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PRESERVATION AND RENOVATION OF FORMER PLANT ZNAMIA TRUDA IN MOSCOW

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Abstract

The paper considers the problem of preservation and complex development of the historical industrial territory of the Znamia Truda plant in Moscow, concepts for its revitalization and urban integration are proposed. Currently, production equipment has been removed from the territory and there are concerns about further development of the territory and preservation of existing industrial buildings. The idea was laid out in a letter to the Mayor of Moscow signed by D.O. Shvidkovskii, rector of the Moscow Architectural Institute (MARKHI), professor G.N. Cherkasova and professor O.Iu. Suslova in June of 2018. Foundation for creating the forum would be found in existing industrial facilities representing various stylistic schools, sculptures and amenities, buildings and rooms. This techno-forum is in need of complex preservation of buildings as a typological example of a large industrial aircraft production enterprise of the Soviet times. The study resulted in several development concepts of the plant. The projects are centered around maximal preservation of industrial architectural heritage in combination with construction of new elements designed to facilitate economic profitability of the project. It is proposed to create a cultural, commercial, entertainment, educational, leisure, innovative complex that combines traditions of aircraft manufacturing with innovations and developments. This development strategy may transform the forum into an element of a new mega-cluster in the capital, created to strengthen cooperation relations and extension of scientific and manufacturing projects, consolidate the status of the capital as an advanced innovation and historically-manufacturing center.

Keywords: Znamia Truda plant, public sociotechnoforum, industrial.

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1. Introduction

Stoppage of production in a plant turns industrial territories, which are often of considerable area, into problem areas of a city: a need arises to develop strategies for their reclamation and reintegration into immediate environment. Historical plants and factories require special attention, as they often include a concentration of architecturally and structurally valuable facilities of industrial heritage that provide the territory with historical and cultural significance.

The problem of industrial territory development is typical of Moscow. There are examples of conversion of individual facilities (former GES-2 power plant, now the Gogol Center Theater), complex facilities of various size (ARMA business center (Labutin, 2018), Bolshevik business center (Popova & Tribelskaya, 2017), territories of the former ZIL automotive plant). Despite the successfully implemented examples, there are still problem territories in the capital that have demonstrative resource potential for creation of unique public spaces. After stoppage of production, the fate of such facilities is in question. Among such territories in the historical Znamia Truda plant (built in late 19th and early 20th century).

There are contrasting approaches to development of historical industrial territories. On the one hand, these plots are being developed chaotically and with low efficiency: when a large-scale plant is closed, its territory is divided between small-scale manufacturers and businesses of various sectors, at that, some buildings are standing empty. For example, such situation is typical for former Kolomna Heavy Machine Tools Plant, Egorievsk Textile Combine, Singer factory in Podolsk, Moscow oblast, Daldizel plant in Khabarovak (Arkhipova, Ermolenko, & Basilevich, 2018) and many others. In some cases the fate of the plant is decided faster and more radical: industrial buildings are demolished and the territory is cleared for redevelopment (Ifko, 2016).

On the other hand, modern businesses show some interest to historical industrial heritage and its use in branding. For example, Google and Facebook situated their offices in former industrial facilities, where, as they believe, the atmosphere facilitates appearance of innovations (Hartmann, Krueger, Yiping, & Fang, 2009). Among the Russian examples there is the Oktava industrial cluster that opened in 2018. It is a modern cultural-educational and museum space in the territory of the plant of the same name that manufactures electroacoustic equipment. Other examples are Tkachi (Weavers) creative space and Loft Project Etazhi in Saint Petersburg (Fieraru, 2016), Ural Center of Design Development in Ekaterinburg.

Such diametrically opposite ways of redeveloping industrial territories are related to a conflict of interest between owners, heritage protectors, city authorities, workers and other stakeholders (Ifko, 2016).

Nevertheless, when drafting a development strategy for a historical industrial center, the focus of attention shall be on preserving the heritage: historical monuments, valuable objects that identity of population is linked to.

