

Bin Yuan Capital All China Strategy – April 2026

Bin Yuan Opinion

Gallium Nitride (GaN): Accelerating the Power Electronics Revolution

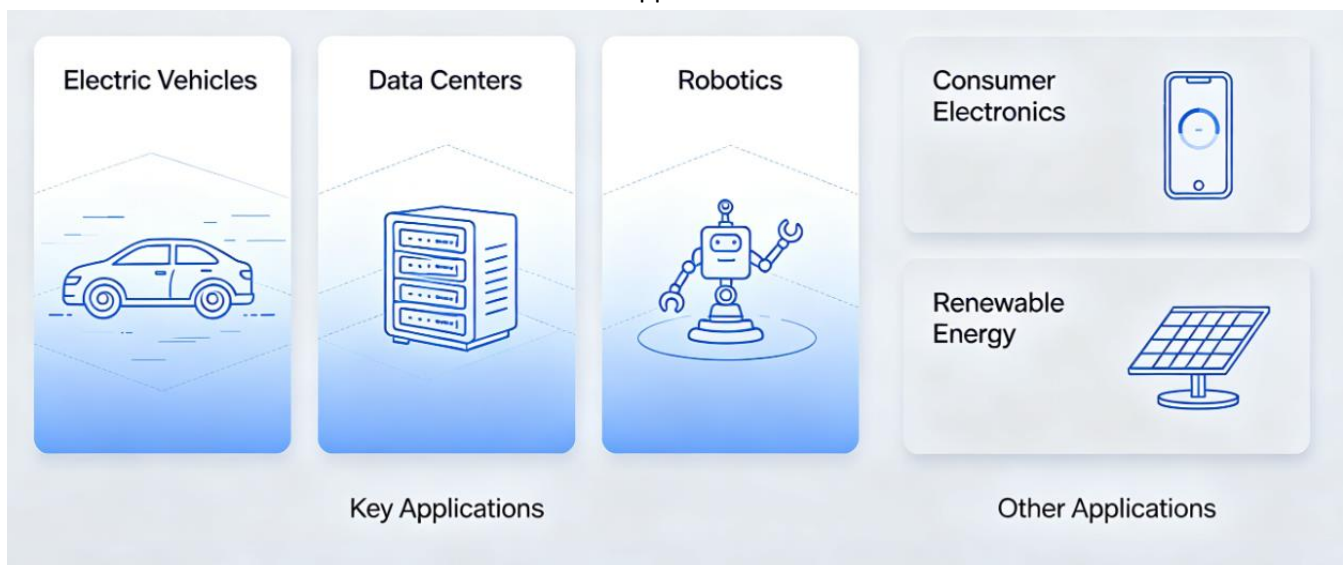
As one of the most representative third-generation semiconductors, gallium nitride (GaN) is driving a step-change in power electronics technology. Relative to traditional materials such as silicon, germanium, and gallium arsenide, GaN offers superior breakdown voltage, thermal stability, switching speed, and power density. These characteristics translate directly into lower energy loss, higher efficiency, and more compact system design, making GaN a foundational material for next-generation high-performance power applications.

Against this backdrop, Chinese companies have established a leading position in the global GaN ecosystem. With capabilities spanning materials, epitaxy, and device manufacturing, they are well positioned to capture the accelerating demand driven by AI infrastructure, electric mobility, and industrial electrification—creating a compelling long-term investment opportunity.

Broad Application Scenarios of Gallium Nitride

Due to its inherent advantages, GaN has achieved widespread adoption in high-end sectors, notably electric vehicles, robotics, and AI data centers. Fueled by growing demand for energy-efficient power solutions, the GaN market across these key fields is poised for rapid expansion between 2025 and 2030.

