



GAP ANALYSIS

**BETWEEN THE PERFORMANCE OBJECTIVES SET FORTH IN THE
FRAMEWORK GUIDELINES FOR ENERGY EFFICIENCY STANDARDS
IN BUILDINGS AND CURRENT ENERGY EFFICIENCY STANDARDS
AND THEIR IMPLEMENTATION**

IN THE KYRGYZ REPUBLIC

MIKHAIL TOROPOV

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CLIMATE AND RELIEF



The mountainous relief determines the continental climate.

Warm and sunny summers, sometimes scorchingly hot at low altitudes (43°C maximal, Bishkek). – [Need for cooling](#)

Cold winters, often frosty (-49°C minimal, Susamyr)
- [NEED for warming](#)

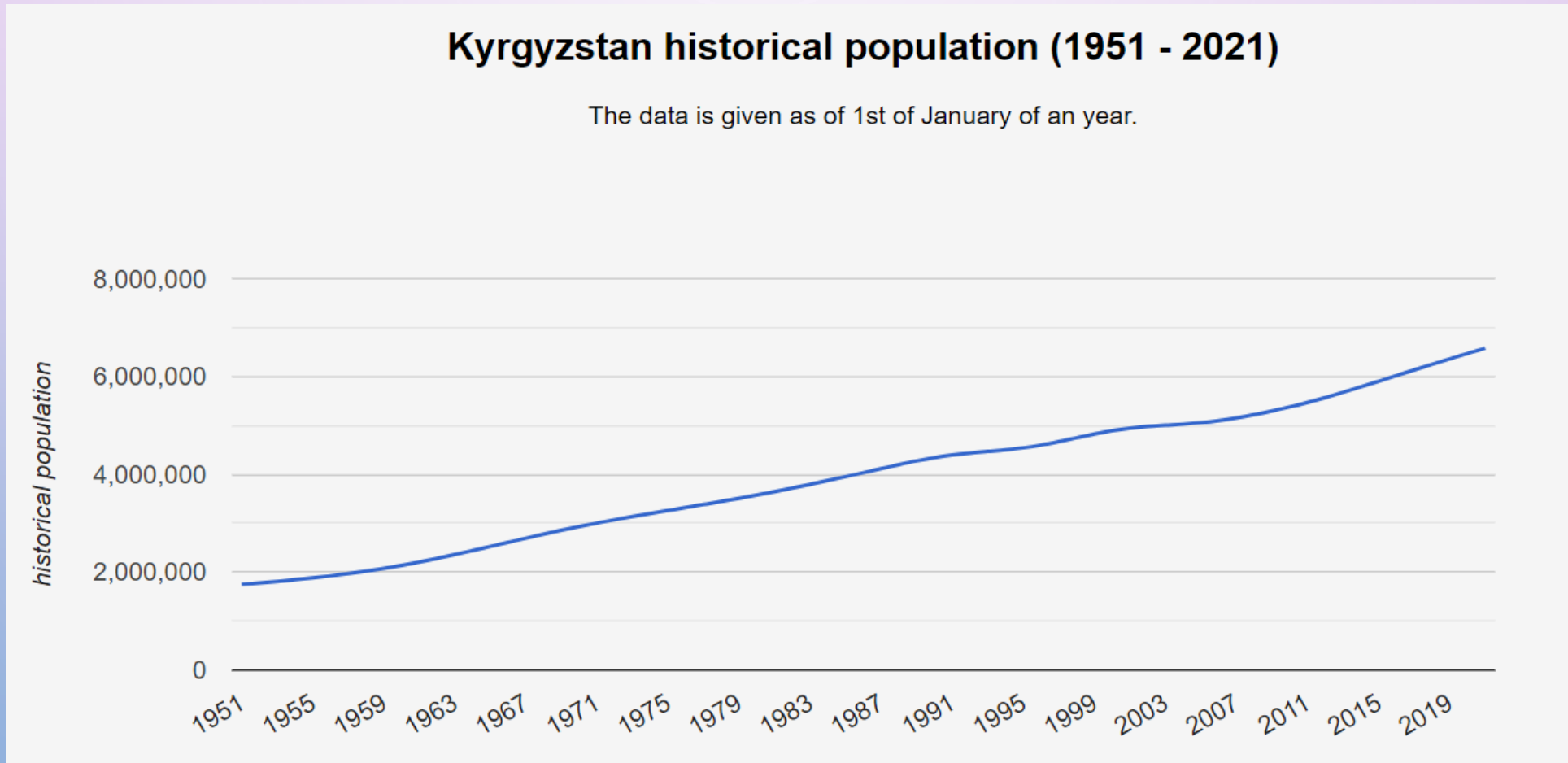


No plains, the lowest areas are located between 500 and 1,000 m a.s.l.

crossed by mountain ranges:
the highest point of the Tien Shan range is Jengish Chokusu (formerly Pik Pobedy) 7,439 meters high.

