



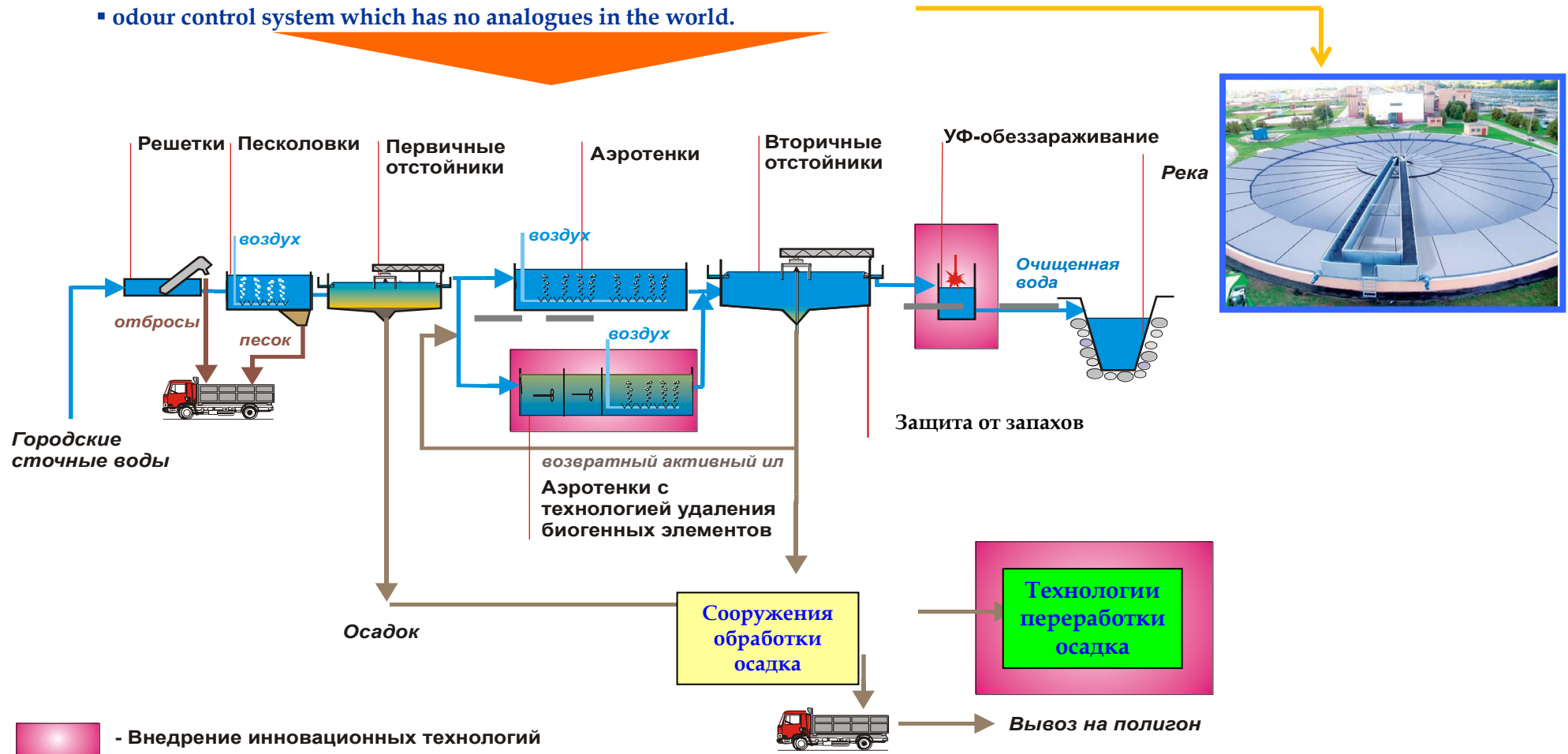
Открытое акционерное общество
«МОСВОДОКАНАЛ»