Chart 1: GaN Applications Overview



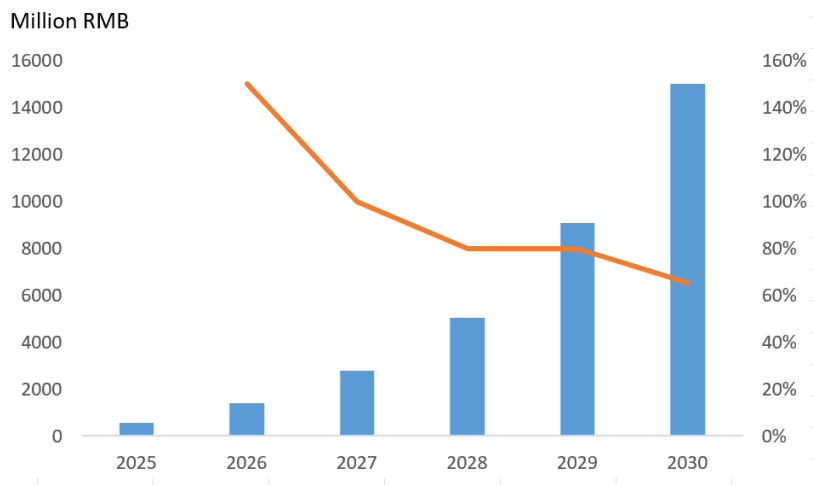
Source: Doubao, Bin Yuan Capital

GaN Adoption in Electric Vehicles: A High-Growth Inflection

In the electric vehicle (EV) sector, GaN is emerging as a critical complement to silicon (Si) and silicon carbide (SiC) in power electronics. Its superior efficiency, combined with advantages in miniaturization and weight reduction, enables meaningful improvements in power density—particularly in on-board chargers (OBCs)—as well as overall vehicle efficiency and driving range.

Market adoption remains at an early but accelerating stage. Industry forecasts suggest that the global GaN market in EV applications will expand from approximately RMB 5.6 billion in 2025 to RMB 150 billion by 2030, implying a compound annual growth rate (CAGR) of roughly 93%. This growth is underpinned by the rapid electrification of the automotive sector and rising demand for high-efficiency, high-performance power management systems.

Chart 2: Market Size and Growth of GaN in Automotive Industry



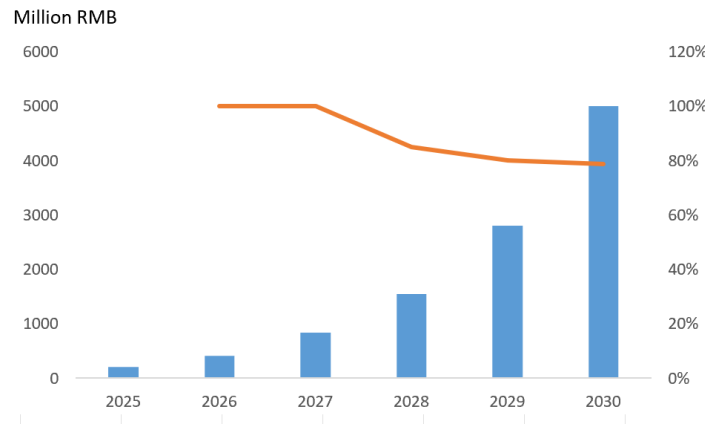
Source: Bin Yuan Capital

GaN in Robotics: Enabling High-Performance Actuation

GaN is emerging as a core power component in commercialized robotics, closely aligned with the demanding requirements of modern actuator systems—namely miniaturization, low power consumption, fast response, and high power density. Relative to traditional silicon-based MOSFETs, GaN power devices can reduce joint drive board volume by approximately 50%, lower energy losses by 50–70%, and improve motion smoothness and positioning precision.

The market opportunity is expanding rapidly. The global GaN market in robotics is projected to grow from approximately RMB 2.1 billion in 2025 to RMB 50 billion by 2030, implying a CAGR of around 89%. As humanoid robots and other advanced robotic systems move from development into real-world deployment, demand for GaN-based power solutions is expected to accelerate meaningfully.

Chart 3: Market Size and Growth of GaN in Robot Industry



Source: Bin Yuan Capital

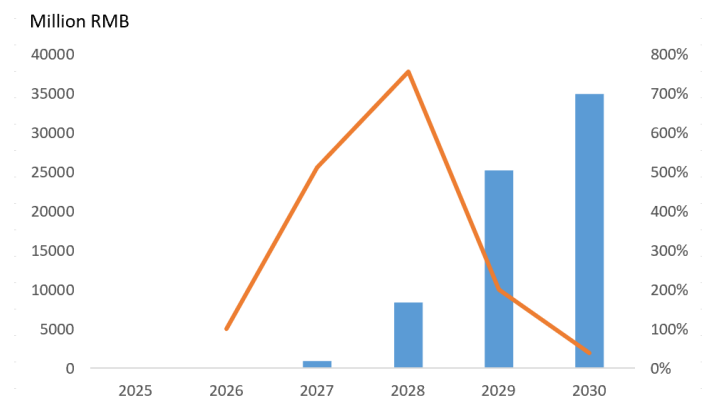
GaN in AI Data Centers: Powering Next-Generation Infrastructure

AI data centers are emerging as a critical application for GaN, driven by the increasing demand for power systems with higher power density, improved thermal management, and superior energy efficiency. GaN’s high-frequency switching and low-loss characteristics are particularly well suited to next-generation 800V HVDC (high-voltage direct current) architectures, which are being adopted to support rising rack power densities.

