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(Textos en anglès, elaborats des de la Xina, i enviats per email als subscriptors de *BAIGUN /SUBSTACK*)
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RESUM

1. Why China is building the world's largest hydropower station in Tibet. BAIGUAN / SUBSTACK.(p. 4- 11).

The ideological lineage of the Yarlung Tsangpo project stretches back over a century, to the very founder of modern China: Sun Yat-sen. In his 1920 treatise The International Development of China (《实业计划》), Sun envisioned vast hydropower projects on the Yangtze River—what would later become the iconic Three Gorges Dam—as a pillar of his strategy to modernize the nation through flood control and electrification. Sun's grand industrial blueprint included three core strategies: (1) Building a national railway network, including lines through high-altitude regions—an idea that eventually materialized as the Qinghai-Tibet Railway, now the world's highest railway, officially inaugurated in 2006; (2) Coordinating the development of China's water resources, including what would later become the Three Gorges Dam; (3) Integrating the economies of the frontier regions—a goal that later became massive state-led campaigns, such as the Western Development Strategy, aimed at reducing economic disparities between China's prosperous coastal areas and its inland and western regions. (p. 5- 6)

Project at the Yarlung Tsangpo River in Tibet. Its output alone would be enough to power the entire United Kingdom and is equivalent to 20% of China's total residential electricity consumption in 2024, enough for 300 to 400 million people. 3 times the Three Gorges Dam. Creating 200.000 direct jobs. At altitude of 3000 m. 2 Maps (p. 8 I 10), and 2 panoramic pictures.

Comparative Table with Three Gorges Dam (p. 9)

	Yarlung Tsangpo Project (Medog)	Three Gorges Dam
Location	Medog County, Tibet Autonomous Region	Yiling District, Hubei Province
River	Yarlung Tsangpo (Brahmaputra)	Yangtze
Estimated Cost	1.2 trillion yuan (\$167 billion)	~180 billion yuan (~\$25 billion)
Installed Capacity	60 GW	22.5 GW
Annual Output	300 billion kWh (300 TWh)	~95-112 billion kWh (~100 TWh)
Primary Design	"run-of-the-river" hydroelectricity with cascade dams and long-distance tunnels	Concrete gravity dam with large reservoir
Primary Purpose	Pure power generation	Flood control, power generation, navigation

2. Why Every China Watcher Must Be on WeChat. None of this is to glorify WeChat itself – it's simply the reality of China's digital ecosystem today (CENTER FOR CHINA & GLOBALISATION /SUBSTACK). (p. 11– 17).

Bottom line: If you need to communicate with people in mainland China, WeChat is absolutely essential. Relying on email alone will leave you isolated, because outside of a small internationally-savvy subset, the Chinese informational bloodstream flows through WeChat, not Outlook or Gmail. (p. 12)

It's essentially "the operating system for daily life" in the country. With over 1.3 billion users worldwide (covering almost 80% of China's population), WeChat has grown from a simple chat app into a ubiquitous "everything app."..... phone numbers or email addresses are rarely exchanged in China nowadays; the WeChat ID is the standard contact info. In summary, WeChat functions as China's hybrid of WhatsApp + Facebook + Instagram + PayPal + Uber + Apple Pay + Amazon +... (you name it) all rolled into one. By being on WeChat, you effectively plug yourself into a huge portion of the Chinese internet and digital life. Group chats (群) can include up to 500 members by default, and there are WeChat groups for everything. (p. 13).

To put it starkly: choosing to avoid WeChat creates a blind spot in your China knowledge. Whole realms of discourse – from official propaganda to social gossip – live on WeChat. It's not publicly archived on the open web. Even Chinese web search (like Baidu) doesn't capture it. There is no alternative one-stop source to retrieve that info. The only way in is to be in the ecosystem. (p. 14).

A frequent objection, especially among foreign professionals, is concern about WeChat's security: "If I install WeChat, am I putting my data (or even my entire device) at risk of Chinese government surveillance?" This deserves a clear-eyed response. First, there is a lot of censorship built into WeChat. For example, when you share a link, sentence, or file via WeChat, it's possible that it wasn't delivered because somehow it triggered a censorship mechanism that is never explained. (p. 15- 16)

Conclusion: Embrace WeChat or Be Left Out!.(p. 16)

3. The Glory of High Speed Rail: What About Its Problems?. China massively overbuilt high-speed rail, says leading economic geographer (CENTER FOR CHINA & GLOBALISATION / SUBSTACK CCG. (p. 17- 38)

Autor: Lu Dadao, born in 1940, is an Academician of the state-run Chinese Academy of Sciences (CAS). According to his official biography at the CAS's Institute of Geographic Sciences and Natural Resources Research, Lu, President of the Geographic Society of China between 1999 and 2010, was a participant in the drafting of China's "National Master Plan for Land Use" led by then State Planning Commission, the predecessor of today's National Development and Reform Commission (NDRC). (p. 18)

..... during the 12th and 13th Five-Year Plans (2011-2020), the "Great Leap Forward" of China's HSR resumed to popular applause. Ambitions for long-distance, intercity and suburban high-speed lines in major cities stayed far too grand, and mega-projects sped through approval. In ten years, the network added another 20,000 km, reaching 37,900 km by the end of the 13th Plan and, by early 2025, is set to hit 46,000 km. The "four-vertical, four-horizontal" grid finished ahead of schedule, while an even denser **"eight-vertical,**

eight-horizontal” network was taking shape. In August 2021, China Railway Group Limited released the Outline of the Railway-First Strategy for Building a Strong Transportation Nation in the New Era, setting a target of 70,000 km of HSR by 2035—nearly double the mileage in 2022. The consequence of this unrelenting drive for speed is becoming increasingly clear. (p. 19)

