



Improving energy efficiency of a hospital using innovative public procurement

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EcoQUIP Project (overview)

www.ecoquip.eu

- ▶ Collaborative European 'Buyers Group' project
 - ▶ Increase demand for innovative solutions in healthcare
 - ▶ Develop and replicate good practice
- ▶ Explore collaborative approaches to Public Procurement of Innovation (PPI)
 - ▶ Six hospitals in five countries
 - ▶ Energy, environment, ICT
 - ▶ Improving patient experience
 - ▶ Innovation procurement management standards

EcoQUIP aims to improve the efficiency, quality and environmental sustainability of healthcare through innovation procurement

Innovation procurement is a way of buying goods and services in a way that stimulates the supply chain to invest in developing better and more innovative solutions to meet the unmet needs of an organisation.

Sucha Beskidzka Hospital



Two projects – opportunities and challenges

Sucha Beskidzka Hospital started participation in two EU co-funded projects (EcoQUIP and RES Hospitals) at the same time

- ▶ Challenges in running two projects simultaneously:
 - ▶ Problems with capacity of the hospital
 - ▶ Confusions in distinguishing projects
 - ▶ Staff not used to project type of work
- ▶ Opportunities:
 - ▶ CEO's involvement (higher motivation of management)
 - ▶ Potential synergy effect (in the future)
 - ▶ Previous experience in running European projects gained through LCB-Healthcare project

Searching for an unmet need

- ▶ Search for unmet need started in December 2012
- ▶ Biggest difficulty – identification of genuine need
- ▶ Mistakes most often made:
 - ▶ Attempts of purchasing traditional solutions through innovative procurements
 - ▶ Confusing innovative procurement with innovative (new) products (just being offered on the market)
 - ▶ Confusing 'innovative' with 'not essential'
 - ▶ Unwillingness to spend more time and work on something that may or may not turn out to work (in more general terms: risk aversion)
 - ▶ Belief that today's solutions are going to work tomorrow

Searching for an unmet need

ACTIONS TAKEN

- ▶ Discussions with hospital management (meetings).
- ▶ Discussions with hospital's staff (workshops)
- ▶ Setting an 'Evaluation Group' aimed at:
 - ▶ walking around the hospital
 - ▶ talking to personnel and patients
 - ▶ searching for ideas for improvement
- ▶ Going through 'next to purchase' lists in search for a product suitable for innovative procurement.
- ▶ Peer Learning Visit in the UK

Searching for unmet need

December 2012

- pressure ulcer prevention solution,
- zero waste hospital,
- efficient lighting system,
- energy efficient hospital,
- protective footwear,
- increasing patients comfort,
- reducing physical work of hospitals personnel (e.g. when lifting patients)

February 2013

- energy self-sufficient hospital
- waste-free hospital
- reduction of water consumption
- distribution of medications

April 2013

- energy self-sufficient and sustainable hospital
- user-friendly, economic and ecological lighting solution
- comprehensive solution concerning food for patients and personnel
- solution for easy and safe transition of patients from one place to another
- economical heat management of hospital

May 2013

- user-friendly, economic and ecological lighting solution for the hospital and its surroundings
- intelligent operation-wear
- distribution of medications system
- internal transportation system
- energy self-sufficient hospital

RES Hospitals workshop

Saving energy – improving processes

Finding solutions

No-investment or
low-investment solutions

Saving energy

Reducing CO₂ emissions

Eliminating waste

Rising awareness

Changing behaviour
patterns



Through
learning



Through
projects

Providing knowledge
concerning renewable
energy sources

Eco-friendly procurement



Problem addressed

Public procurements focus on price criteria

Aim

Include eco-friendly and CO₂ requirements

Means

Create a tool that can be used by procurement department (finding a ground for a comparison)

Methodology being discussed with a procurement department and to be used as a default way of procurement in the hospital