In this context, GaN is increasingly positioned as a key enabler of efficient power delivery in high-performance computing environments. Industry estimates suggest that the global GaN market in AI data centers will expand from approximately RMB 80 million in 2025 to RMB 35 billion by 2030, implying a CAGR of roughly 237%.

As data centers transition toward large-scale deployment of high-power IT racks, the demand for more efficient power conversion and distribution systems is expected to accelerate, further driving the adoption of GaN-based solutions.

Chart 4: Market Size and Growth of GaN in AI Data Center Industry



Source: Bin Yuan Capital

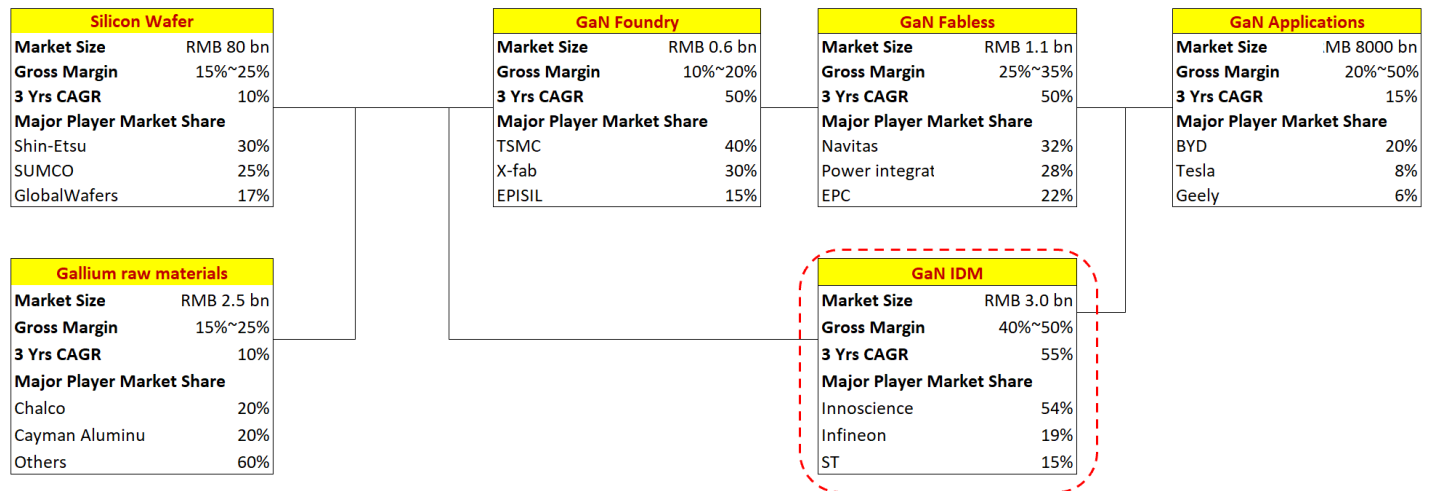
GaN Value Chain Analysis: Integration as the Competitive Moat

The GaN industry value chain comprises three core segments: upstream materials, midstream design and manufacturing, and downstream applications. Upstream includes gallium raw materials and substrates (primarily silicon-based wafers), while the midstream encompasses IDMs, fabless design houses, and foundries. Downstream demand spans a wide range of applications, including consumer electronics (fast chargers), electric vehicles (OBC and DC-DC systems), robotics, and AI data centers.

Within this structure, the integrated device manufacturer (IDM) model is emerging as the dominant paradigm. Vertical integration across epitaxy, wafer fabrication, device design, and packaging enables tighter control over yield, faster iteration cycles, and more reliable supply. It also drives meaningful cost efficiencies and supports structurally higher and more stable gross margins, typically exceeding 40%.

