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Indian metro: how to open 160 stations in 14 years?

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Country leaders are very proud of Delhi metro and are not averse to using it themselves. Last autumn it was Narendra Modi, the Prime Minister of India (right), who was seen riding the “tube”: this photo gathered 32 thousand likes on Instagram

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EDITORIAL NOTE. In the run-up to Innoprom-2016, “OG” started publishing a series of stories devoted to the major partner of this event – India. Just shortly before the exhibition, our reporter visited three Indian states. Our first stories of the series told you about industrial enterprises and industrial parks of India and explored the life in this country through the eyes of a tourist (in issues published on 5th, 6th and 8th of July). Our last story is about Delhi metro system.

There was a time when Indian metro builders went to Moscow to learn from their Russian colleagues, however now they also have a lot of their own experience to share. Delhi metro is setting records in terms of construction time, levels of passenger safety and travel cost. How did they manage to do this?

- **Price and safety.** The first metro association in Indian capital is with the airport. In every station, you see metal detectors and a lot of armed military men, who check the luggage and perform a thorough pat-down search: there are two separate lines for men and women, with a special curtained enclosure for the latter. Then you pass through an ordinary ticket barrier: when entering, one has to place the token on a special screen, when exiting – drop it in a ticket barrier opening. The fare is considered to be one of the cheapest in the world and varies between 8 to 30 rupees depending on the travel distance. There are special protective barriers on the platform edge in central stations, which open simultaneously with the doors of the arrived train: soon such barriers are to appear in every station. During peak hours, the metro is same-crowded the as city streets, the only exception – there are no traffic jams and no dissonant orchestra of car horns: passengers are patiently waiting for their turn. On the other hand, it is really pleasant to travel by metro in 40 degree summer heat: air conditioning is working everywhere. Each train has special coaches for women: there are special markings on the platform to indicate the place where they stop. All trains are automated, with operator only overseeing the entire process. Now they are arriving at the station every 2.5 minutes, but company management dreams to decrease this interval to 1.5 minutes. During Moscow visit, this was the fact that impressed the delegation the most.
- **Record-breaking construction time.** 333 kilometers of Moscow subway with 200 stations took over 80 years to build, more than 20 years passed between the opening of the first and the last (ninth) metro station in Yekaterinburg (construction time for the second line is quite vague at best), but Indian capital didn’t have so much time to get rolling due to incredible road congestion. They had to fulfil “5-year plan in three years”. This infrastructure project was financed by the Central and regional authorities, the second half was provided by non-budgetary sources, the

tender was won by a Japanese company. The first line was launched in 2002; two segments totaling almost 200 kilometers and costing over 6 billion dollars were built in 7.5 years – three years earlier than planned. Now there are 160 stations in operation. The third segment (140 kilometers more) is currently under construction and the fourth one – 100 kilometers – is being designed. There is no need to import any equipment: everything is produced in India. Over 1000 people are engaged in construction of these “lifelines” and another 7 thousand provide various services. Employees are trained in a specially opened institute, which also attracts metro workers from neighboring countries.

- **Satellite connection.** Metro system is not yet able to save this mega-region with 24 million population from traffic problems, but it does relieve aboveground transport network of 2.7 million people. This number has a great potential for growth, especially considering that Moscow subway is daily used by 7-9 million people. Many people in India still prefer older ways of transportation – two- or three-wheelers and cars. However, Delhi metro is successfully dealing with two other problems. Every day it helps citizens of satellite towns to reach the capital, they come from Noida and Ghaziabad (Uttar Pradesh state), Faridabad and Gurgaon (Haryana state). The distance they have to cover is approximately the same as from Ekaterinburg to its own satellite towns. Parking is also not a problem: corporation provides ample parking spaces for almost one hundred stations and is directly overseeing their operation. The metro will also take you to the International Indira Gandhi airport in just 20 minutes: coaches of Delhi Airport Express line have more seats and more space for luggage.
- **Runs on solar energy.** Delhi Metro Rail Corporation takes special care to ensure protection of environment. Nikhil Anand Giri, Corporate Relations Manager, is proud to tell that Delhi metro has been certified by the United Nations as the first metro rail and rail-based system in the world to get “carbon credits for reducing greenhouse gas emissions” (due to a special braking system used in metro trains). New stations are built according to a principle of “green” (ecological) construction: cut down one tree – plant ten more in its place; and stations that are constructed on or above the ground (it refers to almost all Delhi stations: it looks more like a city commuter train rather than metro!) are equipped with solar panels to produce electricity.