

Title

KARPOSH – a program for energy efficiency

Short description

During the past few years, the Municipality of Karposh in the city of Skopje, has been conducting programs for energy efficiency, which is a first for the Republic of Macedonia. These projects gardens are financed mostly from the municipality budget and resources of the citizens. They include initiatives surrounding street lighting, facilities of primary schools and kindergarten, with the goal of saving energy and money while decreasing CO2 emissions. 244 buildings for individual/collective/public use have been constructed from January 2012 to January 2015 with varying levels of energy efficiency. The model of subsidizing energy efficient buildings and renewable energy sources has gained support from citizens who can use this opportunity to partly cover the up-front cost of investing into energy efficient housing solutions. Motivated from the achieved results, there is ongoing continuation with the projects in the second Program for energy efficiency for 2013-2016. This second program will confirm the achievement of the goals set by the Convention of Mayors of European Municipalities and Cities, which aims for a reduction in energy consumption, CO2 emission, and use of non-renewable resources of 20% by 2020.

Topic

Living – Energy efficient housing

Characteristics (type, level)

Local policy

Country/Countries of implementation

Republic of Macedonia

Aims and Objectives

The main aim is the Implementation of positive European practices from cities and municipalities in EU countries regarding energy efficient buildings and utilization of renewable energy sources as well as reduction of CO2 emissions through

- Strengthening of the municipal administration capacities in the Sector of Ecology and Energy Efficiency
- Introducing the benefits of energy efficient buildings and utilization of renewable energy sources to investors of individual, collective and public buildings
- Introducing the methods of designing and the benefits from energy efficient buildings to designers from all building phases (architecture, machinery, electricity)
- Introducing the model of financial subsidies from the municipality and the comfort of living in energy efficient buildings to the citizens

Target Group

Citizens; Personnel from the municipal administration; Investors of buildings;
Designers and design companies

Status

Ongoing

Start and Completion dates

2012 – today

Lifestyle and Behavior Change

The model of subsidizing energy efficient buildings and utilization of renewable energy sources has provoked interest among the citizens who can use this opportunity to partly cover the investment costs. The investors together with designers come to the Sector of Ecology and Energy Efficiency in order to get consulted even in the phase before designing of the building and ask what kind of heating and cooling systems should they implement. Positive examples of the first buildings have been published in separate brochure and on the website, turning into additional motive and interest for new investors and citizens. The refurbishment of the administrative barracks of the municipality and their transformation into energy efficient buildings with heating and cooling system consisting of heat pumps (water/water) is the best practice example for thousands of citizens that can see it on a regular basis and express interest of it.

Effects on:

<p>Health and Wellbeing</p>	<p>This type of objects influences the wellbeing through improvement of people’s comfort of living and working. The financial costs for energy in these buildings are decreased by 50-70% comparing to the existing buildings. These buildings have an impact on the primary energy consumption in the country (of which 80% is from fossil fuels- thermoelectric power plants), wherewith the CO2 emissions are being decreased. The people’s health is also being influenced through improved microclimate conditions and declined emissions of other noxious gases from the thermoelectric power plants or small plants or devices for district heating (running on coal, oil, etc.).</p>
<p>Vulnerable populations</p>	<p>The reduced expenses for heating, cooling and domestic hot water directly affect the budget of every household as well as economically vulnerable ones, which has a significant influence on the living standard of this group of citizens.</p>

<p>Environment</p>	<p>By substituting the fossil fuels in heating systems (coal, oil, etc.) with renewable energy sources this practice contributes in reducing PM10 emissions, CO2 and other noxious gases. There is significant decrease in the needs for primary energy deriving from thermoelectric power plants with the same effects on the environment.</p>
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Initiated and/or implemented by

Local administration initiative supported by introducing basic regulation - Rulebook for energy efficiency of buildings and the sole model, followed by 244 individual/collective/public buildings have been constructed from January 2012 to January 2015: Later, the State Energy Efficiency Rulebook was introduced and implemented from January 2015 to date, though the Municipality of Karposh continued subsidizing buildings with A+, A and B energy class, as unique example in the country.

Stakeholders and sectors involved

Municipal administration +Council of the Municipality+ Mayor
 -Urban and local communities
 -Investors of buildings {re}construction
 -Designers and design companies
 -Academia, Higher educational institutions – faculties
 -Citizens
 -Local and national media

Financial support

All the finances are provided from the municipality's budget i.e. collected from the savings realized with public lighting projects as well as energy savings in buildings of schools and kindergartens for which the municipality is responsible (in total 20 buildings)

Evidence-base

Selection of the methods to be applied, including calculation of the construction physics and transmission losses of the building in order to define the heating and cooling demand of the object, calculation of the energy and money savings are executed with close cooperation with professors and doctors of philosophy from the higher educational institutions, according to methodologies being implemented in EU countries.

Main activities

Two workshops with investors of individual and collective residential buildings (with more than 80 attendants) have been conducted

-One separate workshop with designers and design companies within the municipality and the City of Skopje has also happened to date
 -Completed Rulebook for energy efficiency of buildings has been presented in front of the citizens in all 14 urban and local communities

- An article has been published on the municipality's website, locally printed magazine Karposh urban (in 20,000 copies) and electronic magazine Karposh vision
- Articles have also been published in printed and electronic media within the Republic
- The project has been presented during the Energy Efficiency Days that take place every year in the municipality
- Further promotion and dissemination have been achieved on national and international seminars and workshops

Evaluation

Mainly technical criteria and indicators have been applied to evaluate the : construction features of the buildings, U conductivity coefficients of the heating volume envelope, transmission heating and cooling losses, domestic hot water demand, renewable energy sources used for these purposes.

The methodologies are identical to the practices for energy class determination of existing, new or buildings with higher reconstruction needs and are taken from a German model and practice.

Main results

- More than 450 constructed buildings with energy performances fittingly comparable with the best practices in European cities
- Energy audit conducted on 14 of 20 objects under responsibility of the municipality (schools and kindergartens) which are brought up to B and C class (3 of them with heating systems running on renewables)

Key success factors and barriers

The key factors was the persistence of implementing European practices in local conditions, wasting no time for the state institutions to enact laws and by-laws in this area in order to achieve sufficient adjustment with the European legislation. Showing that subsidies and the implemented model can be also applicable both on local and national level. The deficit of assets on national and local level is the biggest challenge for realization of the subsidizing model. Insufficient prior knowledge of the investors, designers and citizens for the effects of this kind of buildings and the benefits from renewable energy sources utilization could be also an obstacle.

INHERIT Perspective

By substituting the fossil fuels used in heating systems (coal, oil, etc.) with renewable sources of energy there will be a significant impact on the on the proximal and distal environment. If the behaviour surrounding unsustainable heating solutions is also tackled, the impact will be even greater. Furthermore, people's health is potentially improved as indoor and outdoor air quality will better. Declining emissions of other noxious gases from the thermoelectric power plants or small plants or devices for district heating (running on coal, oil, etc.) will also contribute to bettering the health of the target populations. The reduced expenses for heating, cooling and domestic hot water directly affect the budget of every household, and most critically, the economically vulnerable ones who may be subject to fuel poverty.

More information

<http://karposh.gov.mk/>

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