POPULATION

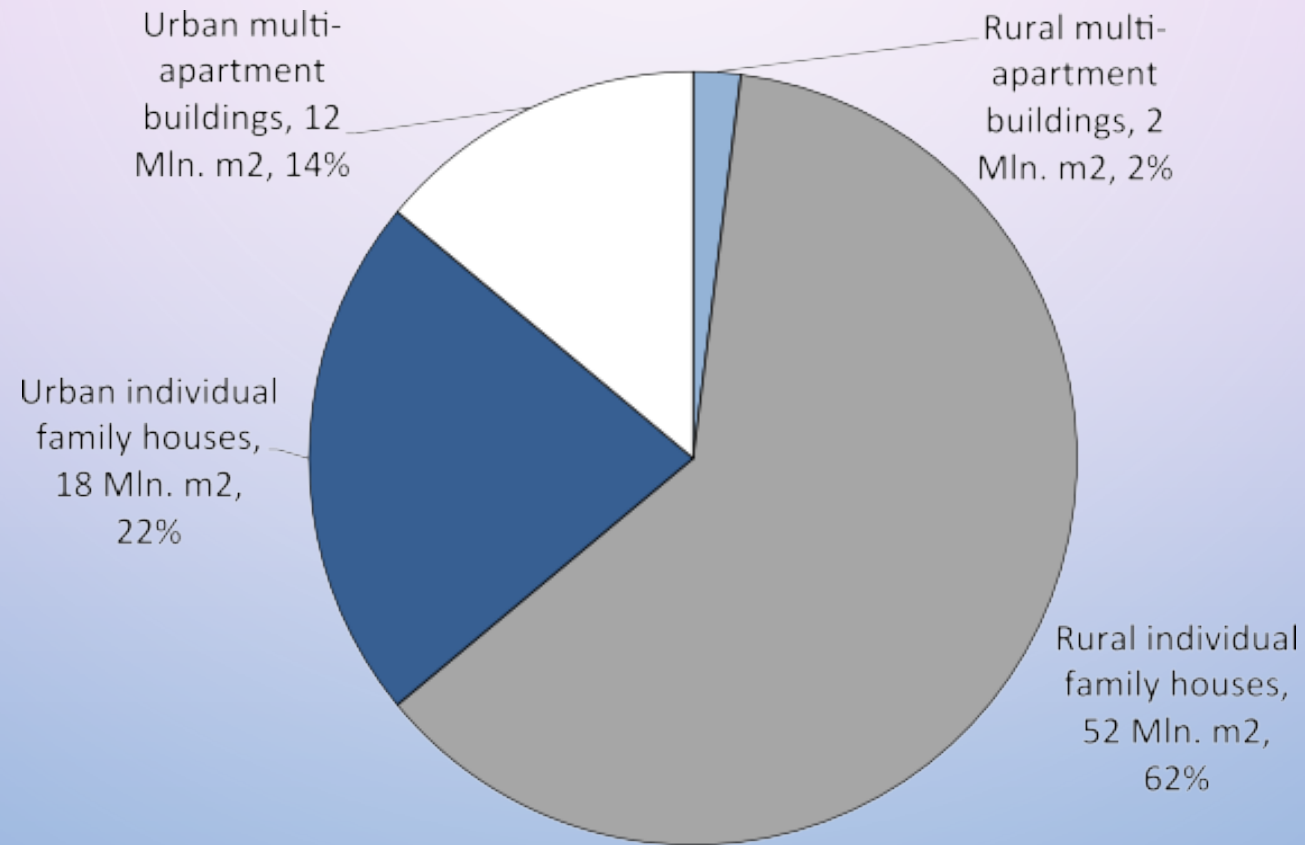
ACCORDING TO THE DATA OF NATIONAL COMMITTEE ON STATISTICS THERE IS A PERMANENT GROWS OF POPULATION OF AROUND 2% A YEAR