What is HSR? It stands for high-speed rail. Compared with conventional railways, HSR differs in several fundamental ways. (p. 24). First, the faster the train, the larger the required curve radius of the railway line. For example, a high-speed rail line operating at 350 km/h requires a minimum curve radius of about 6,000 metres. By contrast, a line designed for 200 km/h can manage with a radius of around 3,500 metres, while conventional railways in China—designed for speeds up to 120 km/h—require only about 600 metres (p. 24). Second, higher speeds demand stronger and higher-grade materials for the subgrade, track bed, and rails. High-speed rail requires rails weighing up to 75 kilograms per metre. By contrast, conventional railways typically use rails weighing between 45 and 55 kilograms per metre, while suburban light rail systems may use rails as light as 30 kilograms per metre. (p. 20)

.... approximately 40,000 km — accounting for 80 to 85% of the total HSR network — are operating at a loss, some even severely so. According to the World Bank’s report on Chinese HSR development, a medium-distance HSR line needs annual traffic densities of 35 to 40 million passengers in order to achieve profitability. According to statistics, **China’s railway system incurred a loss of 55.5 billion yuan in 2020 alone**, with cumulative debt reaching 5.57 trillion yuan, as reported on the WeChat blog Zouxian Jiexue on January 22, 2022 (p. 24)

Map of the China HSR network - p.25

.... Absurdly located and excessively grand HSR stations- p.25
.... Grand, extravagant HSR stations (p. 26)
.... Extensive construction of short-distance HSR: economic losses, even severe losses, are inevitable (p. 30)
.... How absurd HSR new towns are! (p. 31)
.... Excessive construction of HSR brings a serious debt burden (p. 31)
.... Excessive infrastructure construction (with HSRs playing a major part) leads to rising local debt, almost out of control (p. 32)

.... China’s HSR network is approaching large-scale maintenance. Where will the funding come from? (p. 32)

China’s current approach is to use profits from freight transport to subsidise the losses from HSR passenger services. Yet let me stress one more time: HSR systems around the world are designed exclusively for passenger use, because freight transport does not require high-speed service. Yet today, China’s railway sector is operating using freight revenues to compensate for passenger services. Freight transport is the cost-efficient, high-capacity core of the railway system. Again, globally, HSR is for passengers only, not freight, because freight transport does not require high-speed service. (p. 33)

VI. My suggestions. Domestic freight movement no longer faces geographical or logistical constraints that would justify the current bottleneck speed and scale of infrastructure expansion. HSR, expressways, cross-sea bridges, long-distance underwater tunnels, gigantic high bridges built almost on levelled mountain plateaus, as well as super-tall skyscrapers and “enormous, magnificent, unconventional, and unique” landmark architectures in mega-cities—all point to an overcapacity, even severe overcapacity. This phenomenon stems from flawed judgment and misguided decision-making by industry leaders and regional officials, or a push to transform large-scale infrastructure into “cash cows” or “trophy assets” for local economies and industries. (p. 35)

Attachment to this article: Maglev Train: The “Chinese Concorde” that Should be Cancelled! (p. 36-38).

There is no necessity for China to extensively develop maglev transportation infrastructure, and the prospects for experimental research and application are not promising. China has already built a vast, modernised HSR network and a large-scale, finely managed conventional rail system. (p. 38)

From: Baiguan <baiguan+context@substack.com>

To: joaquim@clusa-oriach.cat

Date: 30/07/2025 12:02

Subject: Why China is building the world's largest hydropower station in Tibet

Why China is building the world's largest hydropower station in Tibet And what it means for China's economic and energy future

"The project of a century"

On July 19, 2025, Chinese Premier Li Qiang stood in the remote southeastern Tibetan city of Nyingchi and announced the official commencement of the Medog hydropower station—what he termed a "*project of the century*".



Groundbreaking ceremony of the Yarlung Tsangpo River downstream hydropower project; picture from Xinhua News Agency

The mega project is a hydropower station on the lower reaches of the Yarlung Tsangpo River, a plan of such breathtaking scale that it redefines the very concept of a mega-project. With a projected investment of 1.2 trillion yuan (approximately \$167-170 billion) and a planned annual electricity output of 300 billion kilowatt-hours (kWh), the facility is designed to generate nearly three times the power of the iconic Three Gorges Dam, China's previous "project of the century".