There is a trend for movement of historical center into industrial heritage zones, which are often at a distance of 1.5-2 km from the old centers. Here, space is formed for development of creative industries, business, research and manufacturing. Cultural institutions (theaters) are often accommodated in such locations, thus confirming former industrial area as a new urban center (Cherkasov & Popova, 2019).

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2. Problem Statement

This article considers the problem of preservation and complex development of the territory of the former Znamia Truda plant in Moscow. The territory is situated in former Khodynskoe field, opposite the Dynamo metro station, 6.2 km from Kremlin and has the area of 64 ha. Currently, the production facilities are removed from the city, but the territory is guarded by security and access control is employed. There are industrial and civil (public) buildings and structures, sculptures and amenities that have cultural, historical and architectural value.

Znamia Truda plant (previously known under various other names) started its development as Duks plant before the Russian Revolution and ended it as a production complex no. 2 of RSK MiG in 2000s.

In the territory, there are intact initial industrial buildings, those of Constructivist time, Post-Constructivist, as well as modern buildings constructed after the WW2, which are interesting in their typological aspects.

Design solutions of workshops are unique and varied: Slab-and-beam ceiling of Workshop no. 7, larch ceiling of a neighboring workshop, rectangular in plan view skylights that are included into the ceiling and are of a height equal to the framing – all this reflects architectural avant-garde of the early 20th century.

Among the prominent aircraft designers who worked at the site are D.P. Grigorovich, I.M. Kostkin, M.I. Popov, R.L. Bartini, A.I. Mikoian and M.I. Gurevich, S.V. Iliushin, A.S. Iakovlev and others. There are intact buildings and offices where they worked, which may become a foundation for a museum program within the territory.

Inside the Hangar no. 7 the first *sharashka* of the USSR was created, where under the watchful eye of OGPU, engineers were developing new aircrafts. Here, in Experimental Design Bureau of OGPU, later known as Central Design Bureau-39 of OGPU named after Menzhinskii, more than 15 projects of aircrafts had been created; three of them were later implemented.

The plant saw regular visits from the top public officials: I. Stalin, S. Ordzhonikidze and others.

The most active role was played by the plant during the Great Patriotic War of 1941-1945, when it created armament for victory over Nazi Germany (Charmadova, 2010).

The problem of preservation of the historical plant was detailed in a letter to the Mayor of Moscow S.S. Sobianin, signed by D.O. Shvidkovskii, rector of MARKHI, professor G.N. Cherkasova and professor O.Iu. Suslova in June of 2018. It was proposed for the city to buy the territory from the owner (AO RSK MiG) or incorporate a new organization joint with them to create and operate public socio-technoforum Znamia Truda (PSTF Znamia Truda). At that, the PSTF Znamia Truda to be created shall be an economically profitable and commercially attractive public space, while at the same time conforming to the concepts of preserving the heritage: architectural, historical and cultural.

Further in the letter it is proposed (directly quoting from the letter):

"…An architectural design competition is to be held (within the MARKHI or beyond) for a project of PSTF Znamia Truda and its functional and architectural design solutions. PSTF Znamia Truda may include, besides preserved and reconstructed facilities, new buildings to accommodate organizations of culture, commerce, hotels, technical office space (technoparks, laboratories, etc.). Entertainment facilities may also be included. It is practical to arrange the aviation museum (e.g., in the unique existing aircraft

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assembly complex), workshops dedicated to works of designers for visitors interested in secrets of aircraft design.

Subsequently or in parallel, several similar forums may be created in Moscow resulting from renovation of industrial facilities. They may be interconnected with ground transportation, thus forming a new form of urban life in the form of a group of socio-technoforums.

Creating the RSTF Znamia Truda and similar forums may become a unique European-level phenomenon of Moscow, an example of industrial buildings integration into social and cultural life of the city, understanding belonging of the city dwellers to a polyphonic urban life, preservation of the spirit of time and *genius loci*".

