Overview financing of school infrastructure in a region: issues and opportunities

Tigran Shmis, Sr. Education Specialist, ECA
Education Global Practice

A Roadmap for Safer Schools
January 30-31, 2017

THE WORLD BANK
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GFDRR
Global Facility for Disaster Reduction and Recovery

Outline

Background of Europe and Central Asia region in Education

Financing and Management of school infrastructure in ECA

Innovative projects in ECA related to financing and management of school infrastructure

Background – Europe and Central Asia (ECA)

Hosts 8 country units of the World Bank, managing 31 countries.
15 projects with USD 688mln. commitment, 34 analytical activities spanning from ECD to LLL.

Countries and projects

Country	Project Name	Size (USD)	Levels
Romania	Assistance to the Ministry of Education for Informed Decision-Making on Investments in Infrastructure	576K Unlocking EUR 340 million (from EU funds)	School/Preschool/ VET/ Tertiary
Belarus	Belarus Education Modernization Project	50mln	School
Russia	Innovative development of preschool education in Yakutia	120mln	Preschool/School
Moldova	Moldova Education Reform Project	26mln	School
Serbia	Serbia ECD project	30-50mln	Preschool
Kyrgyz Republic	Engaging Communities for Better Schools Project	~3mln	School/Preschool

Issues globally

Infrastructure investment is expensive:

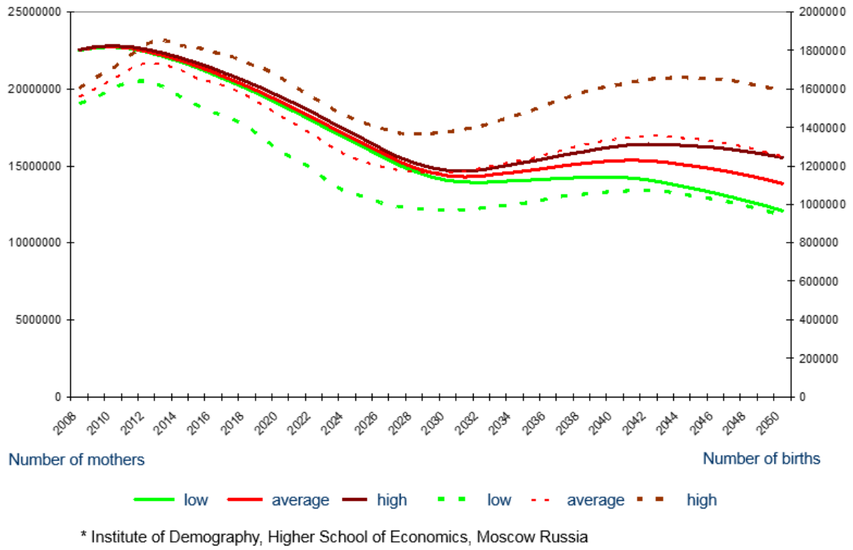
- These programs are usually costly.
- There may be wrong incentives in place for construction companies and governments.
- School network optimizations may be a better investment for school results as opposed to many small rural schools.
- Demography (growing/declining, migration) may influence decisions.

ECA-specific topics

Our client countries are defined as:

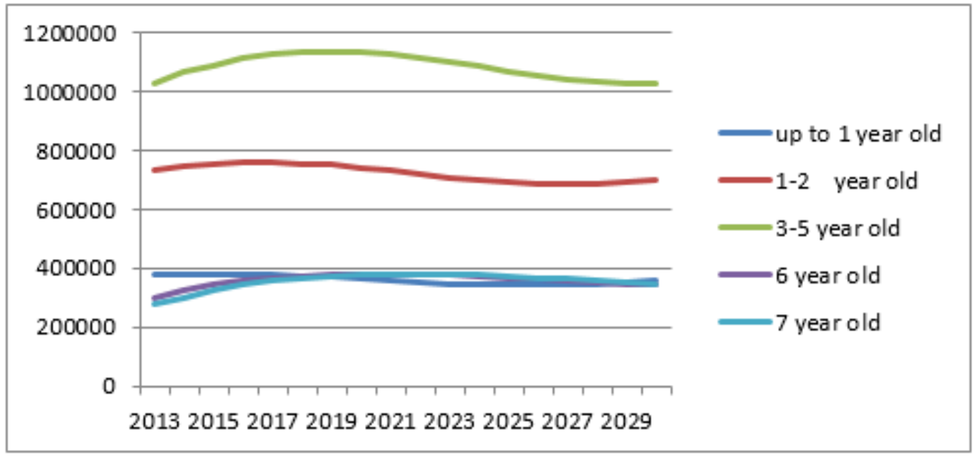
- Diverse economically and culturally;
- Well established systems;
- Mostly decentralized and infrastructure is financed by the local level (Local Self Governments, Aiyl Okmotus, Rayons, Oblasts; Regions);
- Some have strong government sector and weak private companies;
- Some have undergone the deregulation reforms;
- Look at best examples – OECD countries of leading countries in the Region;
- Have low presence of energy efficiency and life-cycle costing in the construction.

Demography



* Institute of Demography, Higher School of Economics, Moscow Russia

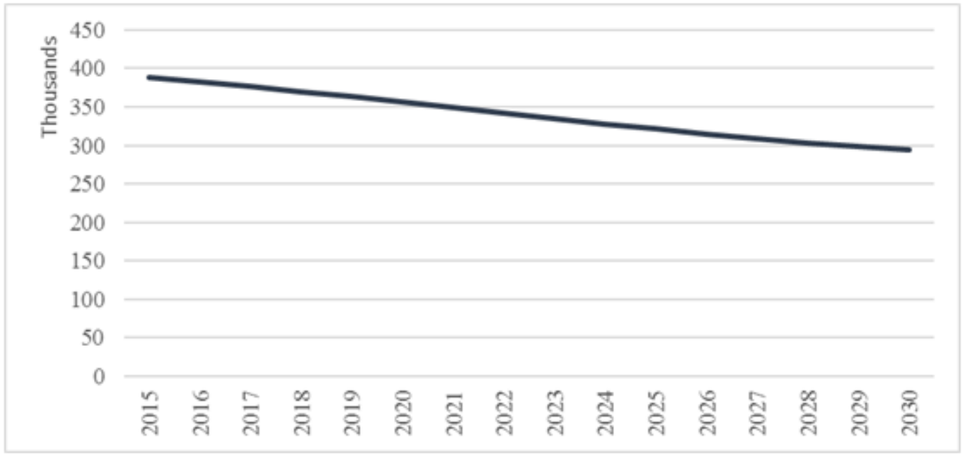
Russia



Source. Kazakhstan Agency of Statistics

Kazakhstan

Figure 3.2 Estimation of population of children eligible to attend some form of ECEC program (2015-2030)



Serbia

Demography is also affected by the significant migration processes. That all sets a specific requirements to the school infrastructure.

Cost per place in kindergartens in different countries

	USA	Reggio Emilia (Italy)	Denmark	Russia, average	Serbia, average in new facilities	Kazakhstan, average
Construction Cost per place	10K to 30K	~20K	13,8K to 29K	25.8K	4K	12.2K

Sources: National programs of Russia and Kazakhstan, small sample of kindergartens in Denmark and Italy; National recommendations of the USA; World Bank project design in Serbia.