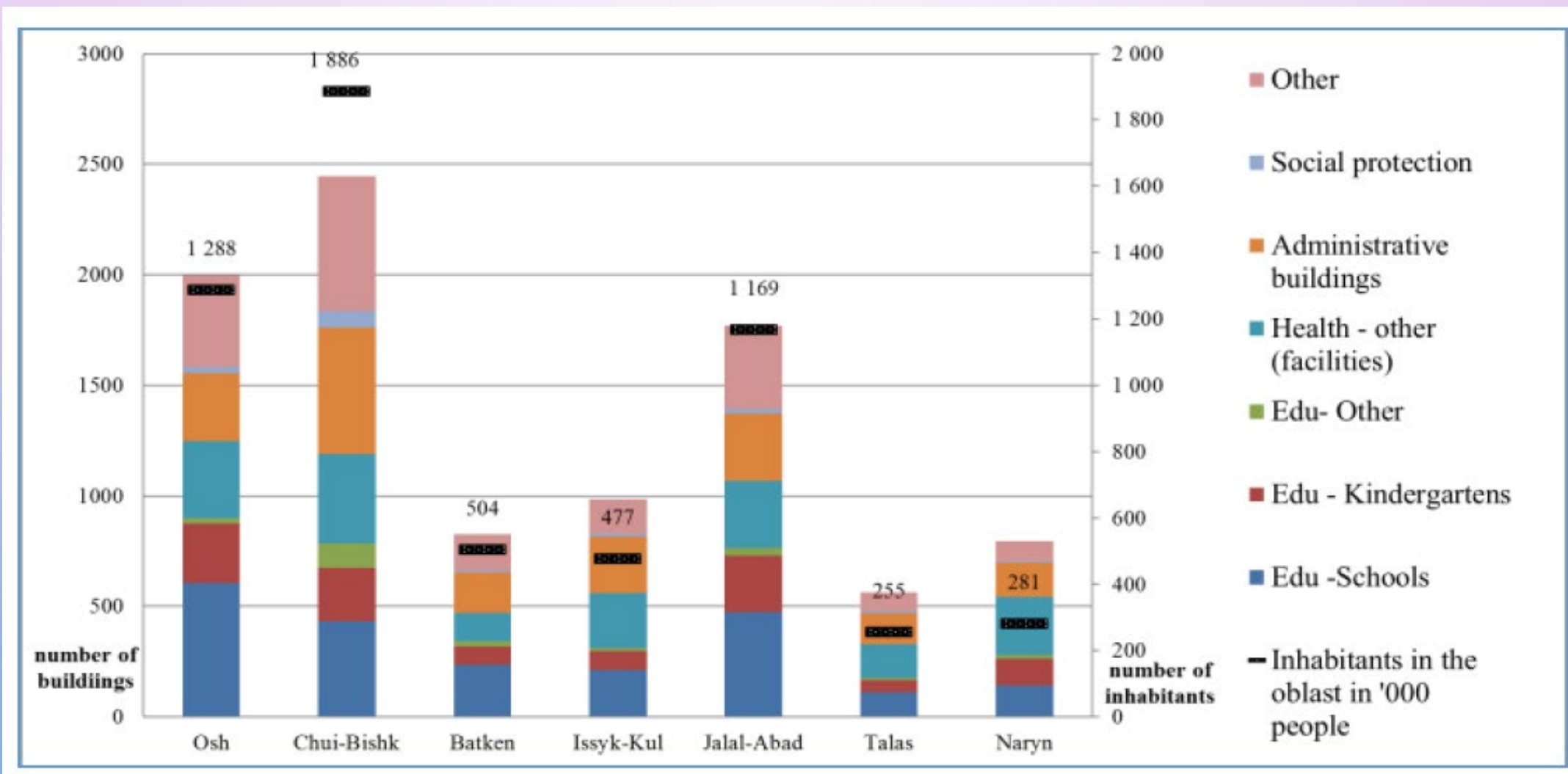
URBAN RESIDENTIAL BUILDING STATISTICS

	Buildings		Floor space		Households		Population	
	Number	Share	'000 m2	Share	Number	Share	Number	Share
Multi-apartment buildings	224,410	41%	13,300	34%	237,200	51%	507,100	39%
Individual family houses	320,800	59%	25,405	66%	229,400	49%	802,900	61%
TOTAL	545,210		38,704		466,600		1,310,000	

