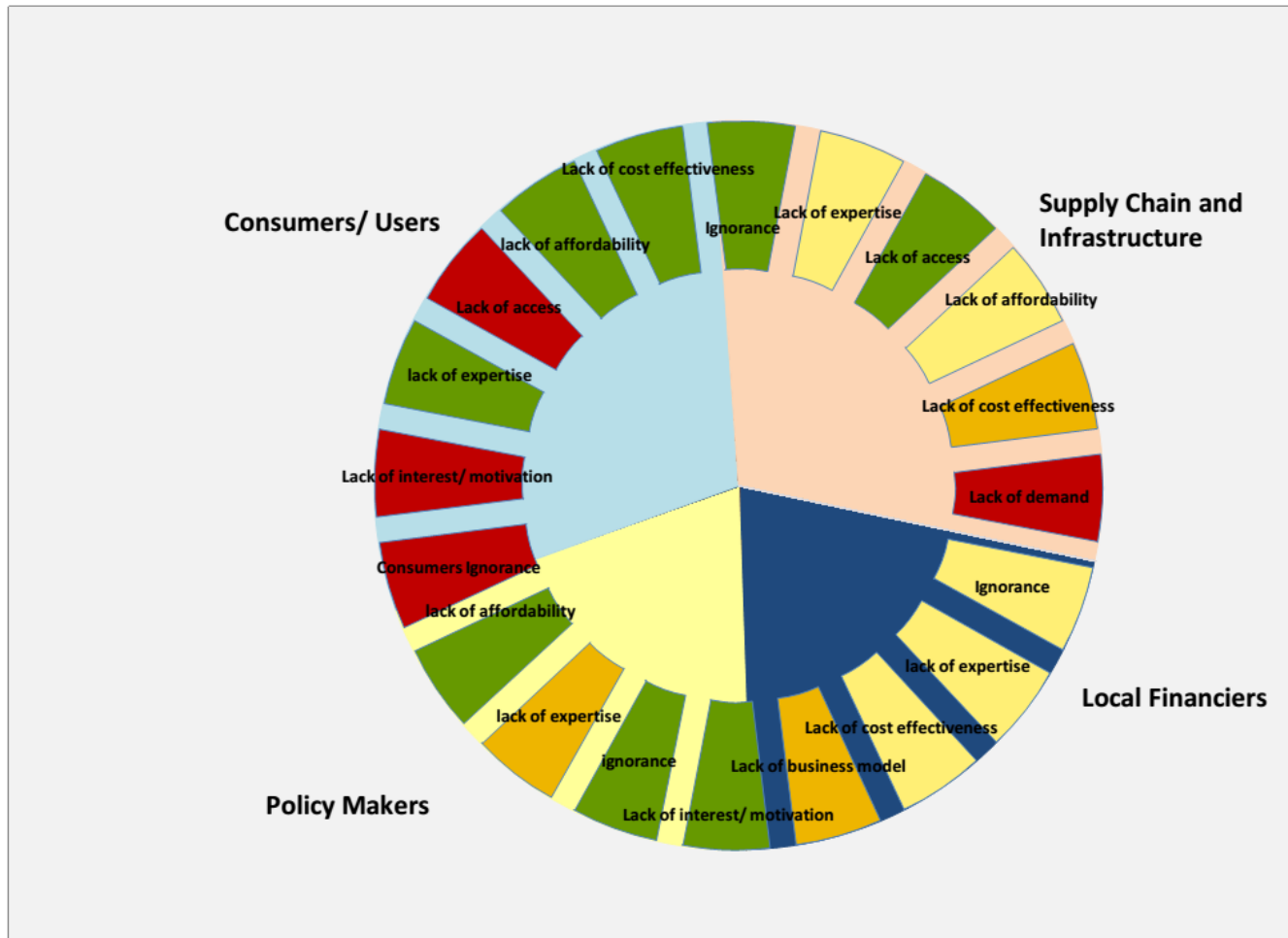
## An Example for Thailand

- **Replacing T12 tubes by T8 tubes**
- Replacing light bulbs with energy savings bulbs (compact fluorescent lamps, CFLs)
- Replacing inefficient building chillers (large AC units) in commercial and industrial buildings with efficient building chillers.