* USD rates for Russia and Kazakhstan as of the end of 2013

Financing of the school infrastructure in ECA : diverse experiences

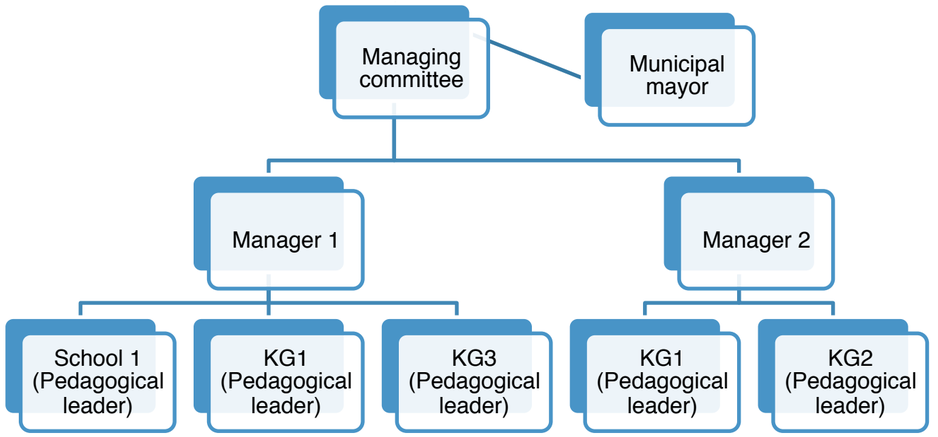
- Russia/Kazakhstan – large government programs to improve infrastructure. Including CDD-like approach (local communities receive targeted co-financing from the regional government to finalize the projects). Russia implements an initiative on schools without shifts USD50bln worth till 2025.
- Russia – Regional programs Local Initiative Support Program (LISP). Non-targeted block grants of the local governments (streamlined to schools as well).
- Belarus\Moldova\Serbia – attracted lending from the donors and IFIs.
- Romania develops a comprehensive education infrastructure investment strategy to implement it trough the EU structural funds.

Financing of the school infrastructure in ECA : examples to look at

- UK - Asset Management Plans (or AMPs). A framework for assessing capital needs and agreeing priorities locally in a robust, fair and improved way, and in a spirit of good partnership and collaboration.
- Portugal (Parque Escolar) – large scale reconstruction program financed by the government.
- Denmark – Government initiative to boost a diversity in schools management, as well as helping the local governments to efficiently plan the investment (model programs fro preschools/schools).

Managing the school infrastructure

1. Understanding what is going on (Romania – GeoSpatial EMIS);
2. School network optimizations – school bus programs, consolidation in line with per-capita financing of education (Russia, Moldova, Romania, selected EU countries);
3. Managerial functions optimizations (Russia, Denmark, Italy, Austria).
4. Prioritizing support to larger centralized schools to catch up with the migration trends (Belarus)



Impact on outcomes

Preschools

Agency and executive function are higher when more opportunities are provided for initiative, and ability to change the environment by children (Bagby et al, 2012).

The more active space in environment, the more creativity, the less conflicts, higher self confidence (Prescott, 1967; White and Stoecklin, 2003, Maxwell, 2007).

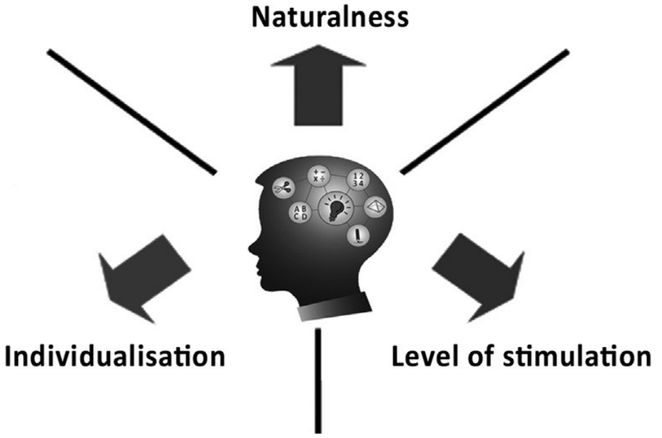
Schools

According to clever classrooms study (Barrett et al, 2015):

Naturalness: light, temperature and air quality accounting for 50% of the learning impact