	X ₁	X ₂	X ₃	X ₄	X ₅
A ₁	218	9	7,5	380	3
A ₂	190	8	6,2	265	2
A ₃	198	8	6,4	240	2
A ₄	196	8	6,5	250	2
A ₅	207	7	7,8	290	3

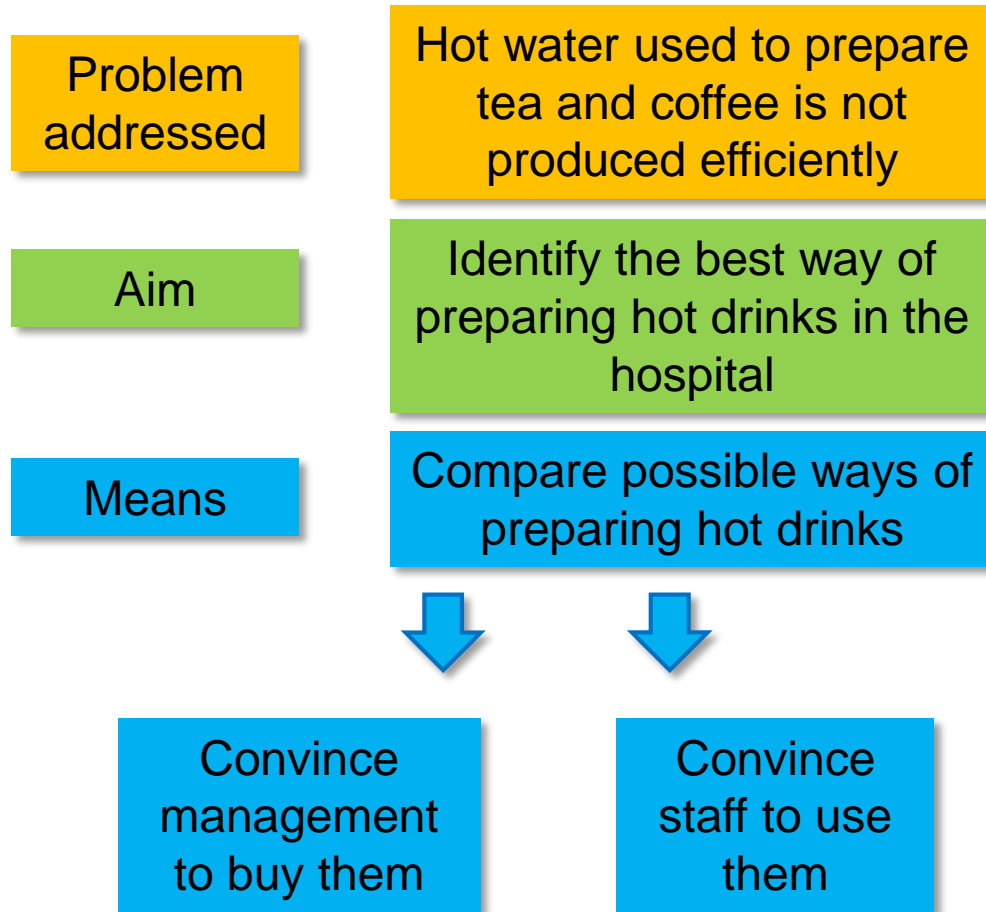
$$q_5(A_i) = \frac{x_{5,i} - 2}{3 - 2} = \frac{x_{5,i} - 2}{1} = x_{5,i} - 2$$

$$q_j(A_i) = \frac{x_{j,\max} - x_j(A_i)}{x_{j,\max} - x_{j,\min}}$$

A₂ > A₅ > A₄ > A₃ > A₁

X _j	X ₁	X ₂	X ₃	X ₄	X ₅	n(X _j)
X ₁	X ₁	X ₂	X ₃	X ₁	X ₅	2
X ₂		X ₂	X ₂	X ₂	X ₅	4
X ₃			X ₃	X ₃	X ₅	3
X ₄				X ₄	X ₅	1
X ₅					X ₅	5
Total						15

Cost-effective and eco-friendly way of making hot drinks



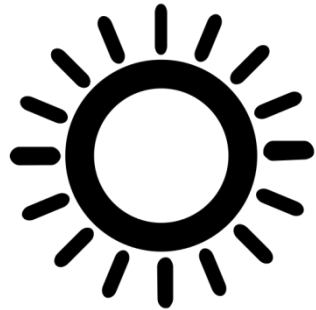
Potential annual savings:

- 10,675 kWh
- 5,130 PLN (~1,300 EURO)

Options for heating water	Gross cost in 6 days (348 hot drinks) [PLN]	
	One cup	Two cups
600 W heating / cooling column	10,8	10,8
700 W microwave	9,0	12,9
1 500 W kettle	5,6	5,2
2 200 W kettle	9,4	4,7
2 750 W kettle	11,5	5,7
Gas stove	(more than 6,3)	6,3

Patient and personnel thermal comfort solution

According to a decree of Minister of Health all hospitals must address this issue by 2016



Problem addressed

In summer patients' rooms are exposed to extensive sunlight

Aim

Secure patient and personnel thermal comfort

Means

Search for a solution that protects from extensive sunlight and heat

Idea started during the workshop became a backbone of innovative procurement under EcoQUIP project, <http://www.ecoquip.eu/>



EcoQUIP and RES Hospitals synergy

- ▶ Decree of Minister of Health from June 2012:
Patients' rooms exposed to excessive sunlight are (should be) protected by specially fitted shading equipment
- ▶ Effective 2016 – future unmet need
- ▶ Early July 2013 – decision to develop this idea and define it as the hospital's unmet need

Improvement of thermal comfort of patients and personnel of Sucha Beskidzka Hospital with the lowest (zero) exploitation costs.