# “Barrier Circle” – or “why things are NOT changing”

## Example: T12 -> T8 light tubes in Thailand in 1990s



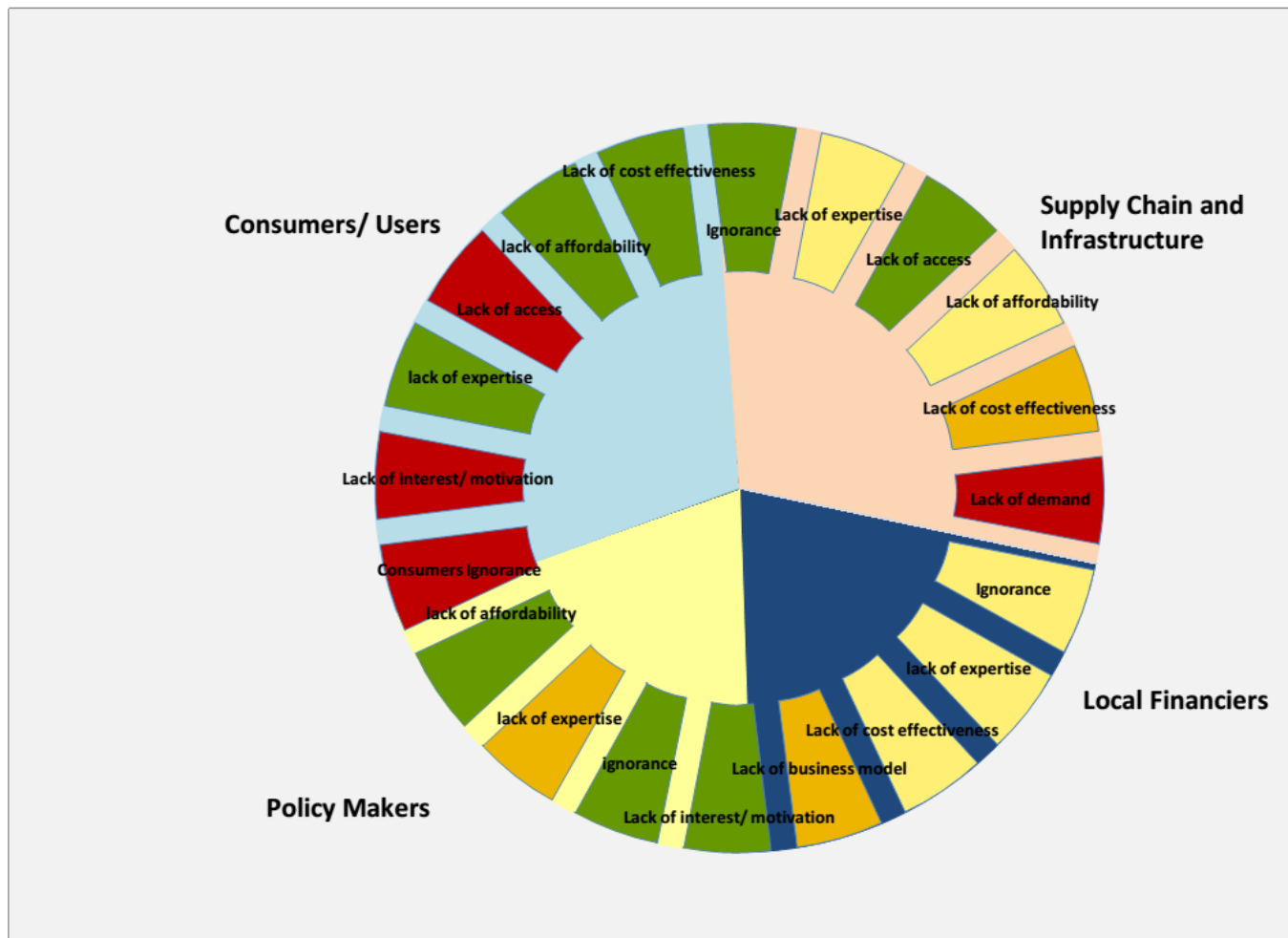
Red: “This barrier is a show-stopper for the market.”