Individualization: ownership and flexibility accounting ~25%

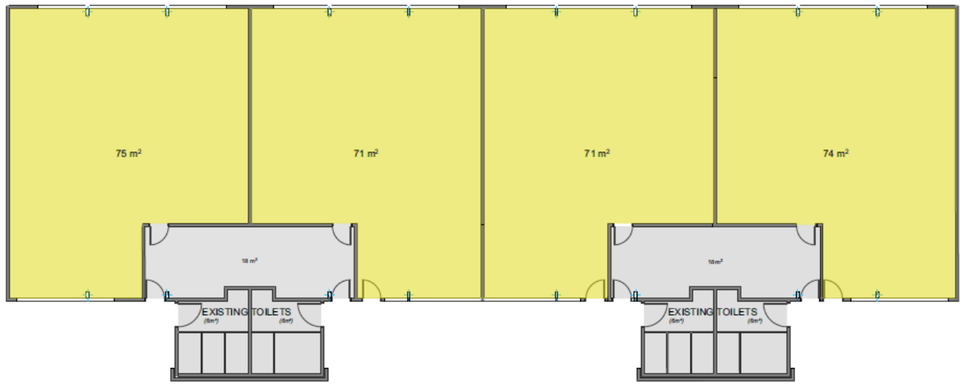
Stimulation (appropriate level of): complexity and color ~ 25%

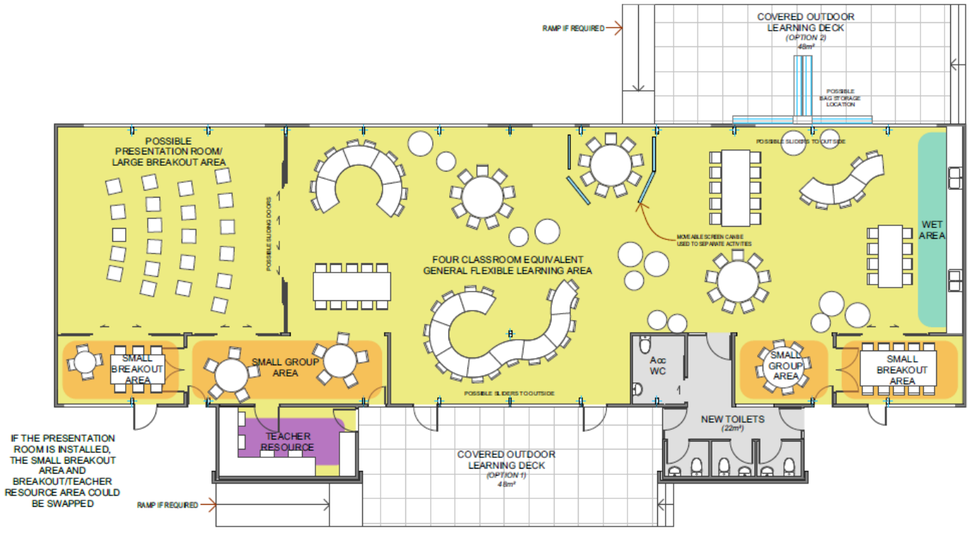


SIN methodology was applied recently in Romania.

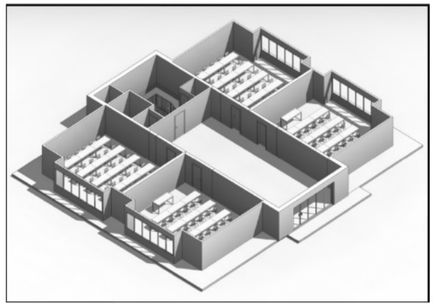
All challenges may be addressed by innovations, although they require challenging the rules

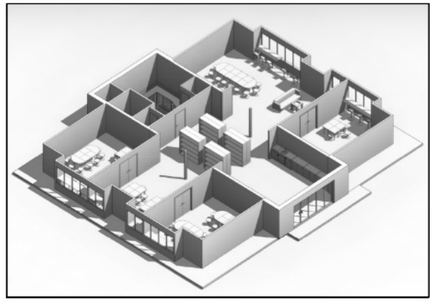
Transition from traditional to innovative