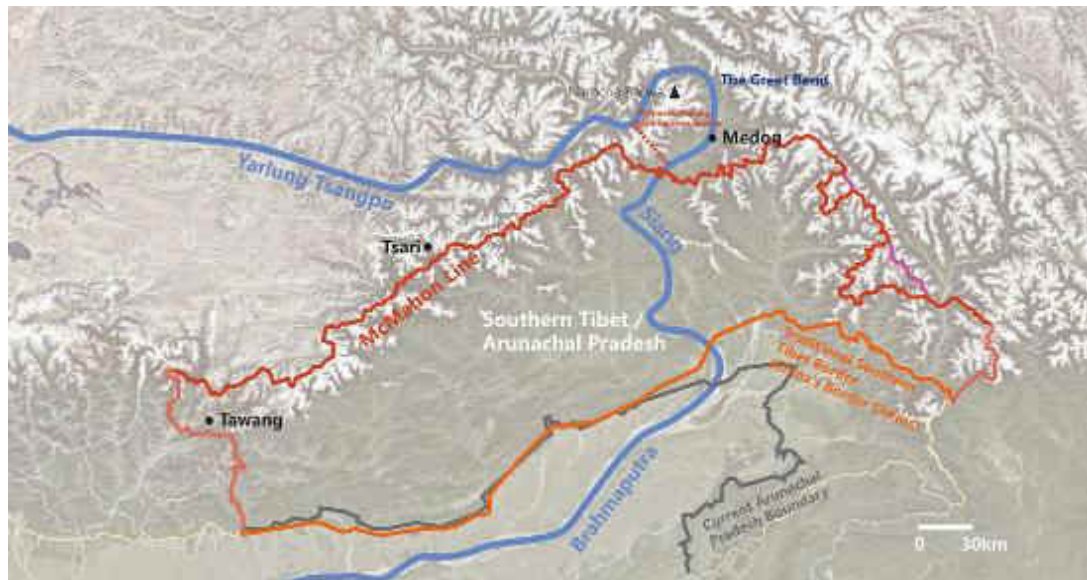
Its output alone would be enough to power the entire United Kingdom [(2023 statistics)] and is equivalent to 20% of China's total residential electricity consumption in 2024 [*], enough for 300 to 400 million people.

The economic benefits of the hydropower project far exceed those of typical power generation projects. Industry experts predict that the construction will directly create 100,000 to 200,000 jobs—three times the number created by the Three Gorges Project. Once completed, the project is expected to generate approximately 20 billion yuan in annual fiscal revenue for Tibet, accounting for about two-thirds of its projected fiscal revenue for 2024 [*].

The timing of this monumental announcement is as significant as its scale. It comes at a time when China's economic growth is weighed down by a struggling property sector and persistent deflationary pressures, following decades of meteoric expansion. Against this backdrop of economic anxiety, the decision to launch a multi-decade, multi-billion-dollar project in one of the most remote and geologically challenging regions on Earth seems, at first glance, counterintuitive.

It raises a central question: why now?

Is this infrastructure push a bid to stimulate the economy, a display of China's technological and political might, or a strategic effort by Beijing to rally national sentiment by showcasing the state's immense capacity to act?



Map of the disputed Southern Tibet / Arunachal Pradesh region, Medog county, and Medog (Yajiang) hydropower station. Map created by: https://open.substack.com/pub/jingyu1623/p/love-and-power-in-the-land-of-the?r=2xcahl&utm_campaign=post&utm_medium=web&showWelcomeOnShare=true

The century-old dream realized: A century of China's hydropower ambitions

To say that this project represents more than just a strategic pivot would not be a mistake. When the Three Gorges Dam—the last so-called “*project of the century*”—was launched, it coincided with the beginning of China’s decades-long economic boom.

For many in China, the Three Gorges Dam's construction period, from 1994 to its completion in 2006, is inextricably linked with the country's decade of explosive economic “take-off.” It became more than an engineering marvel; it became a potent symbol of national pride and a harbinger of an era of unprecedented prosperity. This powerful association has created a form of national reminiscence, a collective hope that the Yarlung Tsangpo project, being even larger and more ambitious, could similarly kickstart a new “super-cycle” of growth, especially when the economy is slowing after meteoric expansion in past decades.

The ambition to harness China’s great rivers is far from new. **It is a vision deeply embedded in the country’s modern DNA—a recurring dream of national rejuvenation.** The ideological lineage of the Yarlung Tsangpo project stretches back over a century, to the very founder of modern China: Sun Yat-sen. In his 1920 treatise *The International Development of China* (《实业计划》), Sun envisioned vast hydropower projects on the Yangtze River—what would later become the iconic Three Gorges Dam—as a pillar of his strategy to modernize the nation through flood control and electrification.

Sun’s grand industrial blueprint included three core strategies:

Building a national railway network, including lines through high-altitude regions—an idea that eventually materialized as the [Qinghai-Tibet Railway](#), now the world’s highest railway, officially inaugurated in 2006;

Coordinating the development of China’s water resources, including what would later become the Three Gorges Dam;

Integrating the economies of the frontier regions—a goal that later became massive state-led campaigns, such as the [Western Development Strategy](#), aimed at reducing economic disparities between China’s prosperous coastal areas and its inland and western regions.

In 2005, the idea took a particularly controversial yet provocative shape with the publication of the book [Tibet's Water Will Save China](#). Authored by Li Ling, a former People's Liberation Army officer, the book proposed a radical engineering scheme to divert vast quantities of water from the Yarlung Tsangpo and other major rivers to the arid, water-starved plains of northern China.

Although the book is mostly a conceptual vision and an eloquent narrative by the author—and was never officially accepted by Beijing (and the vision differs completely from the current hydropower project)—the book's audacious idea nevertheless struck a chord with many older Chinese generations and reinforces a view that remains influential today: **that taming China's rivers is inseparable from the quest to build a strong, modern state.**

Engineering on the roof of the world: technical details of the project

China's hydropower ambitions have evolved over the decades, with a series of ambitious projects—each building on the experience of its predecessors.