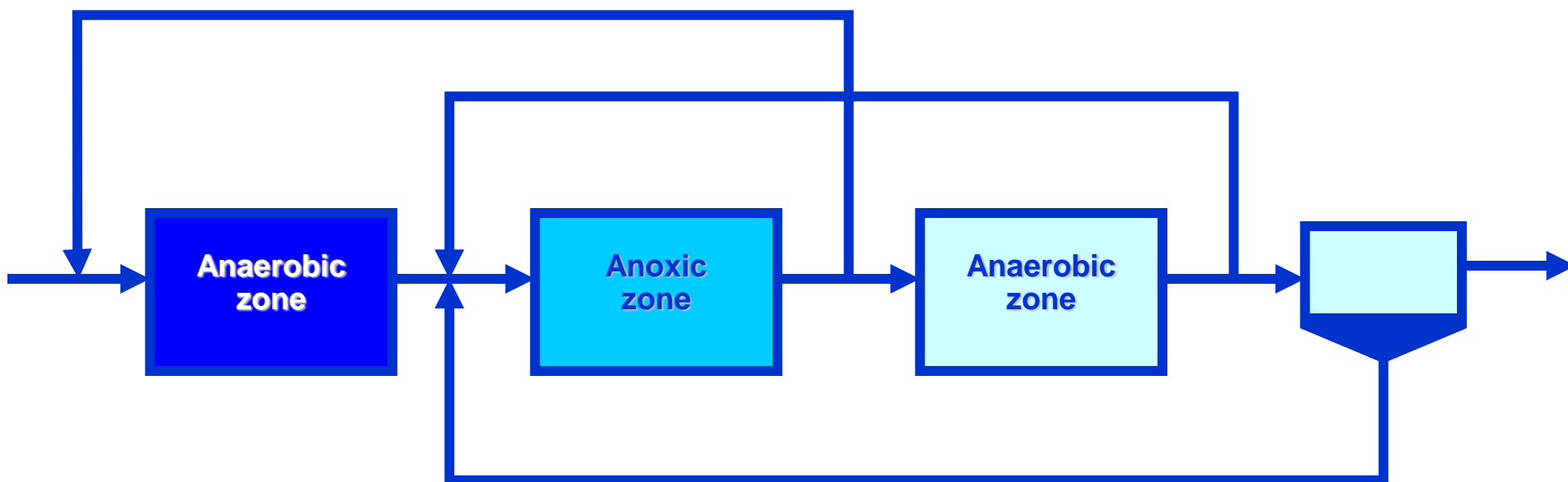
MOSVODOKANAL
Open Joint-Stock Company
**«Efficiency upgrading project of sludge treatment technology in
Moscow wastewater disposal system»**