In the response from Moscow authorities, signed by Deputy Mayor of Moscow for Urban Development and Construction M.Sh. Khusnullin, dated 26.07.2018 no. 25-11-941/8-2 it is said: «The complex of urban development policy and construction of the city of Moscow supports the ides of holding the architectural design contest for the design project of public socio-technoforum Znamia Truda with considerations for the territorial planning project currently under development".

As creation of the RSTF Znamia Truda was supported, a number of graduate students, diploma students and professors are proceeding with developing projects of the RSTF Znamia Truda for the contest.

3. Research Questions

Due to cultural, architectural, historical-economical importance of the Znamia Truda plant, availability of valuable intact industrial buildings, whose current state meets the requirements of conversion concept for accommodation of socially-significant functions, there is a need to develop a development strategy for this former industrial territory.

At that, the following questions would require being answered:

- What possibilities are there for integrating the territory into the immediate urban environment?
- What functional strategies may be offered for intact buildings – in what way the historical past may be reinterpreted and redeveloped at the current stage?
- What design solutions may facilitate complex development of the territory, highlighting its significance in the city?

4. Purpose of the Study

The purpose of the study is development of revitalization concepts for the territory of the Znamia Truda plant, studying urban development prospects of the territory and current state of the facilities, analysis of obtained design and theoretical proposals and determination of a strategy for preservation and complex development of the territory as a monument to the aircraft manufacturing plant of the Soviet times and modern public socio-technoforum.

5. Research Methods

The authors used the methods of on-site investigation (photographing, drawing and measuring the buildings), GIS-technologies and graphical analytic method to analyze location of the plant and building

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composition, typological analysis of industrial architecture facilities; design and theoretical studies have been completed.

6. Findings

Typological diversity of buildings in the plant (19th-20th century) support the thesis that historical industrial facilities give an opportunity to read the history of architecture expressed in a variety of materials and technologies that superseded each other or combined through the years (Romeo, Morezzi, & Rudiero, 2015).

The existing buildings in the plant form a complex (workshops, administrative buildings, laboratories) that surrounds the *Monolith* building with dimensions of 440 m by 250 m. The name of this workshop characterizes the closed cycle of manufacture employed there – starting from a nut to a complete airplane (Charmadova, 2010).

The projects preserved maximum of the existing historical buildings. At that, existing floor space was significantly expanded by new construction that provides commercial profitability of the project. The new facilities reflect the historical past of the aircraft manufacturer in their function and image: there are provisions for landing strips (Charmadova, 2010), parachute towers as symbols of flight, walls of new buildings along the limits of the territory as a symbol of prolonged closed nature of the enterprise, floating bridge-like structure where office space is accommodated a together with multi-functional auditoriums (Cherkasov & Popova, 2019).