Residential Floor Space by Building Type and Location



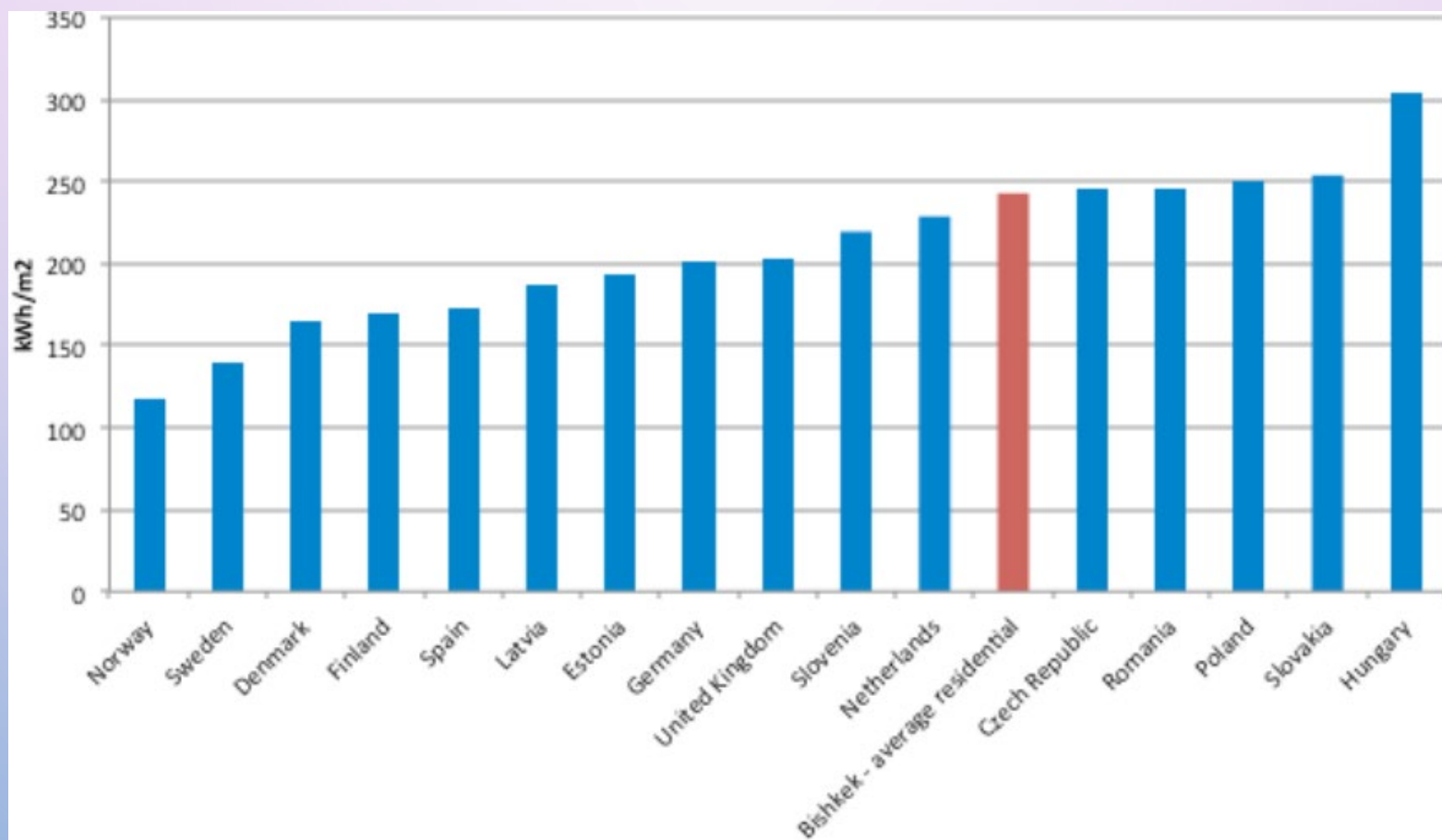
PUBLIC BUILDINGS IN KYRGYZ REGIONS, BY POPULATION DISTRIBUTION



ENERGY PRICES

Prices for main energy sources for residential consumers					
Item	Unit	Som	kWh	Som/kWh	
Hot water	1 Gcal	981,76	1162,80	0,84	
Heat	1 Gcal	1134,76	1162,80	0,98	
Natural gas	m ³	18,06	9,30	1,94	
Coal	1 t	4304,00	3600,00	1,20	
Electricity less 700 kWh	1 kWh	0,77	1,00	0,77	
Electricity over 700 kWh	1kWh	2,16	1,00	2,16	
Prices for main energy sources for commercial (nonresidential) consumers					
Item	Unit	Som	kWh	Som/kWh	
Hot water	1 Gcal	1965,10	1162,80	1,69	
Heat	1 Gcal	1695,10	1162,80	1,46	
Natural gas	m ³	18,06	9,30	1,94	
Coal	1 t	4304,00	3600,00	1,20	
Electricity	1 kWh	2,24	1,00	2,24	

Average Heat Demand in Multi-Apartment Buildings in Different Countries and Bishkek, Adjusted to Reflect Bishkek Heating Degree Days