Orange: “This is a significant barrier.”

Yellow: “Not a good situation, but no significant challenge.”

Green: “This potential barrier is not impeding market development.”

# Then: Overlay with project

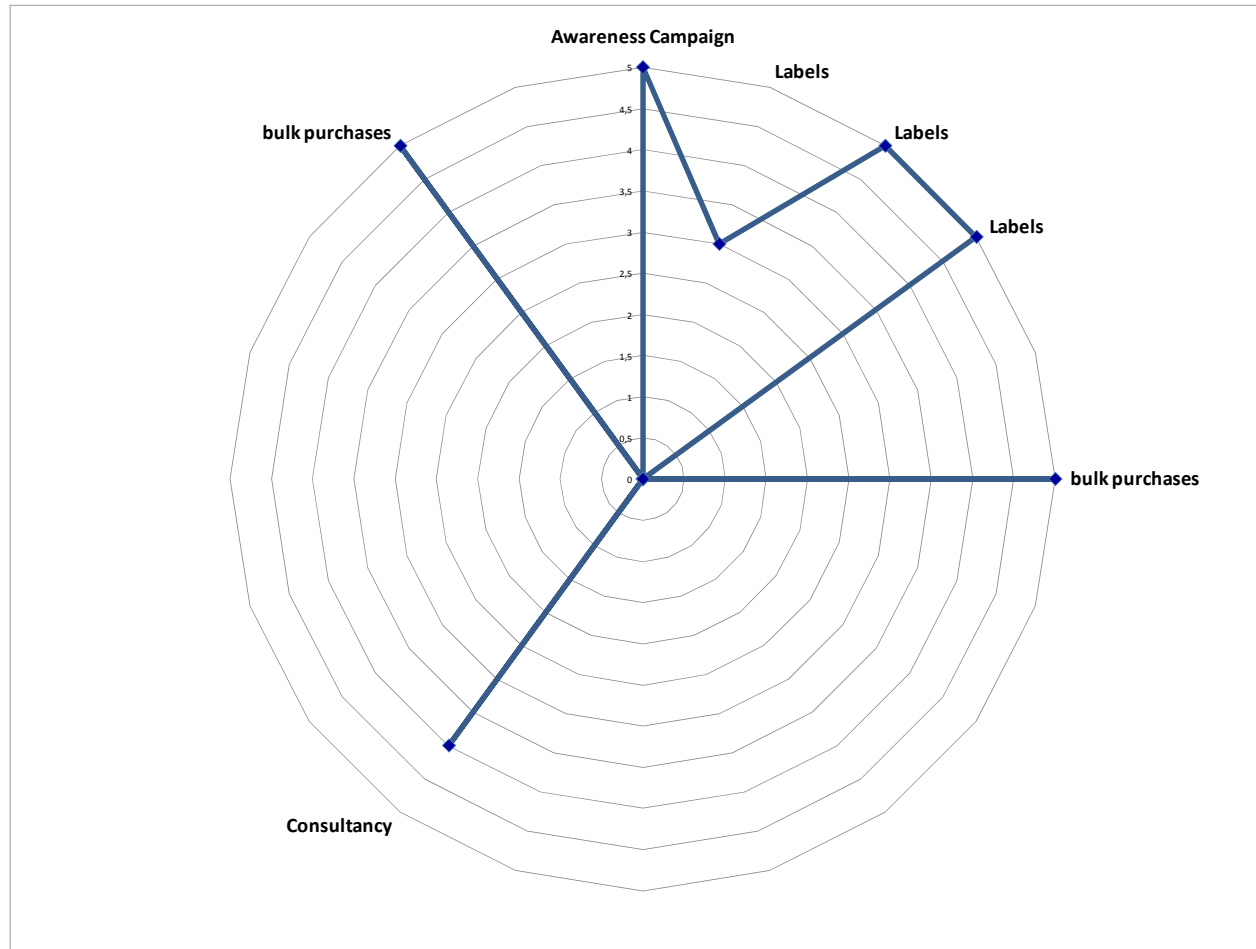




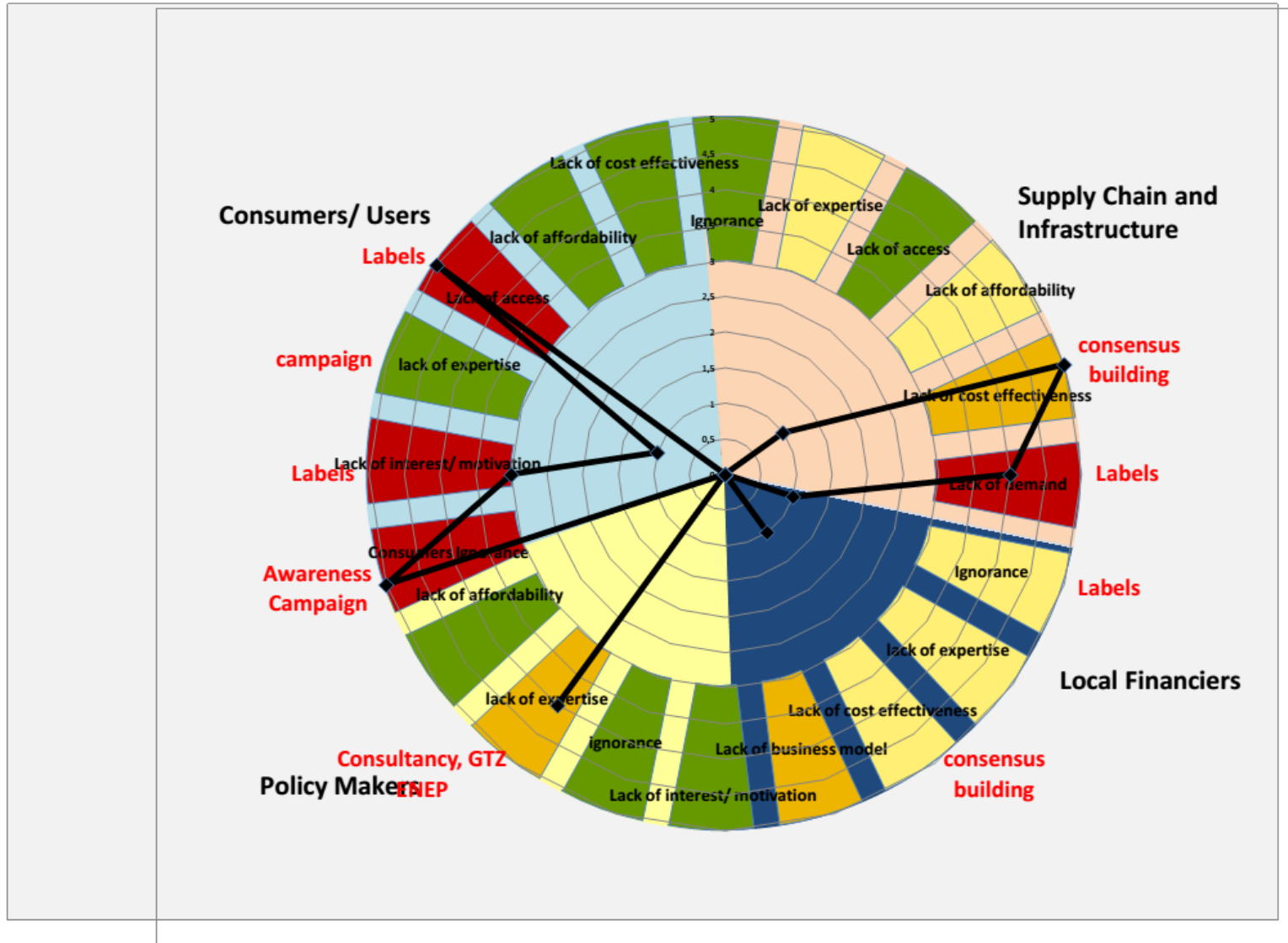
## Strategies to remove the barriers to energy-efficiency behavior