As a leading 8-inch GaN IDM, Innoscience is well positioned to consolidate its leadership across multiple end markets, including consumer electronics, automotive, robotics, and AI data centers. Its vertically integrated platform provides a clear competitive advantage as the industry scales and demand accelerates across applications.

Chart 5: Value Chain of GaN



Source: Bin Yuan Capital

Innoscience: A Global Leader in GaN Power Semiconductors

Innoscience Technology Co., Ltd. has established itself as a leading player in the GaN power semiconductor industry, underpinned by strong technological capabilities, scale advantages, and a robust intellectual property portfolio. Founded with a focus on the industrialization of GaN power devices, the company operates advanced manufacturing facilities in Suzhou and Zhuhai, China.

Notably, Innoscience is the first integrated device manufacturer (IDM) to achieve high-volume mass production of 8-inch GaN wafers. This capability represents a critical inflection point for the industry, enabling meaningful cost reductions and

faster capacity scaling relative to peers. As a result, the company is well positioned to support growing demand across key application areas while maintaining a structural cost advantage

Chart 6: Innoscience’s Three Key Competitiveness



Source: Doubao, Bin Yuan Capital

Innoscience: Scale, Technology, and IP as Structural Moats

Capacity Scale

Capacity leadership is a core pillar of Innoscience’s competitive moat. The company has outlined an ambitious expansion roadmap to increase monthly 8-inch GaN wafer capacity from approximately 20,000 wafers today to 70,000 wafers by end-2028. This scale reinforces its position as a reliable high-volume supplier while driving meaningful cost reductions through equipment efficiency and economies of scale. Such cost-down curves are critical for enabling mass adoption across automotive and consumer applications. By contrast, competitors reliant on 6-inch platforms or outsourced foundry models are structurally disadvantaged in both cost structure and production flexibility.

Comprehensive Technology Ecosystem

Innoscience has developed a fully integrated GaN technology platform, with deep capabilities spanning device architecture, process integration, and reliability engineering. Its product portfolio covers a broad voltage range from 30V to 650V, addressing the full spectrum of power electronics applications. Devices demonstrate best-in-class performance, including low on-resistance, zero reverse recovery charge, ultra-fast switching speeds, and strong gate reliability. Importantly, products are qualified to AEC-Q101 automotive standards, positioning the company for EV adoption. Strategic partnerships with industry leaders such as NVIDIA, STMicroelectronics, and UAES further validate its technology and embed it within next-generation platforms.



IP and Brand Moat

The company has established a robust intellectual property portfolio, systematically protecting key innovations across HEMT epitaxial structures, field-plate designs for enhanced breakdown performance, advanced passivation layers to suppress dynamic Rds(on), and proprietary packaging solutions including chip-scale and system-in-package (SiP) technologies. Beyond technical IP, Innoscience has also built a strong brand layer, with product families such as “INNOGAN,” “Zhuguang,” “SOLIDGAN,” and “TURBOGAN.” This dual-layered strategy reinforces barriers to entry while strengthening customer trust in a market where reliability and performance consistency are critical.

Financial Outlook and Valuation

By 2030, Innoscience is projected to reach approximately RMB 18 billion in revenue, driven by accelerating demand across AI data centers, automotive, and robotics applications. AI and automotive are each expected to contribute roughly one-third of total revenue. As the leading global GaN IDM with a structural cost advantage, the company is well positioned to capture approximately 30% share of an estimated RMB 60 billion global GaN power device market.

We estimate a potential valuation of approximately RMB 135 billion by 2030, implying over 145% upside. This is based on a 30x P/E multiple, supported by sustained market leadership, expected gross margins above 45%, and strong secular growth tailwinds.

Summary

Gallium nitride (GaN), with its superior material properties, is not simply a replacement for silicon in existing applications—it is enabling new power architectures that were previously unviable. Its accelerating adoption across electric vehicles, advanced robotics, and AI data centers is driving a sustained and high-growth phase for the global GaN industry.

Within this context, Chinese companies have established strong competitive positions across the value chain, from upstream materials through to device manufacturing and end applications. Innoscience, in particular, stands at the forefront of this transition, combining technological leadership with scaled manufacturing and deep integration into leading application ecosystems.

