

AEI workshop 2009

***Evaluating the Performance of SHS  
Subsidies***

Application of the 'Subsidy-Matrix'

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## Background

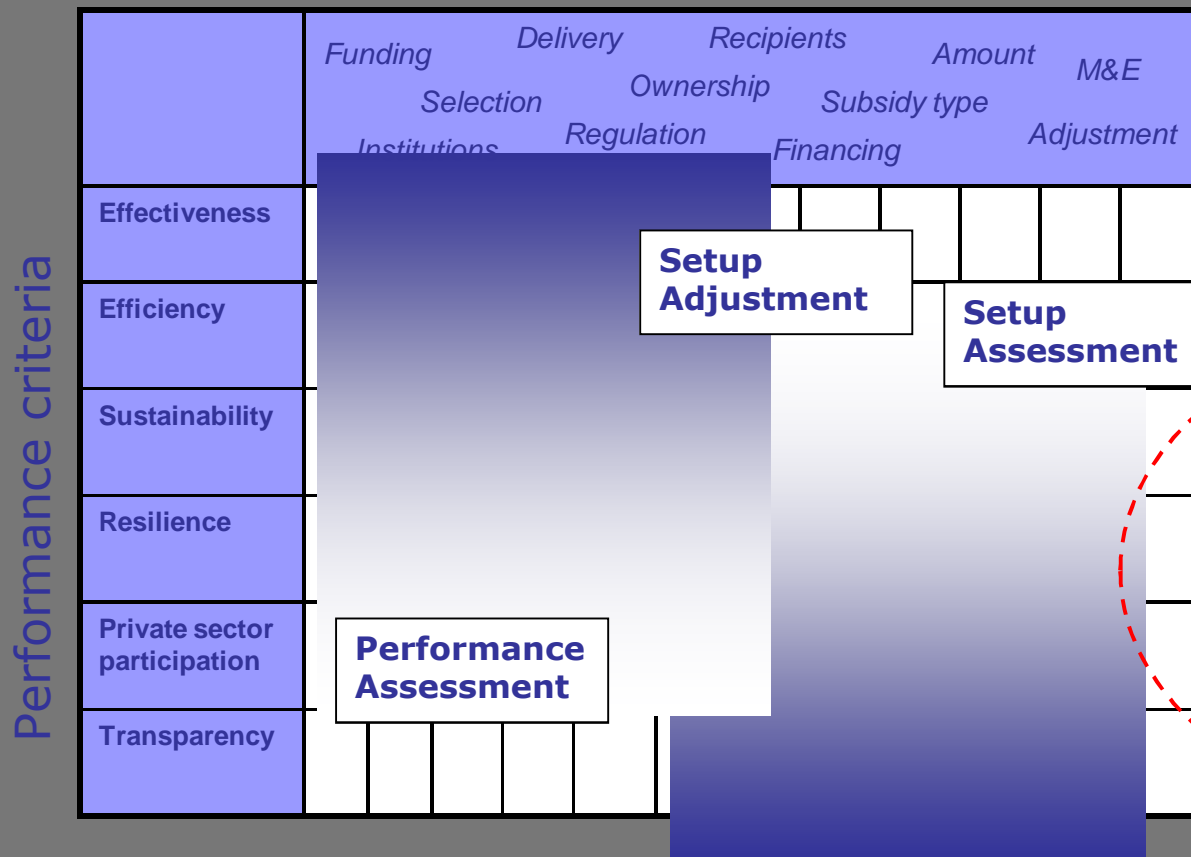
- Program **design determines** program **performance**!
- **Pre-test** of the Matrix based on five SHS programs (i.e. SHS components, ...)
- Based on program **documentation** and **questionnaires** for project managers (estimations)
- **Three-step** approach:
  - > **Setup** assessment
  - > **Performance** assessment
  - > **Setup** adjustment

# The 'Subsidy-Matrix'

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## The matrix concept...

Design variables



## Check & Explain

- Structured Approach
- All design options considered?
- What's important for performance?