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

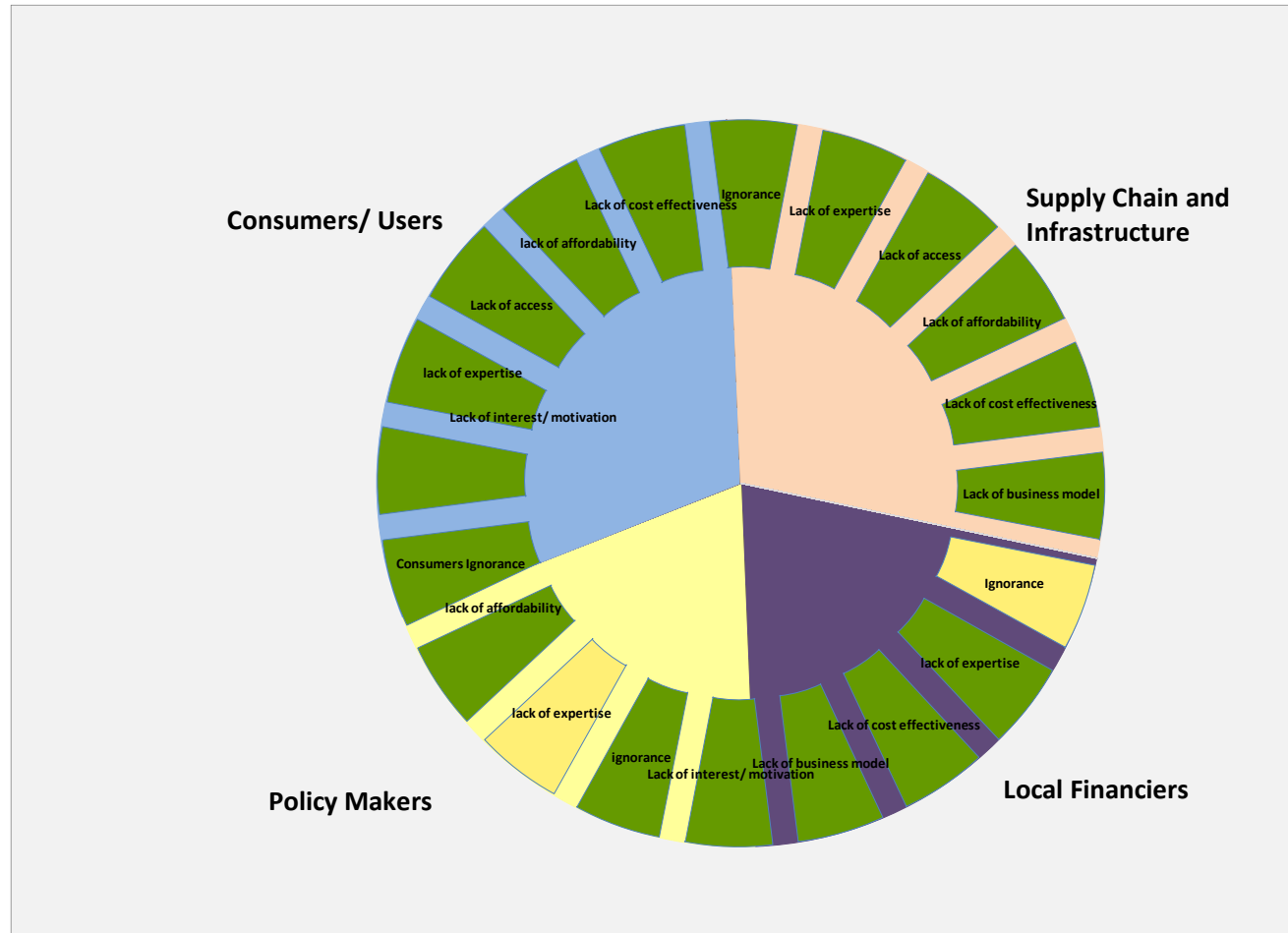
# Project strategies can be aligned with the respective barriers.



# TONC-Circle and Barrier Removal Strategies (WB DSM + GTZ project activities for T8 light tubes)



# T8 market after DSM Project in 2000 (WB evaluations)



# Framework Theory of No Change for climate mitigation –What is it good for?

Enhanced explanatory power by:

1. Compiling evidence from a large sample or cases
2. Starting point: „What was missing?“

Leads to:

- Better understanding of the intervention (or intervention bundles) and context
- More clarity on what works and what does not and why
- Attack attributability question for „partial“ interventions („logical gap“)
- Help identify lessons for better projects

Can be helpful in evaluation as well as project/programm planning.