From the [Gezhouba Dam](#) (1970 - 1988) on the Yangtze to the massive Three Gorges Dam (1994-2003), and more recently to high-altitude stations like the [Lianghekou Dam](#) on the Yalong River (2014-2021)—which remains the highest-altitude hydropower facility to date, with an average dam elevation of around 3,000 meters—China has steadily built its technical expertise required to master its great rivers.

The Yarlung Tsangpo project marks the boldest chapter yet. It is located in [Medog County](#), a remote corner of southeastern Tibet, at a dramatic geographical feature known as the "*Great Bend*" of the Yarlung Tsangpo River. Here, after flowing eastward across the Tibetan Plateau, the river makes a hairpin turn around the sacred Mount Namcha Barwa and plunges south toward India. In just 50 kilometers (31 miles), the river drops between 2,000 and 2,350 meters (over 6,500 feet) ^[*], through the world's deepest canyon—three times deeper than the Grand Canyon in the United States.



5.

The "Great Bend"; Picture from: <https://cn.nytimes.com/china/20250207/china-tibet-dam-india/>

It is this staggering vertical drop that has long been viewed by engineers as the single most promising site for hydropower generation on Earth, with a water energy density estimated to be seven times that of the Three Gorges ^[*].

To exploit the potential of the "Great Bend," China is employing the "[run-of-the-river](#)" design, or, figuratively speaking, the "cut-the-bend" approach. Instead of constructing a single massive dam with a vast reservoir—which would be impractical and even more hazardous in this terrain—the project will consist of a series of five smaller "cascade" hydropower stations. These dams will divert a portion of the river's powerful flow into a network of four enormous tunnels, each stretching approximately 20 kilometers (12.5 miles) and bored directly through the Himalayan mountains ^[*].



8.

This "run-of-the-river" approach, which utilizes advanced dam-less diversion technology, means water is not consumed but rather borrowed with a resource utilization rate of up to 85% (*). It plunges down these tunnels, gaining immense velocity, to spin turbines located at a much lower elevation at the bottom of the canyon. After generating power, the water is discharged back into the river just before it crosses the Line of Actual Control into India. This design allows China to harness the massive potential energy from the 2,000-meter elevation drop while minimizing the size of the required reservoirs.



Namcha Barwa mountain; The intended construction plan necessitates the excavation of four 20-kilometer tunnels through Namcha Barwa mountain to divert the Yarlung Tsangpo River. Picture from: https://en.wikipedia.org/wiki/Medog_Hydropower_Station

So why has China waited until 2025 to commence this project?

Because building in this location presents engineering and environmental challenges on a scale previously unimaginable—not just for China, but for any country in the world. For instance, the engineering challenges require technical capabilities that China has only developed in recent decades.

Beyond basic infrastructure like building roads and bridges, two key technologies have made this project feasible:

The first is tunnel boring machines (TBM)—used to dig long tunnels through mountains, similar to how a pangolin burrows through soil. These machines were once monopolized by German manufacturers and were prohibitively expensive. But after China localized their production, they became widely available and cost-effective.

In the early planning stages of the Medog hydropower station, several construction proposals were considered. Now, only one remains viable: a “run-of-the-river” approach, which involves digging a tunnel over 30 kilometers long to connect both ends of the river’s U-shaped bend, using the more than 2,000-meter drop in elevation to generate electricity. Such an idea would have been unthinkable in the past—but with TBMs, it has become a realistic option.

In fact, there’s already a prototype for this kind of construction: the Jinping II Hydropower Station on the Yalong River. Its surrounding terrain is nearly identical to that of the Medog section. There, engineers cut through both ends of a similar U-shaped bend, building four water diversion tunnels—each 17 kilometers long. The station has been operational for six years and has proven stable.

With this prior experience as a foundation, taking on the challenge of the Himalayas no longer seems so daunting.

The second breakthrough is ultra-high-voltage (UHV) power transmission. Tibet is vast and sparsely populated, and local demand is far below the project’s potential output. Most of the electricity will need to be transmitted to major power-consuming provinces in the east—or exported to Southeast Asia. The only viable solution for such long-distance transmission is UHV, one of the few technologies in which China is globally recognized as a clear leader. Years of experience from the “West-to-East Power Transmission” program have proven that UHV is both mature and reliable.

Translated from 雅江水电工程背后的大国博弈 The Great Power Struggle Behind the Yarlung Tsangpo Hydropower Project

The project site sits near the Indus-Yarlung Suture Zone, the tectonic collision point where the Indian plate forces its way under the Eurasian plate. This is one of the most seismically active areas in the world. To counter this, engineers have developed advanced techniques and systems designed to help the tunnels resist earthquakes up to magnitude 8.5.

The canyon is not just a geological marvel but also a globally significant biodiversity hotspot. The unique geography, combining a massive change in elevation with wet monsoon air from the south, has created a range of ecosystems from tropical rainforests to alpine meadows, hosting rare species like the snow leopard and some of Asia’s tallest and oldest trees. This makes it essential for the design and construction activities to be precisely planned and rigorously tested to minimize the threat to this fragile and irreplaceable environment.