The World Bank. IBRD. IDA. 2015

$$0,03\text{USD} \times 250\text{KWH}/\text{M}2 = 7.5\text{USD}/\text{M}2 \text{ YEAR}$$

COSTS AND EXPECTED RESULTS OF ENERGY SAVINGS INTERVENTIONS IN PUBLIC BUILDINGS

Technology type	Specific annual energy saving (kWh/m ²)	Specific Investment (US\$/m ²)
Standard/ conventional EE technologies	80-110 (~ 50% EE)	80-100
Building envelope: Insulation of external walls, roof and floor ceiling, replacement of windows and doors Room ventilation system		
Heating system: New heating boilers, retrofit of heating network, hydraulic balancing, radiators, thermostatic valves Energy-efficient lighting (LED) indoor + outdoor		
Innovative technologies	35-55 (additional ~ 20% EE)	70-100 (additional costs)
Ventilation system with heat recovery		
Heat pumps for space heating		
Sanitary hot water: Solar collectors or SHW heat pumps		
Building energy management systems and lighting control		
Overall (conventional + advanced technologies)	100-160 (60-70% EE)	140-190

Summarizing the situation

- LOW ENERGY PRICES CAUSING POOR PROFITABILITY OF EE MEASURES
- POOR PEOPLE WITH LOW INCOME
- DEMAND FOR CHEAP SOLUTIONS AND EQUIPMENT (PEOPLE PREFER CHEAP, NOT EFFICIENT OR OF GOOD QUALITY)
- LOCAL MARKET SUGGESTS CHEAP SOLUTIONS OF LOW QUALITY
- NO RELIABLE ENTITY TO PROVE THE PRODUCT QUALITY OR THE “QUALITY” OF SUGGESTED EE SOLUTION



THERE IS ACTIVITY IN THE FIELD

- INTERNATIONAL ORGANISATIONS WORKING IN THE FIELD: ADB, EBRD (KYRSEFF), GIZ, UNDP, WB.
- PUBLIC FOUNDATIONS WORKING IN THE FIELD: BIOM, CAMP ALA-TOO, CEEBA, CREEED, UNISON
- DOZENS OF PRIVATE COMPANIES (SUPPLIERS OF GOODS, MATERIALS, SERVICE PROVIDERS)



MAIN LOCAL DOCUMENTS

- *ENERGY EFFICIENCY IN BUILDINGS LAW 137*, DATED 26 JULY 2011
- *LAW ON ENERGY CONSERVATION 88*, DATED 7 JULY 1998
- *LAW ON ENERGY 56*, DATED 30 OCTOBER 1996

- SNIP 23-01:2013, “BUILDING HEAT ENGINEERING (THERMAL PROTECTION OF BUILDINGS)”
- SP 23-101-2013, “DESIGN OF THERMAL PROTECTION OF BUILDINGS”

- THERE IS A MISMATCH OF THE INTERNATIONAL NORMS AND LOCAL
- THERE ARE CONTRADICTIONS BETWEEN THE DIFFERENT INTERNAL DOCUMENTS

GAPS

Institutional

- INSTITUTIONAL (UNCLEAR AND UNSTABLE STRUCTURE OF RESPONSIBLE BODIES, LACK OF HR)
- GOVERNMENTAL STRATEGIES HAVE LAC OF IMPLEMENTING MECHANISMS
- LACK OF EXPERTISE WEAK SCIENTIFIC SUPPORT
- WEAK INSTITUTIONAL COOPERATION/COORDINATION (GOVERNMENTAL INSTITUTIONS, NPO, INTERNATIONAL PROJECTS)
- LACK OF CLEAR COMPATIBLE NORMS

GAPS

Economic

- LOW ENERGY PRICES
- LOW INCOMES
- HIGH INTEREST RATES ON LOANS
- LOW COST EFFECTIVENESS

GAPS

System

- LACK OF INFORMATION
 - GENERAL INFORMATION (INTRODUCTIVE)
 - SPECIFIC INFORMATION (NORMS, STANDARDS, MANUALS)
 - LIMITED ACCESS TO EXISTING INFORMATION (DOCUMENTS, LOCAL AND INTERNATIONAL)
- NO FOCUS ON OTHER ASPECTS OF ENERGY EFFICIENCY EXCEPT HEAT CONSERVATION
- WEAK MARKET
- LACK OF SPECIALISTS / EDUCATION / CONSULTING
- LOW LEVEL OF AWARENESS AND RESPONSIBILITY
- NO RELIABLE REFERENCE POINT – CENTER OF EXPERTISE
- NO CONTROL OF QUALITY OF GOODS



THANK YOU!