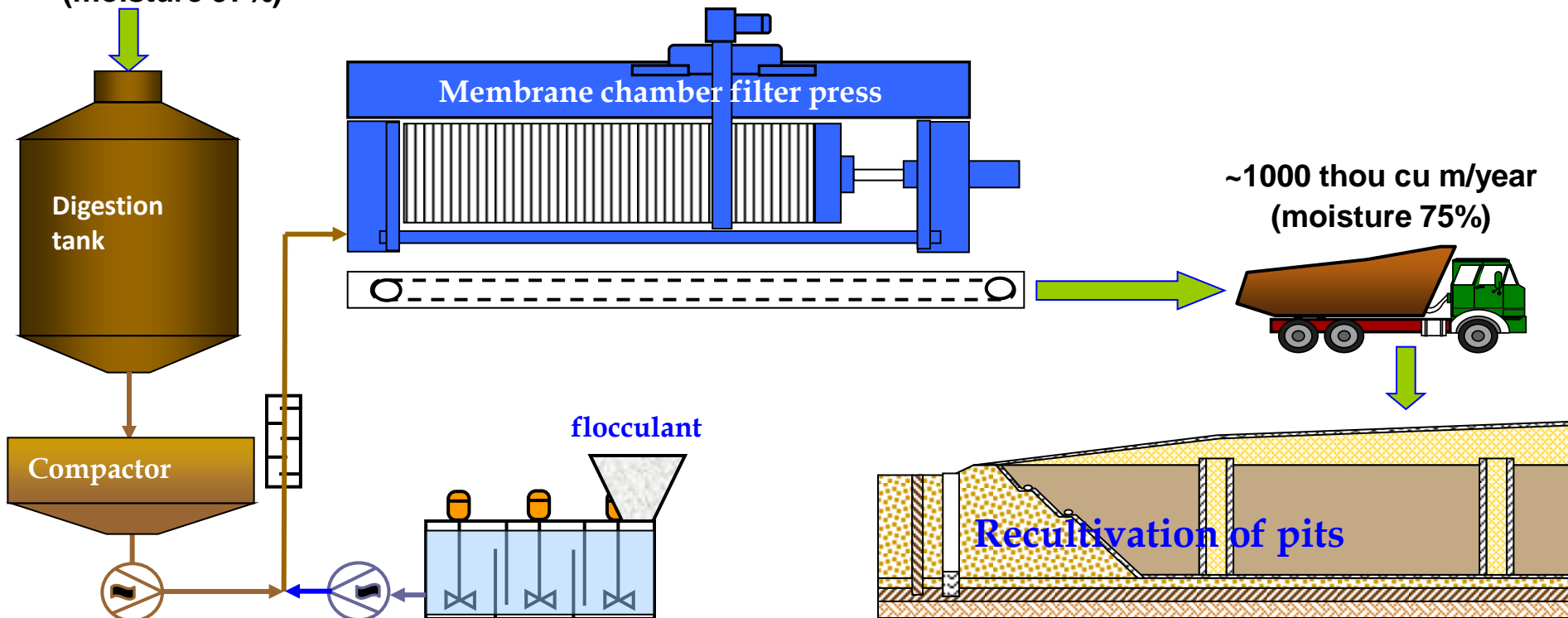
- ✓ Number of customers - 13.000.000;
- ✓ Population provided with sewage - 100 %;
- ✓ Sewage basin area- 1200 sq km;
- ✓ Length of the sewer (gravity and pressure) network - 8,2 thou km;
- ✓ 154 pumping stations with total capacity of 9.1 mln cu m a day;
- ✓ 4 wastewater treatment facilities: Kuryanovo, Lyubertsy, South Boutovo, Zelenograd;
- ✓ Average daily wastewater inflow - 4,2 mln cu m;
- ✓ Treated wastewater is discharged into the Moskva River and its tributaries - Pekhorka, Desna, Skhodnya rivers.

- ✓The Moscow sewerage is one of the most complicated engineering systems in the world.
- ✓The most efficient technologies are applied in the wastewater treatment, particularly:
 - ✓biological treatment without chemicals usage with biogas output (used for electric power and heat generation),
 - UV-disinfection of the effluent,
 - sludge dewatering in decanter centrifuges,
 - odour control system which has no analogues in the world.



