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THE ROLE OF CIVIL ENGINEERS IN ACHIEVING SUSTAINABLE DEVELOPMENT GOALS

Experience of Moscow

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Sustainable Development Goals

One of the most worthy tasks that a civil engineer can undertake in the modern world is a sustainable construction. Today, the natural environment, transformed by builders, affects the sustainable development of all countries of the world. And in achieving the goals of sustainable development, civil engineers are in the forefront.

Construction has a strong environmental impact:
- 40% of energy consumption
- 40% of CO2 emissions
- 30% of consumption of natural resources
- up to 30% of waste products
- 20% of water consumption

Construction

plays a key social role, providing housing for 6 billion people worldwide

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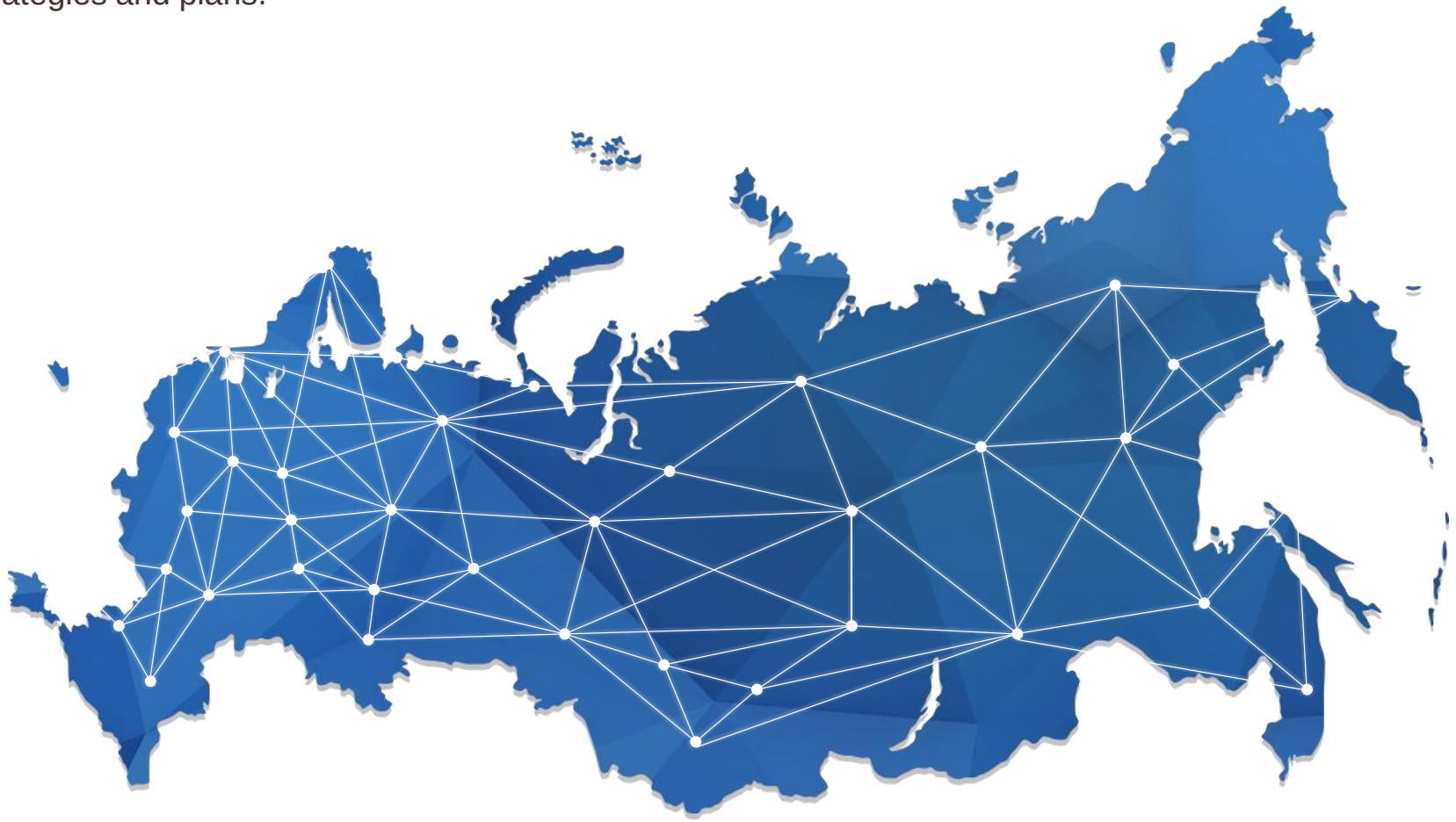
Territory-Distributed Approach to Sustainable Construction

A prerequisite for the successful implementation of the SDGs is their incorporation into national policies, strategies and plans.