Also, the Yarlung Tsangpo Grand Canyon is one of the most inaccessible places on Earth. Until the completion of the Paizhen-Medog Highway in 2022, the area lacked reliable road access and a power supply, making the logistics of transporting millions of tonnes of materials like steel and an estimated 40 million tons of cement a monumental undertaking.

The resulting power output is staggering. The project is designed with an installed capacity of 60 to 70 gigawatts, producing 300 billion kWh of electricity annually. This is enough energy to meet the needs of nearly 300 million people, making it by far the most powerful hydroelectric facility on Earth.

The initial feasibility studies for the Yarlung Tsangpo project began in the 1950s but were paused due to a major earthquake. It wasn’t until 1982 that a joint expedition conducted the first field survey of the “run-of-the-river” concept. A systematic survey in the 1990s confirmed that 90% of the river’s entire hydropower potential was concentrated in the Great Bend. However, due to technical and logistical limitations, the project was not pursued further at the time.

In 2005, a formal construction plan was proposed, and in 2020, the project was officially included in China’s 14th Five-Year Plan. Key logistical hurdles were overcome with the completion of the Paizhen-Medog Highway in 2022, and the project received final approval from the State Council in 2024.

After a long and cautious journey, the Yarlung Tsangpo project is finally becoming a reality.

The sheer ambition of the Yarlung Tsangpo project is best understood when compared to its famous predecessor, the Three Gorges Dam.

	Yarlung Tsangpo Project (Medog)	Three Gorges Dam
Location	Medog County, Tibet Autonomous Region	Yiling District, Hubei Province
River	Yarlung Tsangpo (Brahmaputra)	Yangtze
Estimated Cost	1.2 trillion yuan (\$167 billion)	~180 billion yuan (~\$25 billion)
Installed Capacity	60 GW	22.5 GW
Annual Output	300 billion kWh (300 TWh)	~95-112 billion kWh (~100 TWh)
Primary Design	"run-of-the-river" hydroelectricity with cascade dams and long-distance tunnels	Concrete gravity dam with large reservoir
Primary Purpose	Pure power generation	Flood control, power generation, navigation

This comparison makes clear that while the Three Gorges Dam was a monumental feat of civil engineering focused on taming a river, the Yarlung Tsangpo project is a more technologically complex endeavor.

It also reflects the level of strategic foresight and long-term, forward-looking planning—planning that transcends economic fluctuations and political cycles—required to execute industrial and infrastructure development on the scale China is pursuing today.

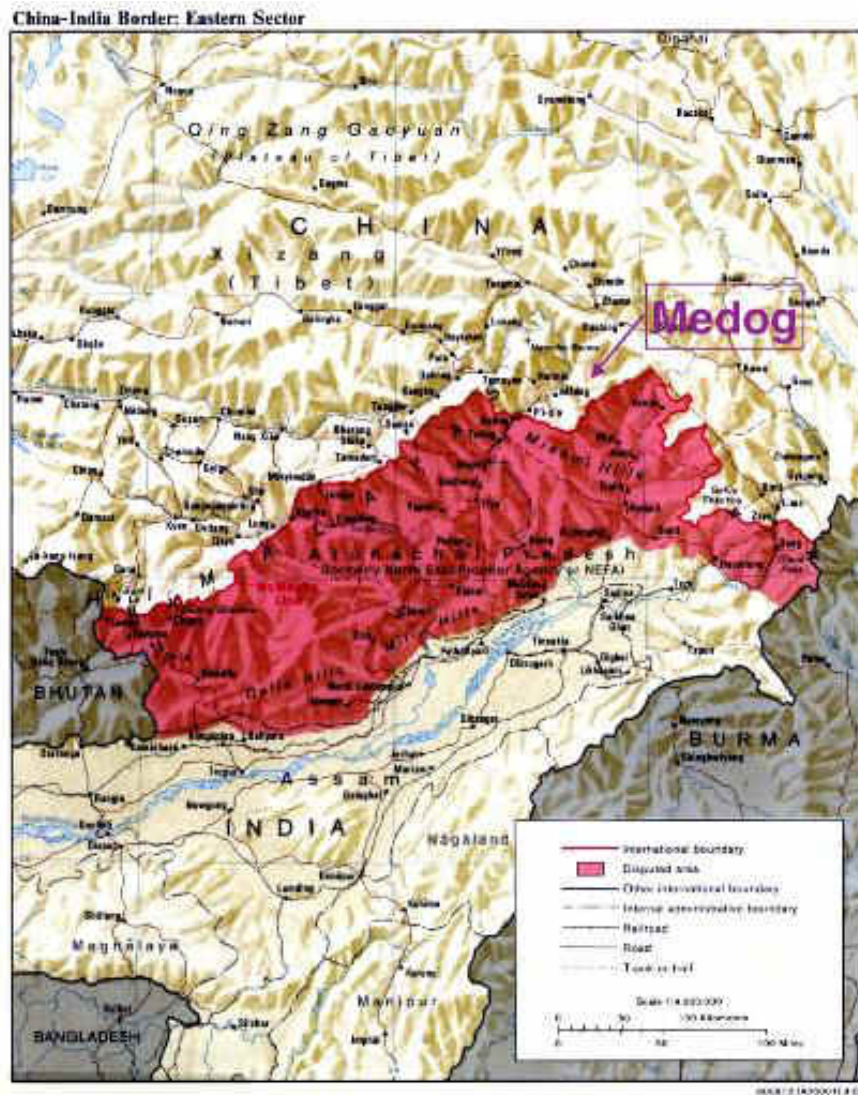
The geopolitics

A major hydropower project is being built in Medog County, the last county in Tibet before the Yarlung Tsangpo River crosses the Line of Actual Control (LAC) and enters the Indian state of [Arunachal Pradesh](#). The Yarlung Tsangpo River is called the Brahmaputra after it enters India.



