

Bistrita City ` experience in INCREASING BUILDINGS ENERGY EFFICIENCY



BISTRITA

LATITUDE: 47°08'

ALTITUDE: 370 m

POPULATION: 82.000 inhabitants

SURFACE : 14547 ha



MAIN ENERGY CONSUMERS IN BISTRITA CITY

1. FLATS AND UTILITARY AREA HEATING
2. STREETS, FLATS AND UTILITARY AREA LIGHTING
3. INHABITANTS URBAN TRANSPORT

1. REDUCING ENERGY CONSUMPTION FOR FLATS AND UTILITARY AREA HEATING

A. BLOCKS OF FLATS HEATING REHABILITATION

B. USE OF SUPERIOR EFFICIENCY EQUIPMENT

C. ASPECT AND SPATIAL DESIGN OF THE NEW BUILDINGS ON ENERGY PRINCIPLES







BISTRITA:

No. of flats: **22.856**

No. of persons : **64.000**

Heating system: **FLAT` PLANTS**

Fuel: **GAS**

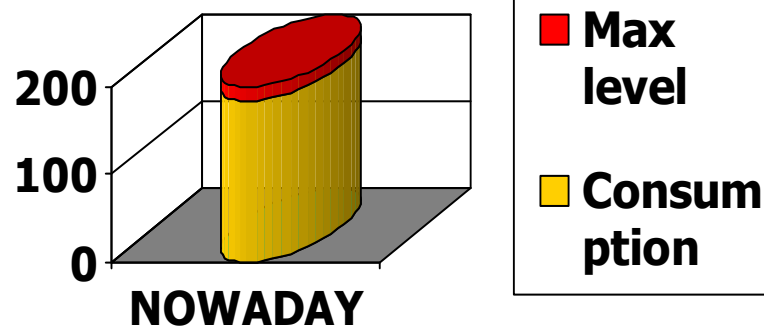
Heating duration: **SEPTEMBER – APRIL**



AVERAGE ENERGY CONSUMPTION FOR HEATING

NOWADAY:

185 kWh/m²

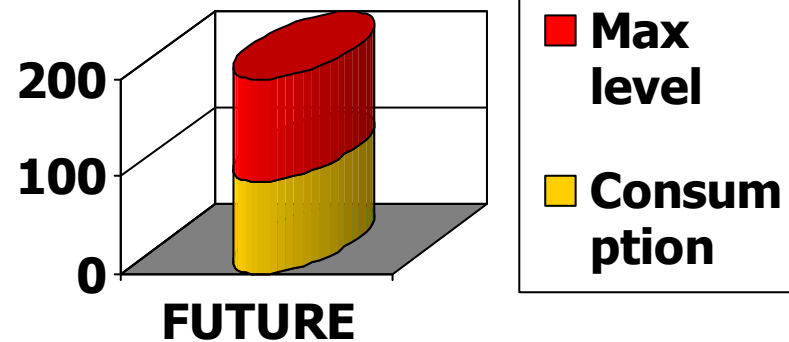


Flat average surface:.....	57 m²
Total surface :	1.302.792 m²
Total consumption:	241.017 MWh
Cost specific:	45 €/Mw
Total cost:	10.845.765 €

RESULTS OF THE BUILDINGS ENERGY EFFICIENCY INCREASING

AIM:

< **100 kWh/m²**



Percentage reduction: **47 %**

Energy economy: **113.278 MW**

Economy value: **5.097.509 €**



STAGES:

- ❑ **HEATING EXPERTISE**
- ❑ **DESIGN**
- ❑ **NEW CARPENTRY**
- ❑ **EXECUTION AND ASSEMBLY**
- ❑ **HEAT INSULATION**
- ❑ **AESTHETICAL RESHAPE**



1.A. HEATING REHABILITATION OF THE BLOCKS OF FLATS

- Inferior floor insulation-over the basement
- Windows and exterior doors replacement with multilayer carpentry and double glazing windows
- Exterior walls insulation
- Superior floor insulation





PROBLEMS ENCOUNTERED IN THE HEAT INSULATION ACTIVITY:

We have blocks in which the energy audits has been made but we did not continue with the design phase. To a number of 24 blocks we achieved the design stage but only 9 blocks have been placed in rehabilitation program for the following reasons:



- Insufficient information of the population regarding the apartments heat insulation benefits.
- Difficulties in establishing the owners associations fund needed to pay their share, because in the old block which represent a high rehabilitation priority, the majority of residents are pensioners and other low income persons categories.



SOLUTIONS FOR SOLVING THE PROBLEMS ENCOUNTERED:

1. We conducted **information** campaigns of the owners by distributing posters and direct meetings with them.
2. Through the local authorities` decision, it was accepted that the owners **pay** their share phased in **rates**, during an year.



INVESTMENT ACHIEVEMENT:

Average cost/flat: **2.636 €**

Investment cost / 22.856 FLATS = **60,25 mil €**

FINANCING: 50 % - Romanian Government

35 % - Bistrita City

15 % - Owner

PROJECT MANAGER: Bistrita City Hall

ACHIEVEMENT DURATION: 2009 - 2015



INVESTMENT PAY - OFF

- Investment cost / 22.856 flats = **60,25 mil €**
- Economy value = **5,1 mil €/year**
- Pay – off term: $60,25 / 5,1 =$ **11,8 years**

**INTERNATIONAL SEMINAR
TWIN TOWNS MEETING AND
NETWORKING ON COMMON THEMES**

Besançon, 17-18-19 September 2009

BISTRITA

THANK YOU!