## Assess & Adjust

- Using score cards to compare
- Identify strengths
- Figure out weaknesses

# 1. Setup Assessment

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## Overview

- Starting point for the program assessment
- How are the programs designed?
- **Problem:** Operationalization
- Definition of 12 **Setup Categories** (e.g. funding, ownership, delivery, subsidy type, recipients, ...)
- Identification of **Setup Types** within every category (e.g. sales model, service model, combined model for delivery)

# 1. Setup Assessment

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## Setup categories

1. Funding sources
2. Program ownership
3. Selection of partners
4. Control and regulation
5. Delivery mechanism
6. Technical ownership
7. Subsidy recipients
8. Subsidy type
9. Financial instruments
10. Subsidy amount
11. Monitoring and evaluation
12. Adjustment measures

> For each category 2-4 Setup types

# 1. Setup Assessment

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## Setup categories: Examples

Setup Category	Setup Type	ARG	BOL	CHN	MAR	NIC
Selection of partners	Incumbents					
	One-time tender		X			X
	Periodical tender	X			X	
	Criteria-based selection			X		
Delivery mechanism	Sales model			X		X
	Service model	X			X	
	Combined model		X			

Setup pattern

## 2. Performance Assessment

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### Overview

- **Core** of the program assessment
- How do programs perform?
- Definition of 6 **performance criteria** and 16 **sub-criteria** (2-3 per criterion)
- Identification of valuable **indicators** (quantitative and qualitative) for each sub-criterion
- Assessment of the programs based on a simple **scoring scheme** (score cards)

## 2. Performance Assessment

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### Performance criteria

±classical±

#### Effectiveness

- Program output
- Achievement of objectives
- Implementation speed

#### Efficiency

- Cost-effectiveness
- Distortional impact

#### Sustainability

- Economic
- Environmental
- Social (poor targeting)

#### Resilience

- Simplicity
- Flexibility
- Political commitment

#### PSP

- SHS providers
- Consumer acceptance
- Financial intermediation

#### Transparency

- Predictability
- Information management

±hidden±

## 2. Performance Assessment

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### Example: quantitative indicator

Criterion	Sub-Criterion	Indicator	Scoring
Efficiency	Cost-effectiveness	Variation from average subsidies per installed SHS of all programs	(+)31% and more = 0 (+)11-30 % = 1 (+/-)10% = 2 (-)11-30% = 3 (-)31% and more = 4
	Distortional impact	Variation of monthly end-consumer price for SHS from end-consumer price of alternative fuels	+/- 81-100% = 0 +/- 61-80% = 1 +/- 41-60% = 2 +/- 21-40% = 3 +/- 0-20% = 4

**Scoring:** 0 = low, 4 = high

## 2. Performance Assessment

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### Example: qualitative indicator

Criterion	Sub-Criterion	Indicator	Scoring
Resilience	Simplicity	Degree of comprehensibility for providers, consumers, authorities	Bad/none = 0 Weak = 1 Medium = 2 Good = 3 Excellent = 4
	Flexibility	Degree of adjustability during program runtime	Bad/none = 0 Weak = 1 Medium = 2 Good = 3 Excellent = 4
	Political commitment	Degree of political acceptance/support	Bad/none = 0 Weak = 1 Medium = 2 Good = 3 Excellent = 4

## 2. Performance Assessment

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### Linkages

- Setup-Performance: **Where are the links?**
- Therefore: **Analysis** of the programs  $\pm$  **performance** (scores) for every (sub-) criterion

Sub-criterion	ARG	BOL	CHN	MAR	NIC
Program output	2	3	4	3	1
Achievement of objectives	2	3	4	4	4
Implementation speed	1	1	0	0	4
<b>Total score</b>	<b>5</b>	<b>7</b>	<b>8</b>	<b>7</b>	<b>9</b>

- **Differences** in scoring **synchronized** with differences in setup (Setup-pattern)
- Meaningful **correlations** (considering country conditions!) chosen for development of **recommendations**