Map of the disputed Southern Tibet / Arunachal Pradesh region, Medog county and Medog (Yajiang) hydropower station. Map created by: https://open.substack.com/pub/jingyu1623/p/love-and-power-in-the-land-of-the?r=2xcahl&utm_campaign=post&utm_medium=web&showWelcomeOnShare=true

This is not just any border: China claims the entirety of Arunachal Pradesh as "[South Tibet](#)," rejecting the colonial-era [McMahon Line](#) that currently serves as the de facto boundary. The project's location, just a stone's throw from a disputed border, has inevitably placed it at the center of one of Asia's most sensitive geopolitical rivalries.



South Tibet / Arunachal Pradesh; <https://zh.wikipedia.org/wiki/%E8%97%8F%E5%8D%97%E5%9C%B0%E5%8D%80>

For India, the project is not an engineering feat but a source of deep strategic anxiety, raising fears of water security due to China's construction of the Medog Hydropower Station, which flows downstream into Bangladesh as the **Jamuna River**.

This has fueled intense alarm downstream. Indian officials fear that control over the river's headwaters gives Beijing a powerful tool of coercion. The Chief Minister of Arunachal Pradesh has publicly described the project as a "ticking water bomb," warning that China could manipulate river flows. "Suppose the dam is built and they suddenly release water—our entire Siang belt would be destroyed," he said [1]. However, a closer look at the region's hydrology and China's broader strategy reveals a more complex reality. In fact, China does not control the majority of the Brahmaputra's water.

The upstream Tibetan Plateau is a high-altitude cold desert with relatively low precipitation. The river only transforms into the mighty, flood-prone Brahmaputra after entering India, where it is fed by torrential monsoon rains in the Eastern Himalayas and powerful tributaries such as the Lohit and Dibang. Snow and glacial melt from Tibet contribute only a small fraction of the river's total volume.

Scientific studies and hydrological data consistently show that the bulk of the river's annual flow—around 65–70%—is generated within India's borders. China's upstream contribution (mainly glacial melt in Tibet) accounts for only about 25% [2].

This hydrological profile fundamentally limits China's ability to "turn off the tap" and cause droughts in India. Moreover, the project's "run-of-the-river" design ensures that water is not consumed but merely diverted to generate electricity before being returned to the river, meaning the downstream volume will not be significantly affected.

Ultimately, the geopolitical conflict is less about the physical quantity of water and more about the "institutional vacuum" in which this project is being built. By constructing a strategic national asset of this magnitude in the heart of contested territory, Beijing is embedding its sovereignty claim in billions of tons of concrete and steel—fundamentally altering the strategic landscape. This move is also likely to bring population growth and economic development (including surplus electricity exports to neighboring countries like Bangladesh, Nepal, and even Northeast India) to a sparsely populated frontier, helping establish a strategic balance with the more populous side.

A jolt to the equity market

The announcement of the Yarlung Tsangpo project sent immediate ripples through China's A-share market. In an economy starved of structural growth drivers like real estate once was, the state's endorsement of a 1.2 trillion yuan undertaking acted as a powerful catalyst, igniting a rally in infrastructure-related stocks. Sectors like cement and engineering machinery gained over 8% in just one day on July 21, the first trading day after project commencement.

The market quickly identified key beneficiaries. State-owned giants such as Power Construction Corporation of China and China Energy Engineering Corporation, the designated primary contractors, saw their shares surge following the announcement of project commencement.

The rally also lifted a wide range of "hydropower concept stocks," from heavy machinery to civil explosives suppliers. For instance, in the cement sector alone, all 21 A-share-listed cement companies saw their stock prices rise by over 8%, with 19 of them hitting the daily limit-up — and, of course, not all of them secured contracts. On July 21, over 70% of A-share stocks closed higher. In the Hong Kong stock market, the power grid equipment sector rose by more than 40%. The market smells speculative fervor, but sophisticated investors should understand that the catalyst has already been priced in by now.

The strategic imperative: powering China's future

The true implications of the project transcend the short-term equity market craze. Economic stimulus, while a welcome side effect, is far from its primary objective.



20.

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From: Pekingnology-CCG <pekingnology@substack.com>
To: joaquim@clusa-oriach.cat
Date: 30/07/2025 19:13
Subject: Why Every China Watcher Must Be on WeChat



Why Every China Watcher Must Be on WeChat

None of this is to glorify WeChat itself – it's simply the reality of China's digital ecosystem today.

ZICHEN WANG

JUL 30



WeChat (微信 Weixin) is not just another messaging app in China – it's essentially “the operating system for daily life” in the country. With over 1.3 billion users worldwide (covering almost 80% of China's population), WeChat has grown from a simple chat app into a ubiquitous “*everything app*.” In fact, it has become so deeply woven into Chinese society that businesses and individuals often ask for a WeChat ID instead of a phone number or email when exchanging contacts. For anyone involved in China news, research, or analysis, not using WeChat is a nearly insurmountable handicap in staying connected.