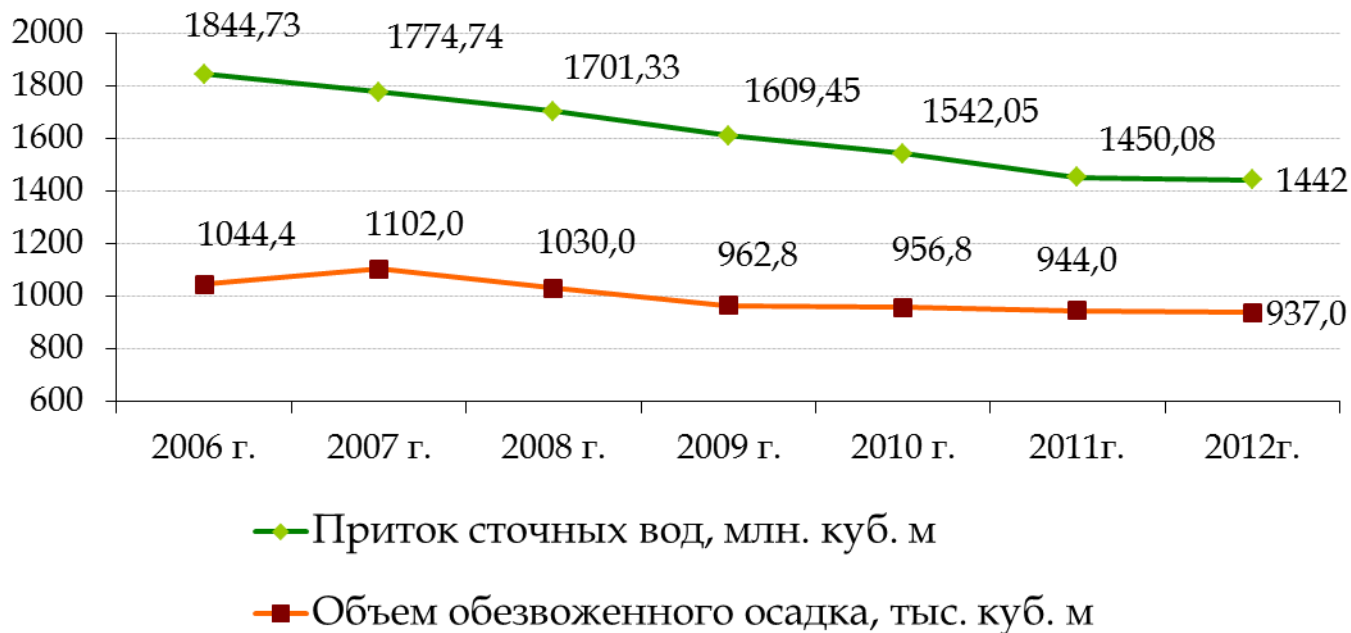


~ 13000 thou cu m/year
(moisture 97%)



Challenges:

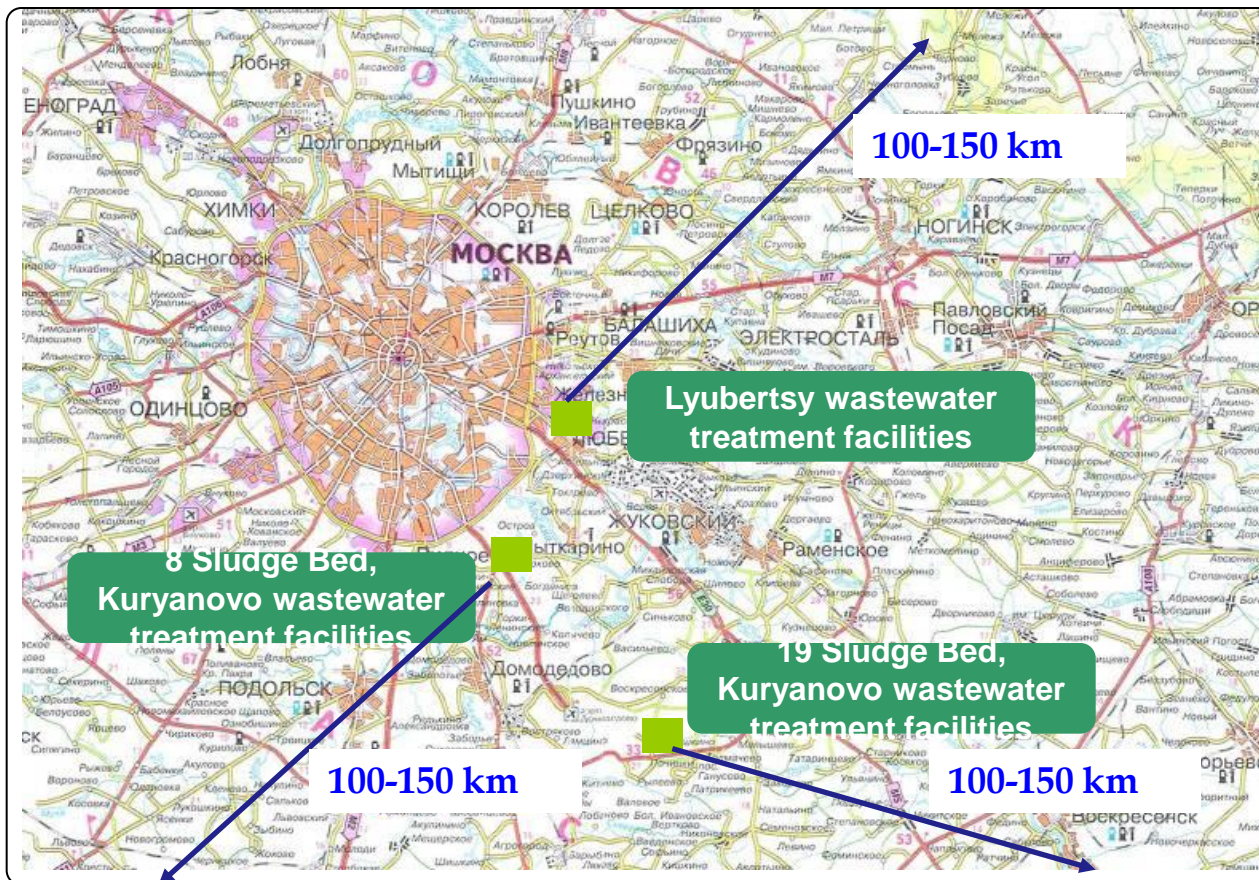
- Large volumes of recyclable sludge (~ 1000 thou cu m/year)
- lack of the required number of pits (need ~ 8,5 ha/year)
- high transportation costs (more than 100 km)
- high service costs of municipal solid waste landfills.



Despite the fact that the wastewater inflow is decreasing, the volume of sedimentation is stable.

Necessity for for the technology improvement

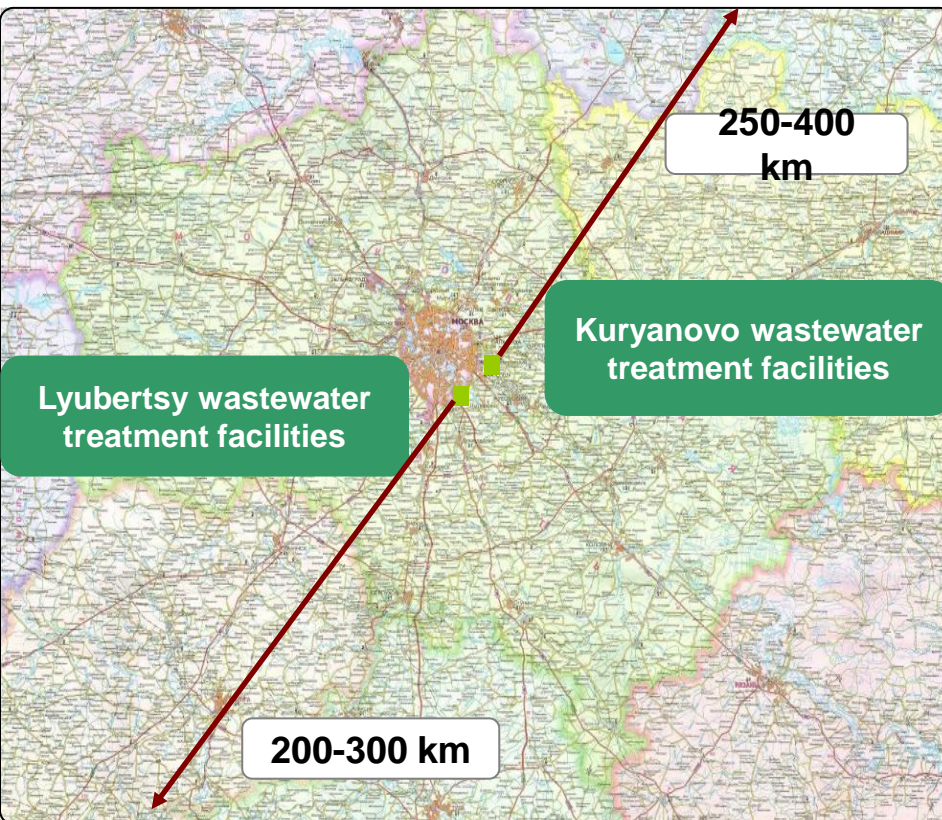
- ✓ Existing technology of sludge disposal – transportation to the municipal solid waste landfills.
- ✓ The remaining time period for waste disposal in the territory within a radius of 100-150 km from Moscow is 2-3 years.