# 3. Setup Adjustment

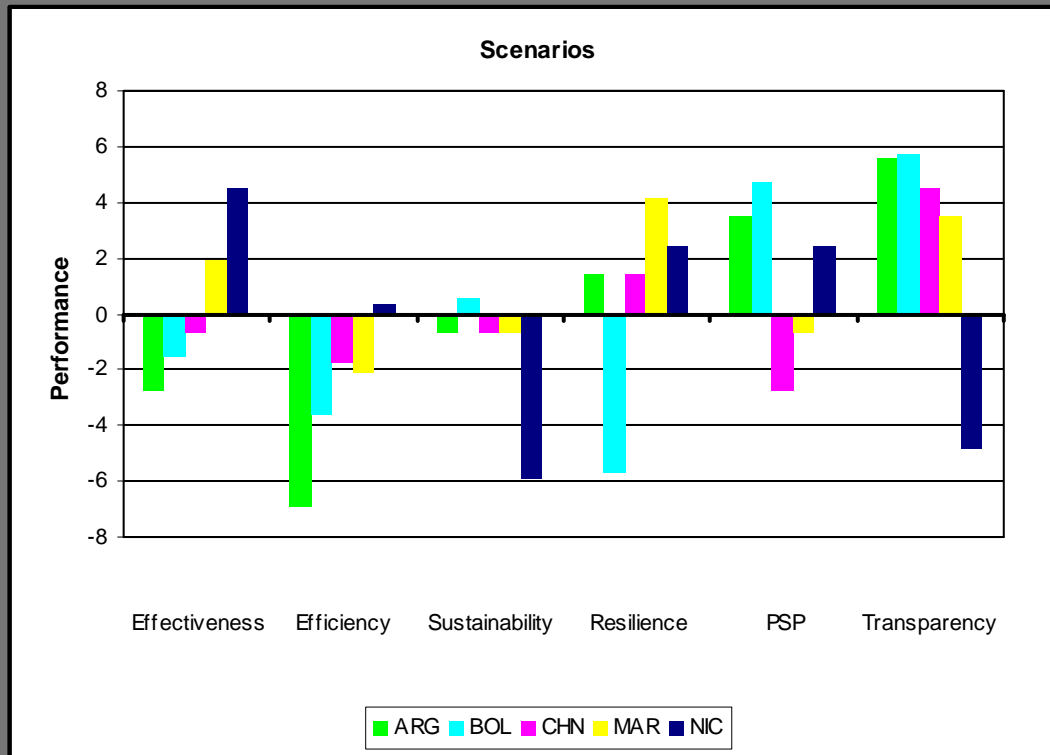
## Overview

- One main **objective** of the Matrix: **recommendations** for practitioners in the field
- Transformation of differences in setup and performance into **comprehensible** recommendations
- Identification of existing **trade-offs** between desired outcomes (priorities)
- Combination of **desired** performance (priority) with **required** setup-design

# 3. Setup Adjustment

## Trade-offs (sensitivity analysis)

Performance Delta per scenario



Effectiveness - Transparency

Effectiveness - Sustainability

Efficiency - Transparency

Efficiency - Sustainability

# 3. Setup Adjustment

## Recommendations

Performance desired	Setup required
<b>Effectiveness</b> (program output)	Local ownership
	Supporting direct subsidies
	Provider recipients
<b>Effectiveness</b> (implementation speed)	End-user recipients
	Shared ownership
<b>Efficiency</b> (general)	End-user recipients
<b>Efficiency</b> (cost-effectiveness)	Mixed subsidies
<b>Sustainability</b> (social)	Supporting direct subsidies
<b>Resilience</b> (adjustability)	End-user recipients
	Shared ownership
<b>PSP</b> (PV provider)	Sales model
<b>PSP</b> (financial intermediation)	MFI credits
	Service model
<b>Transparency</b> (general)	Provider recipients
	Local ownership

### Priority **iEffectivenessi**

Local ownership; Supporting direct subsidies; Provider recipients

### Priority **iResiliencei**

End-user recipients; shared ownership.

### Priority **iTransparencyi**

Provider recipients; local ownership

## The Matrix

- **Visualizes** the characteristics of different programs concerning setup -design
- Comprehensive performance criteria and indicators allow for **comparative analysis** of (SHS) programs / subsidy schemes
- The **step-by-step approach** facilitates the identification of linkages between setup and performance
- Based on these linkages, **relevant recommendations** for planners and managers can be issued
- The Matrix approach is **technology neutral** and could be applied for other subsidy schemes than SHS programs

## Shortcomings

- Reliance on **qualitative indicators** : incentive for  $\pm$ strategic-weighting $\pm$ by the interviewed person
- Number of cases: small number of cases assessed in the pre - test, need for a larger sample
- **Availability** and **comparability** of program data: no uniform report structure, use of  $\pm$ second-best $\pm$ indicators

## Further steps

- Increase the number of assessed programs / schemes (optimally about 20)
- Develop a simple and applicable tool for practitioners
- Input from the workshop . further design variables?  
Other important criteria?

**Thank you for the attention!**

# **Back-up slides**

## The matrix for practitioners

The Subsidy Matrix can help development practitioners in the field to

- **optimize** the design of subsidies schemes in a structured process;
- **identify** those subsidy design options (on the x-axis) that can be influenced;
- **check** the effect on performance (y-axis) if design variables are changed;
- **understand** that *not* all performance criteria can be optimized at the same time, because there are inherent trade-offs (for instance, a utility that rolls out grid very fast will usually drive up its unit costs, as it has to procure goods which become scarcer on the local market);
- **weigh** the performance trade-offs to find a well balanced design.