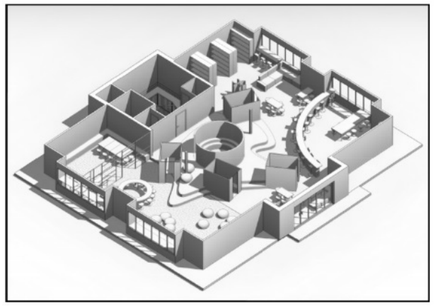




School design





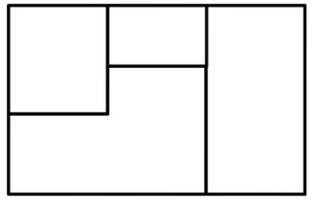


Traditional

Class Divided
Subject-based
Tight structure

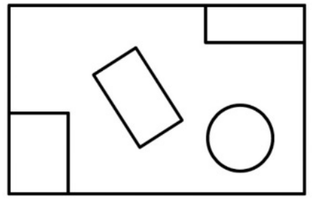
Varied

Common Area
Subject-based
Diversity

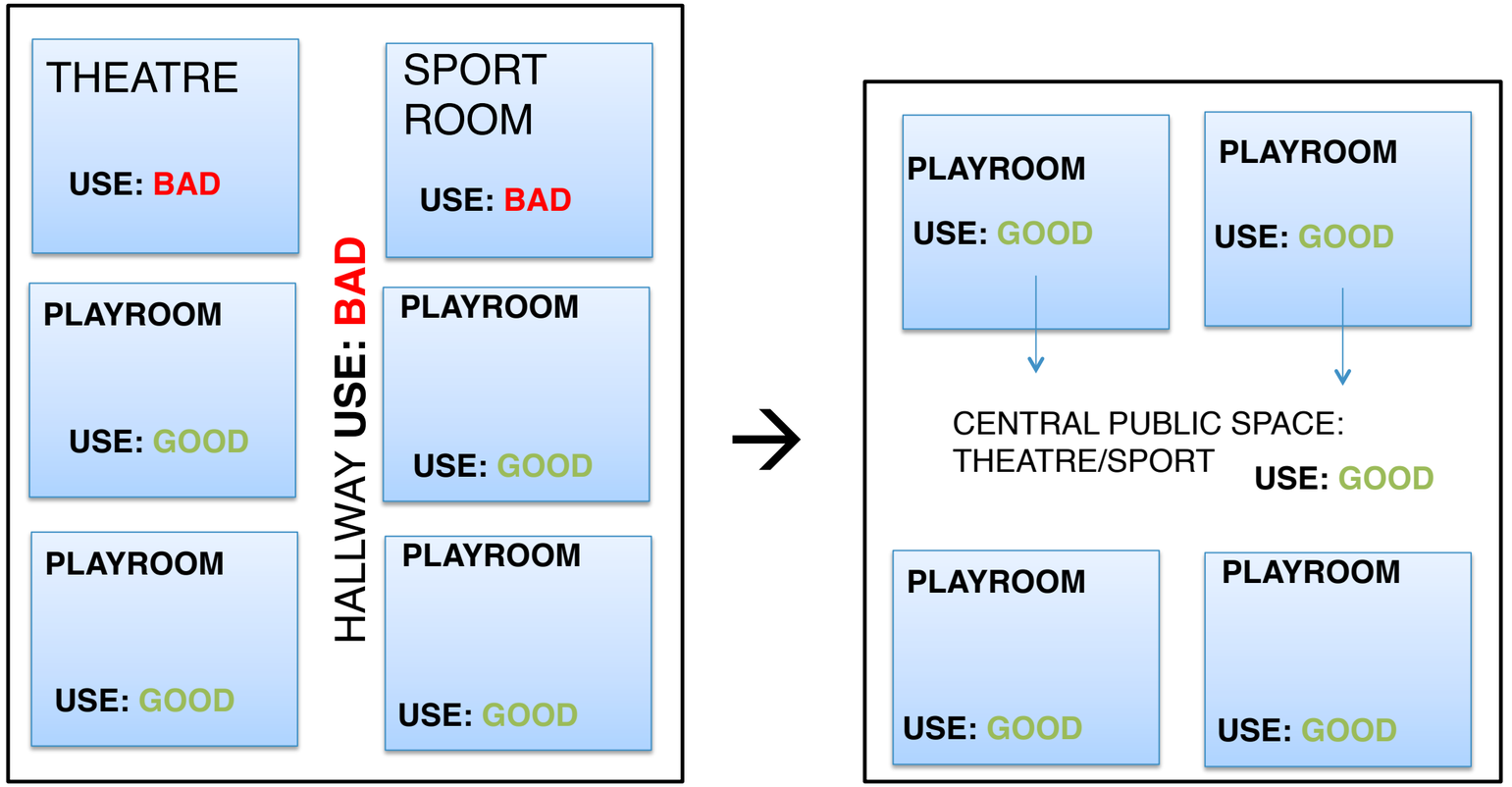


Learning landscape

Common Area
Options
Diversity



Better spaces, no bigger spaces



SPACE USED TOTAL: 500m2

SPACE USED TOTAL: 400m2

BETTER USE OF SPACE, REDUCTION IN SIZE AND COSTS FOR 20%
+ INTERESTING AND FLEXIBLE SPACES

Better spaces, no bigger spaces

Active space per child

2.5 sq.m. ⇨ ~9 sq.m.

4700 sq.m.

Total space of the building

~3000 sq.m.

Energy savings

0% heating
0% electricity
0 USD

⇨

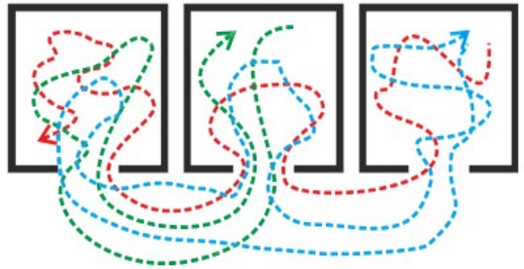
up to 70% heating
up to 30% electricity
up to 1.6 mln USD
over 40 years of operation