As electrification and AI-driven infrastructure continue to expand, GaN is set to play a central role in next-generation power systems. Companies that can translate material innovation into cost, scale, and reliability advantages are likely to capture disproportionate value, positioning Innoscience as a key beneficiary of this structural shift.



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Ping and the Team

May 7, 2026

Bin Yuan on the Road

April 3, 2026

We visited SeeYA Technology in Hefei, Anhui Province, to learn about its silicon-based OLED microdisplay technology breakthroughs, capacity expansion roadmap, and customer development progress amid the AI glasses and XR industry boom.



SeeYa is the world's second-largest and China's largest silicon-based OLED microdisplay supplier, with a 35.2% global market share in XR applications. The company has secured strategic orders from top-tier clients including ByteDance, Lenovo, Thunderbird, Insta360, and Varjo. It is the first in the world to achieve mass production on a 12-inch wafer backplane, boasting full-stack R&D capabilities covering "display chip + microdisplay + optical system solution". Its flagship silicon-based OLED microdisplay products maintain leading performance metrics, supported by proprietary technologies such as strong microcavity, crosstalk suppression, and high-efficiency stacked OLED structures. The company recently completed its STAR Market IPO and expand ultra-high-resolution production lines and R&D facilities.

Listing on the STAR Market marks a significant milestone, but also the beginning of a new chapter to become the world's leading provider of total microdisplay solutions. – CEO of SeeYa

April 4, 2026

We conducted a site visit to Sanhuan Group in Chaozhou, Guangdong Province, and updated with the management on AI demand trends, MLCC business progress and SOFC business layout.



Driven by the rapid growth in demand for AI servers, the company's MLCC and communication products are seeing strong demand, with shipments increasing significantly and price expected to rise. Its MLCC product line already covers standard products in sizes from 0201 to 2220, as well as medium and high voltage products and automotive-grade products. Its products have won increasing recognition from the market, and more high-end products are to be launched in the future. With explosive AI computing demand leading to power shortages, its SOFC industry is also set for a new round of growth. The company is the world's largest supplier of SOFC electrolyte diaphragms, with over 80% share in Bloom Energy's diaphragm. Its SOFC business orders have more than tripled YoY this year. As Bloom Energy wins large-scale data center power supply orders from tech giants such as Oracle, its SOFC business has enormous growth potential in the future.

" We at present, all our optical fiber and MLCC production lines are running at full capacity. Downstream demand is strong, and we plan to expand our production capacity to meet customer needs." – Board secretary of Sanhuan.

April 14, 2026

We paid a visit to iRay Technology to learn about the company's R&D progress in core upstream medical components, as well as its production status and sales outlook for silicon-based OLED microdisplays.



