

Energy saving potential through thermo-technical rehabilitation of precast panel buildings in Ulaanbaatar, Mongolia

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Apartment building type	Number of buildings	Number of entrances	Area /m2/		Annual heat energy consumption per m2 /kWh/m2/		Total annual heat energy consumption /kWh/		Savings per year
			per Entrance	Total	current*	after Rehabilitation**	current	after Rehabilitation	Heat energy /kWh/
5 storey	203	908	855	776340.00	350	100	271,719,000.00	77,634,000.00	194,085,000.00
9 storey	183	735	2780	2043300.00	350	100	715,155,000.00	204,330,000.00	510,825,000.00
12 storey	40	40	3855	154200.00	350	100	53,970,000.00	15,420,000.00	38,550,000.00
Total	426	1683		2973840.00			1,040,844,000.00	297,384,000.00	743,460,000.00

* average value according to measurement of German Fraunhofer Institute fuer Bauphysik

** expected value after Rehabilitation

*** average value: 1kg coal produce 3.6 kW heat energy (The average value for brown coal from Baganuur and Shive-Ovoo)

**** by burning of 1kg coal around 1.5kg CO₂ will be emmissioned

***** 1 wagon contains on average 67.5 t coal

***** price for 1t coal on average is 16,000.0 ₮ (actual commercial price for powerplants including transport)

***** Source: Statistical book of Energy Regulatory Office of Mongolia, 2006. Hereby the heatloss by distribution lines is not included.

Savings per year after rehabilitation of all precast panel buidings:

Heat energy 743'460MWh (directly converted in heat value-coal: 206'516 t)

Coal 561'724 t or 8320 wagons***** (206'516 x 2.72=561'724 t, Efficiency of Power plant No.4 is 36.7%*****)

CO₂ 842'586 t

Money 8'987'576'320.0 ₮ (USD 7'681'689.0)

GTZ/UDCP, Mongolia