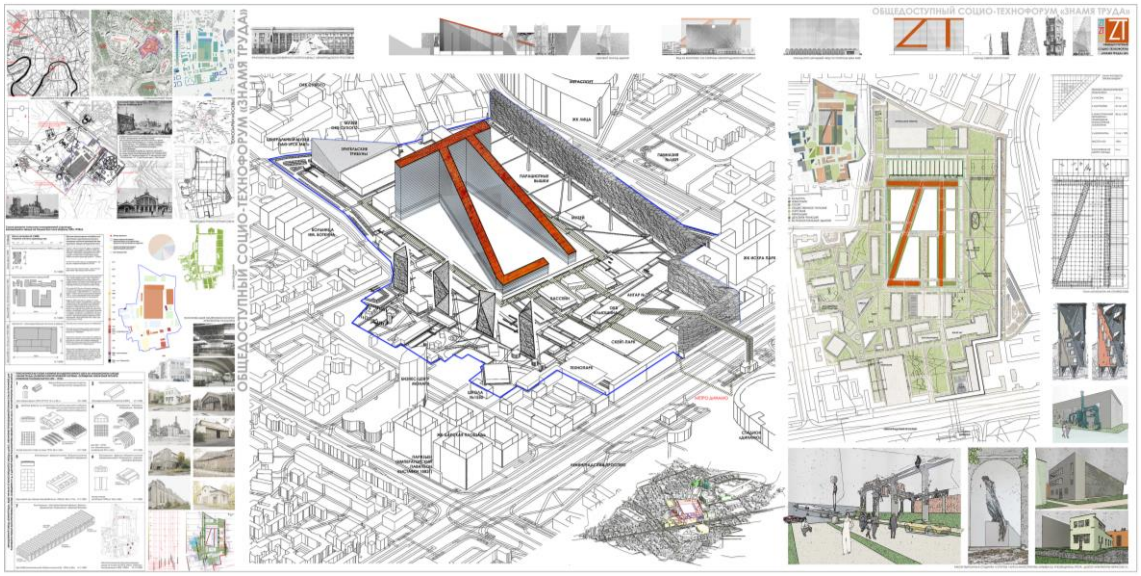

Figure 01. Design of public socio-technoforum Znamia Truda (developed by Ekaterina Latyeva, 1st year Master's degree student, MARKHI (Cherkasov & Popova, 2019)

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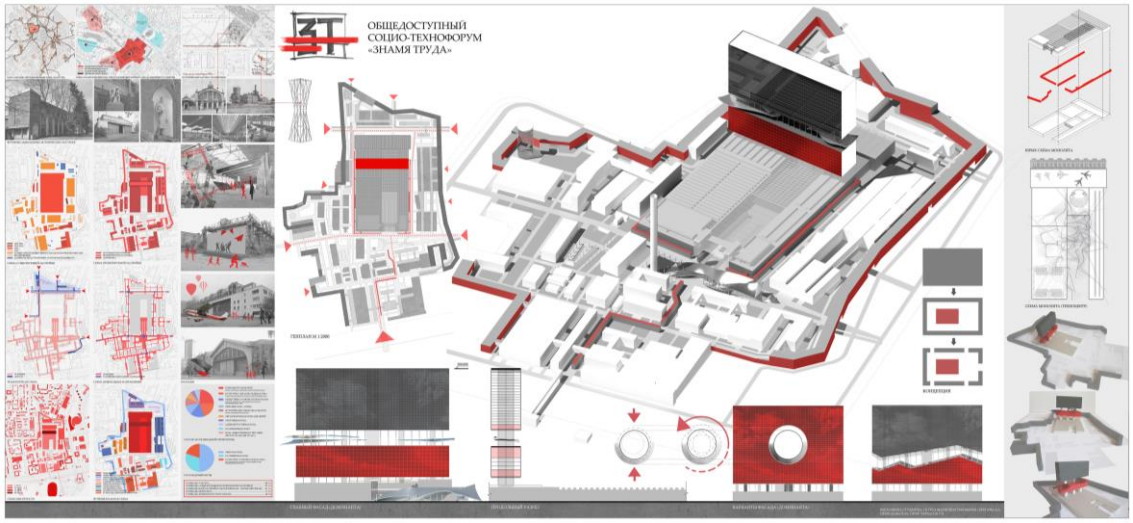

Figure 02. Design of public socio-technoforum Znamia Truda (developed by Anastasia Seregina, 1st year Master's degree student, MARKHI (Cherkasov & Popova, 2019)

Figure 03. Design of public socio-technoforum Znamia Truda (developed by Vadim Bondarenko, 1st year Master's degree student, MARKHI (Cherkasov & Popova, 2019)

Since there are high-risers (the range of height is 25 to 50 m) around the perimeter of the former aircraft plant, while the average height of the factory buildings is 20 m or lower, a number of projects provide creation of altitude accents to highlight the complex in its environment: bridge-like building in Popova's (Popova & Tribelskaya, 2017) project that connects the territory of the plant to Dynamo metro station pavilions on the opposite side of Leningradskii Avenue; dominating plate with a sculpture in Seregina's project; a building with a landing strip in Bondarenko's project.