Russia proceeds from national realities and circumstances, while the development of national strategies and plans should be based on the SDGs, taking into account the adaptation of the international regulatory framework and the creation of tools to support activities at the national level.

Adaptation of Sustainable Development Goals for Russia

TARGETS	INDICA TORS
11.1. By 2030, ensure access for all to adequate, safe and affordable housing and basic services	**11.1.1.** Proportion of urban population living in inadequate housing
11.2. By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety	**11.2.1.** Public transport passenger traffic
11.3. By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management	**11.3.1.** The number of population living in cities with high and very high levels of pollution **11.3.2.** Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in in the atmosphere of cities **11.3.3.** Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities
11.4. By 2030, provide universal access to safe, inclusive and accessible, green spaces	**11.4.1.** Proportion of green areas in the urban area (the area of SPNR and green areas per capita, sq.m. / person)

Report on human development in the Russian Federation for 2016/ ed. L.M. Grigorieva and S. N. Bobylev. - M .: Analytical Center, 2016.

Sustainable cities

The implementation of SDG 11 «Ensuring safety, resilience and environmental sustainability of cities and human settlements» is associated with improving the lives of most of humanity.

More than a half of the world's population lives in cities, and this proportion will only increase: cities will account for up to 90% of the growth of the world population, as a result, according to UN experts, by 2050 cities will have:

- **urban dwellers about 70% of the world's population;**
- **80% of world wealth is concentrated ;**
- **60% of energy consumption.**

Massachusetts Institute of Technology, MIT City Science at: http://cities.media.mit.edu/about/cities; Global Cities 2016. A.T. Kearney, 2016.

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Big Cities = Big Challenges for Sustainable Construction

MOSCOW

Project MOSCOW “Smart City – 2030”

Projects: “Parks of the Capital” & “My street”

GREEN AREA

Park «Zaryadye»

56 new parks
(including 50 district parks)

129 green areas

«My street»

The second phase of the programme was launched in May 2016, more than 50 streets, squares and other urban sites were completely renovaated. More than 30 architectural studios from Russia, Germany, Niderlands, China, Denmark, Switzerland, USA and France worked on the progects and took part in the initiative.

Projects: “METRO 1935 — 2022. Moscow's iron acceleration”

By 2022 about 200 kilometers of lines should be laid in Moscow and about 100 metro stations should be open, including MCC

Renovation is the transition to sustainable development

IT WAS

- Unused green areas
- Impermeability of built-up areas
  Chaotic parking in the courtyards
- Through-traffic at the courtyards
- Insecure environment

IT HAS BECOME

- Efficient use of land resources
- Increasing the permeability of territories through the formation of a system of public spaces
- Microclimate formation and planting of large-sized trees
- Underground parking and courtyard without cars
- No through-traffic at the courtyards

Renovation of the Housing Stock in Moscow

5 171
houses are included in the renovation program

The renovation program in Moscow is a set of measures aimed at the qualitative renewal of the urban environment and the creation of favorable living conditions for citizens, and public space in order to prevent the growth of condemned buildings in Moscow and to ensure the development of residential areas and their improvement.
Carrying out of these measures will allow to update and modernize the engineering infrastructure of houses, to form a modern architectural appearance and to improve the ecological situation of the capital.

350 000
families will move

256
building sites

3 800 000 m²
of housing will be constructed


4 QUALITY EDUCATION
1
Science
2
Industrial engineering
3
Production
4
Standardization
5
Design
6
Construction
7
Housing and public utilities
Training of specialists

Conclusion

- Actual investment and construction projects in modern Moscow are implemented with due account of the active use of the sustainable development principles.
- Progress in this direction is possible only by coordinating the efforts of not only civil engineers, but also representatives of the legislative and executive branches of government, and also requires mandatory legal support and the development of relevant standards.
- The Moscow branch of the Russian Society of Civil Engineers is convinced that the joint efforts at the global level will allow implementing macro-projects of international scale.
- At present, there is the possibility of participation of specialists and organizations of any construction expertise in numerous construction projects implemented in Russia

We invite you to cooperate!

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Thank you for your attention

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