This article builds on a controversial, short tweet that I wrote so long ago that I can't locate it anymore, explains why WeChat is indispensable for understanding China, and addresses common objections, especially about data security.

WeChat = China's Default Communication Platform

It's hard to overstate WeChat's dominance in Chinese communication. WeChat is the primary way people communicate in China, eclipsing traditional calls, texts, or emails. Early messaging platforms like QQ, Tencent's predecessor to WeChat, trained an entire generation to chat in apps instead of emails. Chinese users have since jumped straight into mobile instant messaging. Today, Chinese professionals and officials conduct even business chats via WeChat – it's common to see everything from work conversations to sending a formal document done over WeChat. “Private traffic” – essentially direct outreach via WeChat – has become an email-free equivalent of email marketing for Chinese brands.

For foreign journalists or researchers, this means that expecting Chinese contacts to reply to emails is often futile. Many Chinese people outside a few highly internationalized circles just don't check email regularly. While the rest of the world tries to ‘kill email,’ in China, it's always been dead. Chinese counterparts might even struggle to recall their email password on the spot – but they'll instantly offer their WeChat QR code. In practice, WeChat has supplanted SMS and phone calls for day-to-day communication. People schedule meetings, share files, voice calls, and video conferences all from within WeChat. Phone numbers are used chiefly for signing up for services – the real conversation happens on WeChat. Indeed, phone numbers or email addresses are rarely exchanged in China nowadays; the WeChat ID is the standard contact info.

Competing messaging apps? Virtually none. Global services like WhatsApp, Facebook Messenger, or Telegram are blocked in China. Even if a Chinese user has access to them (via VPN or travel), they are not part of the daily routine, and few contacts use them. WeChat holds a near-monopoly and de facto indispensable. For anyone wanting to reach people in China, WeChat is essentially the only game in town. Whether you're trying to contact an academic in Beijing, message a local source in Chengdu, or chat with friends you met in Shanghai – if you're not on WeChat, you're effectively cut off from how Chinese communicate in 2025.

Bottom line: If you need to communicate with people in mainland China, WeChat is absolutely essential. Relying on email alone will leave you isolated, because outside of a small internationally-savvy subset, the Chinese informational bloodstream flows through WeChat, not Outlook or Gmail.

Beyond Messaging: The “Everything App” Ecosystem

WeChat's importance goes far beyond chats. Over the past decade, WeChat has evolved into a “super-app” or “mega platform”, often described as China's “Swiss Army knife” of apps. It integrates functions that in other countries might be spread across a dozen different applications. Imagine combining WhatsApp, Facebook, PayPal, Uber, Yelp, Amazon, and more – that's WeChat. In practice, WeChat has become an all-encompassing digital ecosystem hosting social networking, media, services, and payments all in one place.

For a China reporter, scholar, or analyst, this means WeChat is not just for chatting with sources – it's a gateway into a huge portion of China's online content and services. Some of the key components of the WeChat ecosystem include:

WeChat blogs (公众号, officially known as Official Accounts, which in my opinion is a misleading translation): These are often compared to blogs or email newsletters – effectively China's version of Substack-style publishing platforms, delivered inside WeChat instead of via email. Individuals, media outlets, companies, and government agencies all run official accounts that publish articles and updates. Users "follow" an account and receive its posts in a feed (or folder). A subscription account can publish daily posts that look akin to a rich-media newsletter issue. Major news outlets have WeChat accounts, as do independent writers and influencers. As a result, WeChat has become one of China's primary news and content distribution channels. There is little doubt that WeChat has overtaken Chinese legacy media as *the* source of information, with countless independent content creators (KOLs, or "self-media") attracting massive followings through WeChat blogs. By now, virtually every organization of note in China – from government bureaus to universities, think tanks, corporations, and NGOs – maintains a WeChat official account to push out news and announcements. In short, if you're not on WeChat, you miss a vast universe of articles, analyses, and reports that never cross the open web. It's as if an American researcher refused to read email newsletters or blogs – they'd be blind to vast swaths of discourse. (By the way, that's precisely what many, if not most, America watchers in China do.)

WeChat Channels (视频号): Launched in 2020, WeChat's "Channels" feature is a built-in short video and livestreaming platform – essentially a TikTok-like video feed within WeChat. While it started later than rivals like Douyin (TikTok's Chinese version), Channels has grown explosively by leveraging WeChat's user base. Users post short videos, do live broadcasts, and interact much like they would on Douyin/Kuaishou. For the China watcher, Channels offers a window into the viral videos and grassroots content trending in China – without leaving WeChat. For example, when major events or public debates happen, often short video commentary and street interviews spread on Channels. If you're not on WeChat, you might only see such videos if someone re-uploads them elsewhere, which is rare due to the walled garden). With WeChat, you have immediate access to this fountain of TikTok-style content inside the same app where you're chatting and reading news. It's possible that Channels content can be less censored than WeChat text, giving glimpses of public sentiment.