Current situation and existing solutions

- ▶ Hospital
 - ▶ 442 beds in 19 hospital wards
 - ▶ Majority of patients' rooms (68%), ICU, post-operation rooms and stroke unit situated in the southern part of the hospital
- ▶ Currently used solutions
 - ▶ Shutters and internal blinds (which cause shading but not significant decrease of temperature)
 - ▶ Air conditioning in some rooms



Southern facade

Total area – 2 580.00m²

Windows area – 833.84 m²

Big windows (240x170cm/4.08m²) – 194 pieces .

Small windows (146x85cm/1.16m²) – 40 pieces

Current situation and existing solutions

Temperature in patients' rooms exposed to excessive sunlight [°C] – 26th till 28th July 2013

Ward:	26.07.2013						28.07.2013					
	temp. outside		room temp.		blind temp.		temp. outside		room temp.		blind temp.	
	1 PM	4 PM	1 PM	4 PM	1 PM	4 PM	1 PM	4 PM	1 PM	4 PM	1 PM	4 PM
Surgical	26.6	29.6	25.5	27.1	36.5	34.5	31.1	33.0	28.1	28.0	29.9	32
Orthopaedic			24.9	26.6	39.6	35.4			28.9	28.3	31.9	32.1
Neonatal			25.2	25.8	36.2	35.2			28.8	29.0	30	32.2
Cardiology			26.1	25.6	38.4	36			29.1	28.9	34	33.3

Estimated annual costs of using air-conditioning in over-lit rooms:

93,050 PLN (23,260 EURO)

Required outcomes

- ▶ Solution that provides:
 - ▶ reduction of excessive sunlight in patients rooms,
 - ▶ thermal comfort for patients and personnel of Sucha Beskidzka Hospital,
 - ▶ energetic self-sufficiency of a solution,
 - ▶ meeting health and safety standards,
 - ▶ comfort of usage.
- ▶ If possible the purchased solution will improve thermal comfort in winter time

Improvement of thermal comfort of patients and personnel of Sucha Beskidzka Hospital with the lowest (zero) exploitation costs.

To be kept in mind: Whole life cycle costing

Communication with market (technical dialogue, allowed in Poland since 2013)

▶ Preparation

- ▶ Identification of possible market ready solutions
- ▶ Building data base of potential providers
(153 Polish companies, 56 foreign companies)

all companies
contacted
directly by
mail and phone

▶ Dialogue announcement

- ▶ 12 December 2013 – Polish Procurement Journal, hospital
www, European Journal TED
- ▶ 17 February 2014 – application deadline

Participation of
19 Polish and
foreign
companies

Technical dialogue

- ▶ Opening meeting
 - ▶ 3 March 2014
 - ▶ 15 participants
 - ▶ Presentation of need, Q&A session, hospital tour



- ▶ Individual meetings
 - ▶ 16 meetings
 - ▶ 13 March – 29 April 2014
 - ▶ Discussing proposed solutions

Technical dialogue outcomes

- ▶ Various proposed solutions
 - ▶ Differentiated in used technology, costs, degree of 'invasiveness' in hospital infrastructure
 - ▶ Price range: 34,011 EURO to 783,488 EURO
- ▶ Challenges
 - ▶ Not all participants understood idea of technical dialogue - some companies used it as a chance to present catalogue products (similar experience of the LCB Healthcare project)
 - ▶ Most of proposed solutions were originally not comprehensive enough to meet hospital need

Two companies originally competing, merged into a consortium and presented a joint solution

Technical dialogue outcomes

Identification of three groups of solutions

- 1) Solutions and devices limiting sunlight exposure in rooms.
- 2) Solutions of cooling, heating and air exchange in rooms.
- 3) Solutions regarding use of renewable sources of heat energy which will supplement the solution from group 2.

Procurement of a solution from group 1 was announced: **Oct 2014**

Results of the tender announced: **Feb 2015**

Contract signed: **Feb 2015**

Construction of a winning solution start: **Aug 2015**





Trwają prace związane z instalacją modułów fotowoltanicznych - Budynek szpitala od strony południowej

http://www.zozsuchabeskidzka.pl/Aktualno%C5%9Bci/1850-Projekt_EcoQiup_-_budowa_instalacji_fotowoltanicznej_na_budynku_Szpitala.html



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Thank you for your attention

For further information:

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Project innovation procurement workshop

Friday 9 October 2015

Budapest, Hungary

MORE TO COME (Brussels spring 2016)