What India Must Learn from China to Accelerate Innovation Across Industries

By Prof. Arun Sehgal

Nations do not rise because they have talent. They rise because they build ecosystems where talent chooses to stay, return, and create.

India stands today at a decisive inflection point in its economic and technological journey. We are among the world's largest producers of engineers, scientists, and technologists. Indian-origin professionals lead some of the most powerful technology companies globally.

Yet, the uncomfortable reality is this:

India produces global innovators, but China has built global innovation ecosystems.

This difference did not emerge from intelligence alone. It emerged from strategy, discipline, funding, and national focus.

If India is to accelerate its innovation pace across industries—AI, semiconductors, biotechnology, and advanced materials—it must study China's transformation carefully.

China's Strategic Decision to Reverse Brain Drain

Talent follows opportunity. Nations that create opportunity attract destiny.

China responded with structured national programs such as:[1]

Thousand Talents Program

Changjiang Scholars Program

Torch Program

These initiatives offered returning scientists research funding, laboratories, leadership positions, housing, and financial incentives.

Thousands of scientists returned from MIT, Stanford, Harvard, and other global institutions.

These returning scientists became leaders in China's semiconductor, AI, and biotechnology sectors.

The Role of Research Funding: The Most Important Multiplier

Innovation is not an event. It is the outcome of sustained national investment.

China dramatically increased its research spending over two decades.[4]

China R&D spending: 2.4% of GDP

India R&D spending: 0.65% of GDP

China now spends over USD 550 billion annually on R&D.

India spends approximately USD 70 billion.

Patent Leadership: The Most Powerful Indicator of Innovation

Patents are the footprints of innovation. They reveal which nations are building the future.

China filed over 1.58 million patents in 2023.[6]

India filed approximately 64,000 patents.

Industry–Academia Collaboration: China's Most Powerful Innovation Engine

Universities create knowledge. Industry converts knowledge into economic power.

More than 75% of Chinese industrial innovation projects involve university collaboration.[8]

Cultural Factors: Discipline, Focus, and National Commitment

Innovation is not created by intelligence alone. It is created by discipline applied consistently over decades.

Chinese students consistently rank among the top globally in science and mathematics.[9]

Industry Investment in R&D: China's Corporate Commitment

Nations lead when their industries invest in tomorrow, not just today.

Huawei invests over USD 20 billion annually in R&D.[11]

Semiconductor Industry: India's Historic Opportunity

India has launched semiconductor manufacturing initiatives worth over USD 10 billion.[12]

China invested over USD 150 billion in semiconductors.[13]

The Most Important Lesson: Bring India's Brightest Minds Back

The greatest asset of a nation is not its natural resources. It is its human intellect.

China successfully reversed brain drain.[14]

Conclusion: India's Moment Has Arrived

The future does not belong to nations that wait. It belongs to nations that build.