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VANDE BHARAT EXPRESS

This article covers "Daily Current Affairs" and the topic details "Vande Bharat Express". The topic "Vande Bharat Express" has relevance in the Infrastructure and Technology section for the UPSC CSE exam.

Relevance of the topic "Vande Bharat Express"

For Prelims:

What is the Vande Bharat Express?

For Mains:

GS 3: Infrastructure and Technology

What is the significance of Vande Bharat Express?

What are the challenges faced?

Way forward?

Why in the news?

Railways struggles to meet Vande Bharat number, speed targets. Instead, it is rolling out smaller, eight-coach versions of the marquee train set that enables it to increase the number of total trains rolled out without actually producing that many 16-coach standard variants.

What is the Vande Bharat Express?

Vande Bharat Express, also known as Train 18, is an indigenous high-speed train developed by Integral Coach Factory (ICF) in Chennai, India. It is considered a significant milestone in India's railway modernization efforts

What is the significance of Vande Bharat Express?

- **Indigenous Development:** Vande Bharat Express is India's first semi-high speed, fully air-conditioned train set developed domestically. It showcases India's engineering capabilities and technological advancements in the railway sector.
- **Speed and Efficiency:** The train has a top speed of 180 km/h (112 mph), reducing travel time significantly. It aims to provide a faster and smoother travel experience, comparable to international standards.
- **Passenger Comfort:** Vande Bharat Express offers modern amenities, including spacious seating, onboard Wi-Fi, infotainment systems, and improved hygiene facilities. It enhances passenger comfort and provides a more enjoyable journey.
- **Energy Efficiency:** The train incorporates several energy-saving features, such as regenerative braking, LED lighting, and aerodynamically designed coaches. This promotes sustainability and reduces environmental impact.

What are the challenges faced?

- **Technical Challenges:** Developing a high-speed train indigenously posed numerous technical challenges, including designing aerodynamic coaches, ensuring operational safety at high speeds, and integrating advanced systems like self-propelled electrical units.
- **Manufacturing Capabilities:** Establishing the manufacturing infrastructure to build such technologically advanced trainsets required significant investment and expertise. Overcoming manufacturing challenges, such as sourcing specialized components, was crucial.
- **Operational Integration:** Introducing a new train set into the existing railway ecosystem involves coordinating with multiple stakeholders, including railway zones, signaling systems, maintenance facilities, and staff training. Ensuring seamless integration was a complex task.

Way Forward:

- **Expansion and Modernization:** The success of Vande Bharat Express has paved the way for the development of additional high-speed trainsets in India. The government aims to expand the high-speed rail network and upgrade existing routes to offer faster and more efficient travel options.
- **Research and Development:** Continuous research and development efforts are necessary to improve the design, performance, and safety features of high-speed trains. Collaborations with international experts can help in adopting best practices.
- **Infrastructure Development:** Developing dedicated high-speed rail corridors, upgrading existing tracks, and improving signaling systems. These infrastructural enhancements will support the efficient operation of high-speed trains.
- **Passenger Experience:** Feedback from passengers should be considered to further enhance the comfort, amenities, and services provided onboard. Technology advancements, such as predictive maintenance and real-time information systems, can be integrated to improve the overall passenger experience.
- **Safety and Security:** Continuous focus on safety measures, including regular maintenance, staff training, and robust security systems, is crucial to ensure passenger safety and instill confidence in high-speed rail travel.

Source:

Indian Express

<https://indianexpress.com/article/india/railways-struggles-to-meet-vande-bharat-number-speed-targets-8627553/>

Q.1 Which of the following is India's first indigenous high-speed train, known for its advanced technology, energy efficiency, and luxurious amenities?

- (a) Rajdhani Express
- (b) Vande Bharat Express
- (c) Shatabdi Express
- (d) Duronto Express

Answer: (b)

Q.2 Which organization is responsible for the development of Vande Bharat Express, India's first indigenous high-speed train?

- (a) Indian Railways
- (b) Integral Coach Factory
- (c) Ministry of Railways
- (d) Rail Vikas Nigam Limited

Answer: (b)

Q.3 Examine the significance of Vande Bharat Express in the context of India's railway modernization efforts, and discuss the challenges faced during its development. Suggest the way forward to enhance the effectiveness of high-speed train projects in the country.

(15 marks)

Rishabh