# Recommendations (I)

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1. No **‘one-size-fits-all’** subsidy!
2. Efficiency + Effectiveness need to be **‘operationalized’** for practitioners via secondary, **‘pragmatic’ performance criteria**
3. There are unavoidable **trade-offs** between subsidy performance indicators
4. Where distortive subsidies cannot be avoided, practitioners should **start from idealized**, optimal subsidy **recommendations** to reach feasible improvements from the status quo (which may stray from the optimum).
5. **Access subsidies** can have better targeting performance than consumption subsidies, but experience and advice on access subsidy design is rare to date.



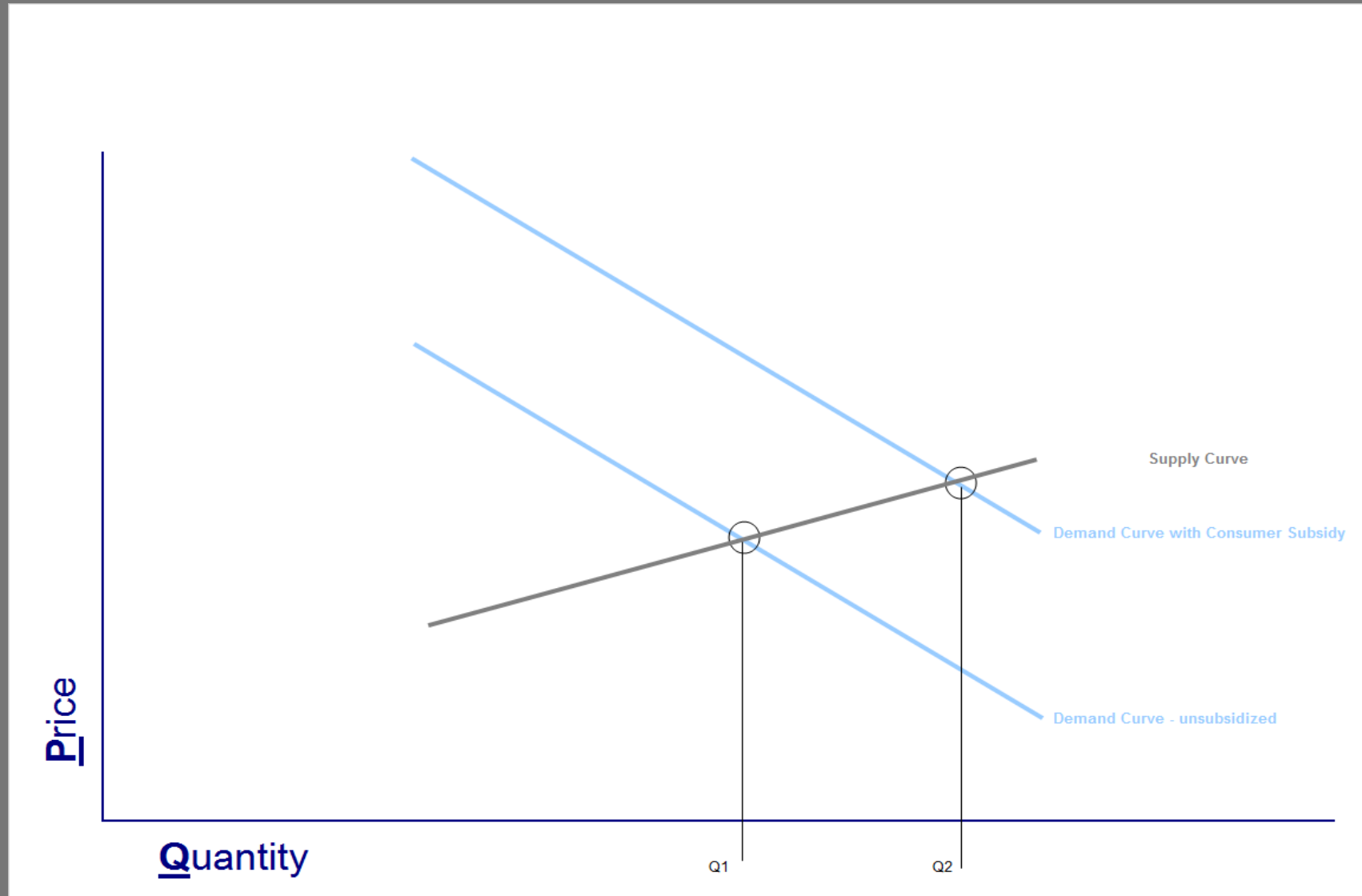
# Recommendations (II)