Traditional approach

Area of movement - 40m²
Interactions - 4
Possible meetings - 20
Experiences - 3

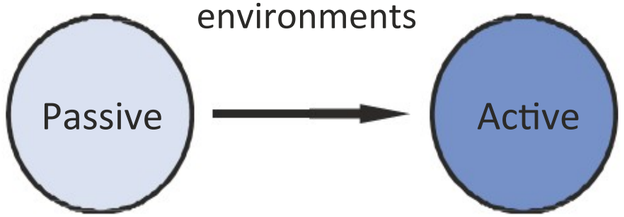
Open multifunctional

Time of open space use 9:00 - 11:00



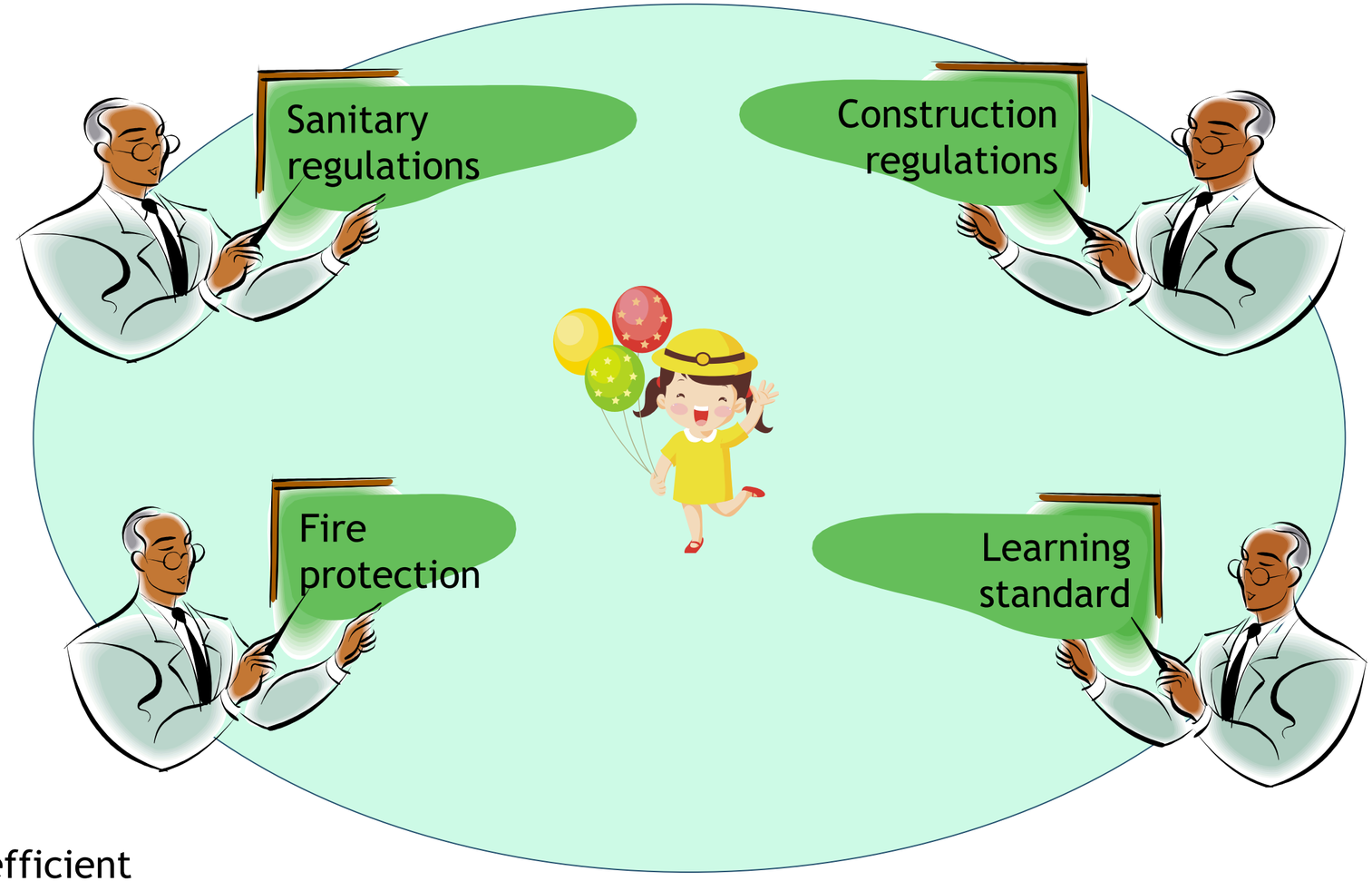
Area of movement - 250m²
Interactions - 8
Possible meetings - 60
Experiences - 9