Current conditions:

- Large volumes of recovered sludge (~ 450 thou cu m/year)
- lack of the required number of pits (~ 8,5 ha/year)

Sludge beds and pits for wastewater sludge disposal (outlooks in ~ 4 years)



Outlooks:

- high transportation costs (more than 250-400 km) temporarily solve the problem of sludge disposal using existing technologies
- significant investment component for landfills construction – costly landfill service

✓ Implementation of a new cost-effective technology of sludge disposal



Президент России



ФЕДЕРАЛЬНАЯ СЛУЖБА
ПО НАДЗОРУ В СФЕРЕ
ПРИРОДОПОЛЬЗОВАНИЯ



Правительство Московской области

- ✓ development of long-term investment programs for solid domestic and industrial waste treatment,
- ✓ implementation of pilot projects of waste treatment in the constituents of the Russian Federation, where the waste disposal problem is most acute, primarily in Moscow and Moscow region.

On the possibility to place sludge in the landfills and pits:

- ✓ sludge placement is possible only in the waste disposal areas with enabling documentation for waste disposal

In the Moscow region*:

- ✓ landfill waste disposal will be reduced (construction of waste recycling plants is planned)
- ✓ at the end of 2012 the remaining time period for waste disposal is 2-3 years.

CONCLUSIONS:

State policy:

implementation of the best available technologies for the sludge disposal involving business and strengthening of environmental control

Additional costs for the sludge disposal in terms of negative impact on the environment

Lack of the landfills for sludge disposal in the near term (less than 4 years)

Challenges of the existing sludge utilization scheme (landfill placement):

- Remoteness of the existing landfills (100 - 150 km) → high transportation costs of large sludge volumes (450 thou cu m/year). **Negative environmental impact**
- residual landfills capacity for sludge disposal in the Moscow region- less than 4 years
- it is impossible to use sludge as recultivant in the pits - can be placed only in the landfills → negative environmental impact
- severe requirements for landfills construction and maintenance → high landfills construction costs → high landfills service costs

Possible solutions for sludge utilization (Moscow sewerage):

- Reducing the sludge volume (sludge incineration). **Costly, in the long term - problem of environmentally hazardous sludge utilization.**
- **Implementation of sludge treatment technologies, producing products being in great demand.**

Criteria for the choice of technologies

- ✓ Prevention of significant cost increase by switching to new technologies
- ✓ Wide range of products usage obtained from the sludge treatment
- ✓ Ecological efficiency - reducing the environmental load by eliminating methane outburst and significant reduction of vehicle emissions
- ✓ Energy efficiency
- ✓ Free land areas (previously used for landfills)

THANK YOU FOR YOUR ATTENTION!