In some projects, the central location of the Monolith is confirmed with a superstructure, reclamation of rooftops (Fig. 01, Fig. 02, Fig. 03), functionality (dominating function of the RSTF Znamia Truda in the project of Popova & Tribelskaya (2017), that is, that of a museum is in the Monolith).

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Revitalization of the former industrial space in the projects is performed by means of a system of well-developed public spaces (like flowing squares in Popova's project) and environmental integration – landscape gardening. The green vector in development of industrial territories is prooving its social and environmental advantages (Kristiánová, Gécová, & Putrová, 2016).

The concepts of territorial development will pay special attention to its integration into the environment. Along the perimeter, the plant is surrounded with residential and public buildings (Monarch Business Center, Botkinskaia Hospital, Aviapark mall). There are also large sport facilities, among them the Dynamo stadium (VTB Arena). To the north and south of the plant there are parks: Petrovskii Park near the Petrovskii Palace, Khonynskoe Pole park, Berezovaya Roshcha park. RSTF Znamia Truda (Fig. 01, Fig. 02, Fig. 03) may become another element of the public-recreational framework. Organization of free access territory will facilitate convenience of pedestrian transportation links between the attractors in the vicinity.

Studies of experience in conversion of industrial territories in Moscow demonstrated absence of similar complexes based upon industrial heritage, where project priority is a complex preservation of a plant as an artifact.

General content lines of the project, cultural and technical ones, supplemented with commercial functions are united in the RSTF Znamia Truda, turning it into a unique facility.

In connection to organizing a megacluster in Moscow in 2018, as initiated by the government of Moscow and supported by the President, which is intended to strengthen cooperation and development of scientific and manufacturing projects, the forum may appear as an element of a network like that, where traditions of aircraft manufacturing (museum, modern design developments) are combined with a social program.

In December of 2018, the results of the contest were presented in a review with participation from professors of MARKHI and RUDN, as well as a representative of Moskomarkhitectura. The concept of developing the RSTF Znamia Truda was deemed practical. Some key principles of preservation and development of the industrial territory were established from proposals:

- the forum is being created as a commercially viable establishment, with preservation of most of existing facilities and construction of new facilities of various functionality;

- existing industrial facilities are preserved by 75-90 % and, as a rule, subjected to renovation. Former industrial buildings and structures are seen as objects of historical, cultural, architectural and engineering heritage, while the complex as a whole is preserved as a typical example of a large industrial aircraft industry enterprise of 1920-1990s, where during that period hundreds of thousands of engineers, researchers, workers and clerks were employed;

- the forum is designed as complex that is polyfunctional cultural, commercial, entertainment, educational, leisure, innovative (on condition of inclusion of a technocenter and workshops for visitors' work);

- the forum is created as a site for search into new architectural solutions and as a new social phenomenon of the 21st century.

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7. Conclusion

The research conducted and developed concepts for redeveloping the territory of the former aircraft plant Znamia Truda demonstrate a possibility of creating a public socio-technoforum, a publicly-significant, typologically new cultural and technical space on the basis of preserved heritage of the historical enterprise. At that, the project may become commercially viable (office space, renting out, commercial space, museum centers, workshops for visitors, coworking, etc.).

The territory of the Znamia Truda plant contains material memory of distinguished pilots and aircraft designers: there is no other place with such a concentration of such monuments,s thus the plant is in need of a complex preservation as a unified system.

The proposed concepts are directed towards preservation of industrial age monuments as symbols of civic identity.

A new interpretation of the former industrial buildings with partial preservation of manufacturing traditions (e.g., pilot production) may become a foundation for development of Russian innovations.

There is a need for a complex, inter-disciplinary management system for such territories (Ifko, 2016), as well as attention form city authorities.

Implementation of such project may strengthen the status of Moscow as an advanced innovative and historical-manufacturing center.

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