Blog On Blue Roads

Introduction:

The impact of extreme heat on our cities is becoming increasingly apparent. Rising temperatures are creating a phenomenon known as the Urban Heat Island (UHI) effect, which is making cities significantly hotter than the surrounding countryside. In response to this, a pilot project has been launched in Doha, Qatar, to help reduce the impact of extreme heat. The project has involved painting the streets of Abdullah Bin Jassim near the well-known Souq Waqif in blue. The blue coating on the asphalt roads will help reflect heat instead of absorbing it, which will aid Qatar in its efforts to combat the UHI effect. This blog will examine the science behind the project, as well as the potential benefits and drawbacks of using blue roads to combat the UHI effect.

The Science behind Blue Roads:

Bituminous roads are the most common type of road found all over the world. These roads are low-cost and appropriate for driving conditions. The thickness of bituminous roads is determined by the subgrade soil conditions. During laying on roads, the temperature of the bituminous mix should be around 150-160 Celsius, while the temperature of bitumen before mixing is quite high. Heated bitumen and heated aggregates enter the mixing drum of the hot mix plant and after thorough mixing, it comes out on the conveyor belt from where it is transported to the laying site.

Bituminous roads absorb solar energy during the day and release it during the night, meaning that cities are hotter than the surrounding countryside as buildings and streets act as a giant heat sink. The latest addition to the colourful roads in Qatar is the 'Blue' road. The Public Works Authority (Ashghal) has recently painted the Abdullah Bin Jassim Street near Souq Waqif in blue to reduce the temperature of the asphalt by 15 - 20 degrees Celsius. The blue coating on the asphalt roads will help reflect heat instead of absorbing it, which will aid Qatar in its efforts to combat the UHI effect.

Benefits of Blue Roads:

The high temperatures are created by the absorption of heat from dark-coloured asphalt roads as they accumulate solar heat. Light colour painting lowers the temperature of the road surface by reflecting sunlight from asphalt pavement. The 1mm blue coating has special heat-reflecting pigment and hollow ceramic microspheres, which effectively reflects infrared radiation. The nice-looking 200-metre blue surface is part of an experimental project to reduce the temperature of the asphalt surface. Sensors to measure temperatures of the blue surface and uncoated asphalt are installed for a period of 18 months.

Scientists estimate that the coating done as an experiment can reduce the radiation of the sun by up to 50%. The purpose behind painting these roads blue is to see the effect of temperature control. Apart from this, sensors for temperature have also been installed here to see temperature information.

Drawbacks of Blue Roads:

While blue roads have the potential to reduce the impact of extreme heat, there are also potential drawbacks to their use. For example, the blue coating may not be durable enough to withstand heavy traffic and may need to be reapplied regularly. Additionally, blue roads may not be suitable for all climates and may not be effective in areas with lower levels of solar radiation.

Conclusion:

The use of blue roads to combat the UHI effect is an interesting concept that has the potential to significantly reduce the impact of extreme heat in our cities. While there are potential drawbacks to their use, the benefits are significant enough to warrant further exploration. The pilot project in Doha is a step in the right direction and will hopefully provide valuable insights into the effectiveness of blue roads in reducing the impact of extreme heat. As we continue to face the challenges of climate change, it is important that we explore innovative solutions like blue roads to help create more sustainable and liveable.

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