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6. **SHS subsidies** can potentially have stellar targeting performance, because they lend themselves to progressive self-selection schemes.
7. Where **massive results** are intended (for instance to reach MDGs in time), direct subsidies can be more effective (with respect to sheer scale) than TA measures on the short term (sic).
8. Where **direct subsidies** are applied, stand-alone small pilots can be risky. Therefore, it has to be demonstrated that long-term gains from replication and learning outweigh the relatively high transaction costs.
9. Proper procedures for **provider selection** are a prerequisite for sound direct subsidies and successful private sector participation but sometimes neglected by small donors.

# Consumer Subsidies

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## Score reached / sensitivity analysis

	ARG	BOL	CHN	MAR	NIC	Av programs	Av overall
Reference scenario	52,78	64,58	69,44	61,11	56,94	60,972222	61,11327
Effectiveness scenario	50	63,02	68,75	63,04	61,46	61,254529	
Efficiency scenario	45,83	60,94	67,71	58,97	57,29	58,147645	
Sustainability scenario	52,08	65,1	68,75	60,42	51,04	59,479167	
Resilience scenario	54,17	58,85	70,83	65,22	59,38	61,689312	
PSP scenario	56,25	69,27	66,67	60,42	59,38	62,395833	
Transparency scenario	58,33	70,31	73,96	64,58	52,08	63,854167	

# Reference Scenario

## Example (Argentina)

Criterion	(Sub-) Criterion	ARG			
		Score	Weighting factor	Weighted score (reached)	Weighted score (maximum)
Effectiveness	Achievment of objectives	2	1/3	0,666667	1,333333
	Program output	2	1/3	0,666667	1,333333
	Speed	1	1/3	0,333333	1,333333
Efficiency	Cost effectiveness	0	1/2	0	2
	Distortional impact	2	1/2	1	2
Sustainability	Financial	0	1/3	0	1,333333
	Ecological	3	1/3	1	1,333333
	Social	3	1/3	1	1,333333
Resilience	Simplicity	2	1/3	0,666667	1,333333
	Adjustability (over time)	2	1/3	0,666667	1,333333
	Political commitment	3	1/3	1	1,333333
Private Sector participation	SHS providers (market development I)	3	1/3	1	1,333333
	Consumer acceptance (market development II)	3	1/3	1	1,333333
	Financial Intermediation	2	1/3	0,666667	1,333333
Transparency	Predictability	3	1/2	1,5	2
	Information management	3	1/2	1,5	2
Total		34		12,66667	24
Normalization (out of 100)				52,77778	

# Resilience Scenario

## Example (Argentina)

Criterion	(Sub-) Criterion	ARG			
		Score	Weighting factor	Weighted score (reached)	Weighted score (maximum)
Effectiveness	Achievment of objectives	2	1/3	0,666667	1,333333
	Program output	2	1/3	0,666667	1,333333
	Speed	1	1/3	0,333333	1,333333
Efficiency	Cost effectiveness	0	1/2	0	2
	Distortional impact	2	1/2	1	2
Sustainability	Financial	0	1/3	0	1,333333
	Ecological	3	1/3	1	1,333333
	Social	3	1/3	1	1,333333
Resilience	Simplicity	2	1	2	4
	Adjustability (over time)	2	1	2	4
	Political commitment	3	1	3	4
Private Sector participation	SHS providers (market development I)	3	1/3	1	1,333333
	Consumer acceptance (market development II)	3	1/3	1	1,333333
	Financial Intermediation	2	1/3	0,666667	1,333333
Transparency	Predictability	3	1/2	1,5	2
	Information management	3	1/2	1,5	2
Total		34		17,33333	32
Normalization (out of 100)				54,16667	

## Performance Delta per scenario

Scenario	ARG	BOL	CHN	MAR	NIC
Effectiveness	-2,78	-1,56	-0,69	1,93	4,51
Efficiency	-6,94	-3,65	-1,74	-2,14	0,35
Sustainability	-0,69	0,52	-0,69	-0,69	-5,9
Resilience	1,389	-5,73	1,39	4,11	2,43
PSP	3,472	4,69	-2,78	-0,69	2,43
Transparency	5,556	5,73	4,51	3,47	-4,86