Refocusing of the learning environments



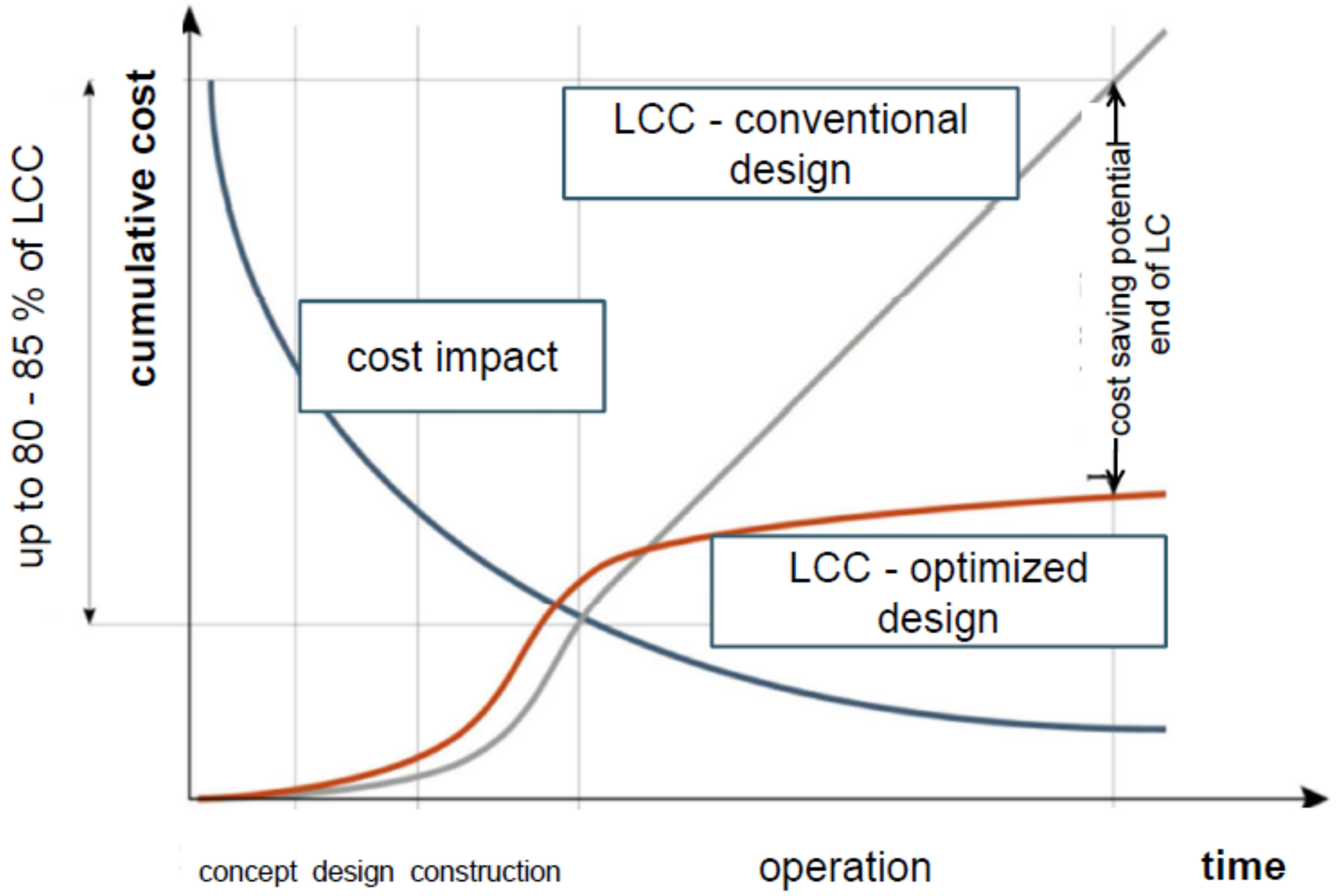
North of Russia: doing more with less in practice – kindergarten for 220 kids

Child centered regulations: improved efficiency



Economy = more efficient
Active spaces = more in the same buildings
Alignment of the regulations = high

Lifecycle costing and efficiency



Benefits from investing in construction of new energy efficient kindergarten on scenarios

Scenario	Construction			Operation costs				TOTAL BENEFITS, million RUR, USD columns (3)+(7) and (4)+(8) resp.		Savings (per place), %
	Rise in Costs	Savings (million (3) RUR; (4) USD)		Consumption cut-down		Savings (over 40 years), million RUR, USD				
				thermal energy	electricity					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
High	0%	91.8	2.88	70%	30%	50.9	1.60	142.7	4.48	64,8%
Moderate	25%	51.6	1.62	50%	20%	43.7	1.37	95.3	2.99	43,3%
Low	50%	11.4	0.35	30%	10%	36.5	1.14	47.9	1.50	21,7%

Thank you!

tshmis@worldbank.org