## Conclusions / Observations

- TONC can serve for **formulation of hypotheses** to understand failure or adjustment potential of interventions and approaches.
- Many of the barriers / reasons for non-adoption of climate-compatible behavior relate to capacity building needs in the broadest sense of the word.
- Barriers seem rather robust („they do not know the option, they have no access to the option, they don't want to use the option, the option is too expensive“).
- Small adjustments regarding the stakeholders need to be made when transferring between situations.
- Behavior / barriers for one group of stakeholders might depend on behavior / barriers of other groups of stakeholders. Barriers are not always independent between groups.



**Applying the TONC to other fields.**

# TONC as a methodology for designing policies and projects: German National Climate Initiative



	Nutzer und Verbraucher	Zulieferer [auch Infrastruktur]	Politische Entscheidungsträger [auch Verwaltung]	Lokale Finanziers
Unkenntnis	N/ V sind sich der Klimawirkung ihres Verhaltens nicht bewusst	Zulieferer wissen nicht, dass ihre Produkte THG-Emissionen verursachen/beinhalten	Politische Entscheidungsträger und Verwaltung wissen nicht wie Emission reduziert oder Senken geschützt werden könnten.	Finanziers wissen nicht welche Projektoptionen klimafreundlicher sind.
Mangelnde Motivation	N/ V sind nicht an einer Reduktion ihrer Emissionen interessiert	nicht anwendbar	Pol. ET/ V sind an der Reduktion der Emissionen nicht interessiert, priorisieren andere Politikoptionen oder bevorzugen die Interessen einer bestimmten Klientel	nicht anwendbar
Mangelnde Erfahrung und Kapazitäten	N/ V wissen nicht wie sie klimafreundliche Alternativen umsetzen sollen	Z wissen nicht wie sie klimafreundliche Produkte zur Verfügung stellen, installieren oder warten können.	Pol. ET/ V verfügen über nicht genügend Wissen oder Kapazitäten um Politikinstrumente zu designen/ auszuführen/ durchzusetzen.	Finanziers können die Risiken, Amortisationszeiten nicht richtig einschätzen.
Mangelnder Zugang zu klimafreundlichen Alternativen	Die klimafreundliche Variante ist nicht vorhanden	Die Technologie ist nicht physisch verfügbar.	nicht anwendbar	nicht anwendbar
Mangelnde Wirtschaftlichkeit	Die klimafreundliche Alternative ist nicht kosteneffektive	Es lässt sich kein Geschäftsmodell etablieren, z.B. auf Grund mangelnder Nachfrage.	Die klimafreundliche Politik ist gesamtwirtschaftlich nicht kosteneffektiv	Es kann kein Geschäftsmodell etabliert werden, bspw. weil der Markt zu klein ist.
Mangel an Finanzmitteln	Das Kapital für Investition/ Forschung/ Weiterbildung sind nicht vorhanden	Das Kapital für einen neuen Geschäftszweig sind nicht vorhanden	Die Haushaltsmittel bzw. für ein Subventionsprogramm sind nicht vorhanden.	Der Finanzsektor ist bereits zu hohen Risiken ausgesetzt



## **TONC as a methodology for understanding context, e.g. in health, education, other projects**

**Theory of No Change** can be abstracted from the field of climate mitigation and applied to other fields. Generally, the following steps are required:

1. Identify the behavior that leads to the desired outcome („get sick less“, „get smart“) – play around with the definition of the outcome, and the definition of the „user/consumer“
2. Identify, why the user/consumer does not exhibit the desired behavior; use the 7 barriers as a start (carefully: not too much detail), identify the stakeholders
3. Analyze whether or not stakeholders face barriers to allow for desired behaviour.
4. Often these barriers are based in capacity deficits and can then be addressed through „soft measures“.