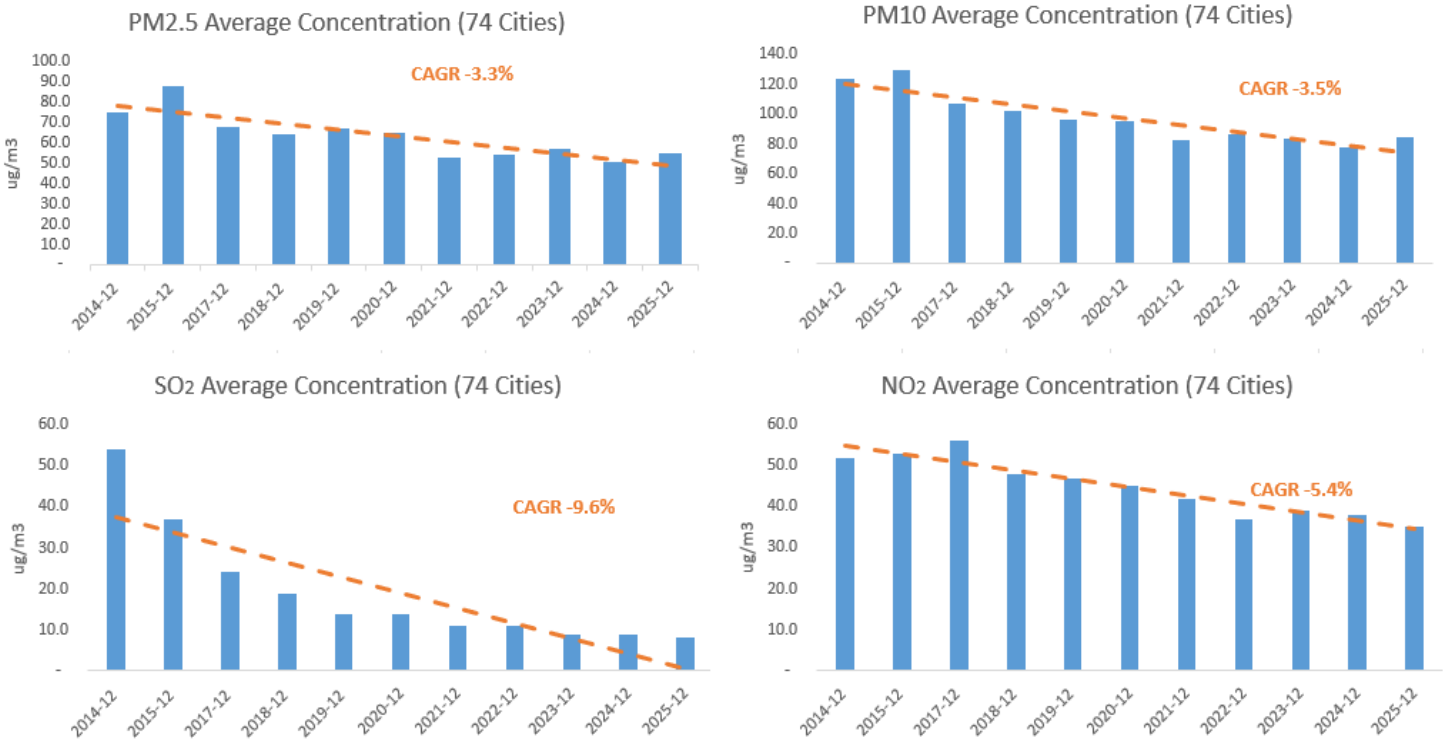
The company offers an extensive product portfolio and turnkey solutions covering the full X-ray industrial chain and is expanding into the silicon-based OLED microdisplay market. Its silicon-based OLED microdisplays are set to see substantial volume shipments in 2026, with production capacity set to double by the end of the year. In addition, the company's full-industry-chain layout of medical CT-related products is gradually yielding returns, which is expected to generate initial sales in 2026 and achieve large-scale shipment volume in 2027. Meanwhile, the company's CT products for lithium battery PAC modules will also kick off mass sales.

" We have been launching new products successively across industrial, medical and other sectors, and we are confident about our sustained growth in the future." – Board secretary of iRay.

Bin Yuan Environment Tracking

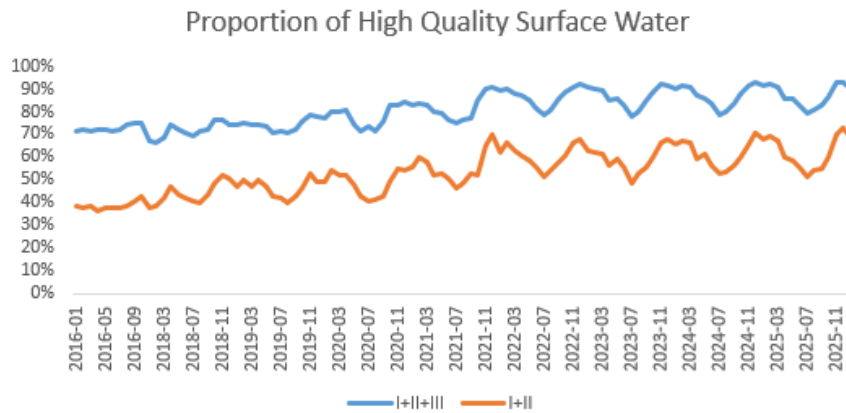
This tracking includes monthly air and water quality data, both showed steady improving trend in the last 5 years. Air pollution concentration dropped due to reduced coal combustion, increased proportion of new energy vehicles, and tightened emission control measures. Water quality improved mainly from the strengthened control of wastewater emissions since 2017.

China air pollutant concentration data June 2015-2026



*PM2.5, PM10 and SO₂ are mainly from fossil fuel combustion, and NO₂ is mainly from vehicle emissions.

The proportion of high-quality water in China data June 2015-2026



*Water quality in China breaks down to 5 levels, with level I being the best and level V being the worst. Level I+II represents water that can be used for drinking purpose. Level I+II+III represents water that can directly contact human body.



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