**Where to find more information / how to reference.**

## Reference

- Wörlen, C. (2014): Meta-Evaluation of Climate Mitigation Evaluations: The Theory of No-Change. in:  
Uitto, J. (ed.): Evaluating Environment in International Development.
- Climate Eval Community of Practice:
  - Meta-evaluation: <https://www.climate-eval.org/study/meta-evaluation-climate-mitigation-evaluations>  
Includes country studies on Thailand and Poland as separate documents
  - Guidelines

Potential Barrier	Users / Consumers	Supply chain	policy makers	local financiers
<b>ignorance</b>	users might not know what causes and does not cause GHG emissions, might not be aware of how to reduce them	suppliers might not know if their products cause GHG emissions, and might not be aware of how to reduce them	policy makers might not know which options cause more GHG emissions, and how they can be reduced	financiers might not know which options cause more GHG emissions, and if they can trust the technical solutions
<b>lack of motivation / interest</b>	users might not be aware or not interested in reducing emissions even if they could save money	Not applicable (if all the other aspects are given, the supply chain will be interested in additional business)	not interested in reducing emissions even if other benefits would accrue (e.g. saving money, leveraging growth opportunities)	Not applicable (if all the other aspects are given, banks will be interested in additional business)
<b>lack of expertise</b>	users might not know how to implement the GHG-reducing measures	users might not know how to install or maintain the GHG-reducing measures	not being knowledgeable enough for making smart policy / lack of policy capacity	not applicable (banks should have sufficient banking knowledge)
<b>lack of access to the mitigation option</b>	the technology is not physically available, e.g. because the next sales point is too far away, no maintenance service is provide or the like	the technology is not physically available, e.g. because no local production or importation exists	Not applicable	Not applicable (banks do not need to access the technology)
<b>lack of affordability</b>	the funds for the investment are not available even if the implementation would save money and be overall cost effective	the funds for the expansion of the business are not available even if the change would provide growth opportunities	the funds for political support are not available	even if liquidity is available, banks might not be able to lend more as they might be overexposed
<b>lack of cost effectiveness</b>	the mitigation option is not cost effective, i.e. would be more expensive than the status quo, even if the savings are fully factored in	no business can be established, e.g. because of a lack of demand	the mitigation option is not cost effective on an economy-wide level as measured in an economy-wide costs benefit analysis	no business model can be established, e.g. because of small market size



## **The Climate-Eval Community of Practice**

# Community of Practice

## Climate-Eval (I)

### MEMBERS

- *Registered Members: 1,500 from National Government Agencies, Project Management Units, Think-Tanks, Development Organizations, Consulting Firms and Academia.*

### GEOGRAPHICAL DISTRIBUTION

- *Western Europe/Central Asia: **35%**;*
- *Americas and Caribbean: **32%**;*
- *East/South Asia & Pacific: **16%**;*
- *Sub-Saharan Africa: **14%**; Middle East and North Africa: **3%**;*

### PARTNERSHIPS

- *IDEAS – Climate Change Group ITIG*
- *Sea Change – South Asia Community of Practice*
- *IPEN – International Program Evaluation Network – Central Asia and former Soviet Union countries*

# Community of Practice Climate-Eval (II)

## RESOURCES

- *Electronic library with more than 500 studies on Climate Change, Adaptation and Mitigation.*

## PRODUCTS

- **CLIMATE-EVAL CONFERENCE, NOVEMBER 3-4 2014 IN WASHINGTON D.C.**
- *Guidelines for Mitigation Evaluations*
- *Best Practices for Indicators on Adaptation*
- *Meta-Evaluation of Mitigation Evaluations*
- *Study of Frameworks for Adaptation*

## PROMOTION AND ENGAGEMENT

- *Monthly Webinars and Newsletters*
- *Weekly Blogs Post*
- *Attendance of meetings and Conferences*

# *Community of Practice Climate-Eval (III)*

*PLEASE JOIN!*

*IT IS EASY:*

- *LINKED-IN GROUP CLIMATE-EVAL: EVALUATION OF CLIMATE CHANGE AND DEVELOPMENT*
- *SIGN- UP ON WEBSITE CLIMATE-EVAL.ORG TO RECEIVE EMAILS*
- *SUBMIT STUDIES, REQUESTS AND OTHER CONTRIBUTIONS*



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## Thank you for your attention.

- Further Questions?
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  - Christine Wörlen, [woerlen\(at\)arepo-consult.com](mailto:woerlen(at)arepo-consult.com)
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