Mini-Programs and Services: WeChat also contains untold numbers of "mini-programs," which are lightweight apps within the app – covering everything from e-commerce stores, food delivery, ride-hailing (e.g. DiDi, the Chinese Uber, is accessible via WeChat), ticket booking, banking and insurance services, to government public services. This means WeChat serves as an interface to much of China's digital economy. As a researcher, having WeChat lets you directly see how people use these services. Want to understand China's cashless society? Using WeChat Pay in daily life is illustrative – you'll quickly notice that in China cash and credit cards have been leapfrogged by mobile payments, especially WeChat Pay and Alipay. Indeed, many stores or taxis might prefer you pay by scanning a WeChat QR code. WeChat's integration of payment and service functions has made it so convenient that many Chinese barely need any other app – they can order meals, hail cabs, pay bills, buy train tickets, book doctors, and even file police reports all via WeChat. For someone studying Chinese society or economy, using WeChat provides a hands-on understanding of these phenomena. You experience first-hand how a "super-app" shapes user behavior. It's one thing to read about how ubiquitous QR code payments are – it's another to actually spend a day in China using WeChat for everything from metro fare to grocery shopping.

In summary, WeChat functions as China's hybrid of WhatsApp + Facebook + Instagram + PayPal + Uber + Apple Pay + Amazon +... (you name it) all rolled into one. By being on WeChat, you effectively plug yourself into a huge portion of the Chinese internet and digital life. You gain access to the articles people are reading, the videos they're watching, the services they use daily. This is invaluable context for journalists and researchers. Likewise, many viral memes or societal discussions propagate via WeChat chats and Moments (more on that below), which an external observer would miss entirely.

Not using WeChat thus means excluding yourself from what is arguably the central hub of Chinese digital discourse and information flow. A foreign correspondent in China who isn't on WeChat would be like a political reporter not using Twitter – you'd miss so many leads, conversations, and bits of news that

everyone else is seeing. It's the portal to China's "walled garden" – step inside, and you have a rich view of the landscape; stay outside, and you're peering through cracks at best.

Inside the Walled Garden: Information Flows & Exclusive Content

One of the strongest reasons you must be on WeChat is that an enormous amount of Chinese information and media is locked inside WeChat's walled garden, often exclusively. Put simply: many Chinese entities now release information primarily or solely on WeChat, and WeChat content is not indexed on open web search engines like Google, Bing, Baidu, or, more recently, Large Language Models like ChatGPT. If you're not in the garden, you won't even know what you're missing – and by the time news trickles out elsewhere, you'll be late to the party.

Consider how Chinese organizations disseminate updates today. Government agencies, state media, companies, think tanks, universities, even individual experts and bloggers – nearly all have WeChat official accounts and they frequently post news there first. Press releases, policy announcements, research reports, data releases, event notifications, commentary articles – much of this goes out on WeChat. Sometimes it might later appear on a website, but often WeChat is the priority channel. If you're not plugged into WeChat, you could miss critical pieces of news or context until they're summarized by someone else (if at all).

The problem is compounded by WeChat's closed nature. WeChat's content exists behind login and is deliberately walled-off from external indexing. In fact, Tencent (WeChat's parent) has historically treated its platform as a closed garden – even Chinese search engines cannot freely index WeChat content. Only Sogou, a Tencent-invested search engine, had [partial access](#) to index public posts. But Sogou's is little known, and its WeChat search feature remains underdeveloped. For the most part, a WeChat article will not show up on Google or Bing search results. In late 2021, a temporary "loophole" briefly made some WeChat public posts visible in Google/Bing searches, prompting speculation that the walled garden might open – but Tencent swiftly "[fixed](#)" the glitch and removed that access. Chinese regulators have pressured tech firms to be more open, but as of now, WeChat remains largely closed off to outside search.

WeChat's internal search function does allow users to search within WeChat for articles, Moments, mini-programs, etc.. But that is only available to WeChat users. If you're not on the app, you cannot access those search results.

The implication: As a researcher on the outside, you could Google a policy or topic and find nothing, unaware that perhaps a detailed explainer or crucial data point was published inside WeChat. For instance, an outspoken retired official gives a speech whose transcript is posted on a think tank's WeChat account – you'd likely never hear of it unless someone shares it. Increasingly, being outside WeChat means getting information later, second-hand, or not at all. Increasingly, firsthand materials in the China analysis field now often come in the form of WeChat screenshots or forwarded posts.

Even when WeChat content does leak out, it's usually via someone on the inside sharing it. How many times have we seen analysts on Twitter share screenshots of a trending WeChat article or translate bits of a WeChat essay? Those analysts could do so because they were on WeChat to begin with. If you rely on those crumbs without being on WeChat yourself, you're always a step behind.

To put it starkly: choosing to avoid WeChat creates a blind spot in your China knowledge. Whole realms of discourse – from official propaganda to social gossip – live on WeChat. It's not publicly archived on the open web. Even Chinese web search (like Baidu) doesn't capture it. There is no alternative one-stop source to retrieve that info. The only way in is to be in the ecosystem.

Micro-Level Social Pulse: Moments, Groups, and Trends

Another unique advantage of WeChat is the ability to "feel the pulse" of Chinese society on a micro level – through features like WeChat Moments, group chats, and comment sections. These offer a window into what people are talking about, sharing, and feeling in real time, in a way that formal news stories or English-language sources often cannot capture.

WeChat Moments (朋友圈) is essentially a social feed similar to Facebook's timeline or Twitter, but private within your network. Each user can post status updates, photos, articles, or videos to their Moments, which are visible to their friends (contacts). The vast majority of WeChat users post or browse Moments. When you, as a researcher, have a decent number of Chinese contacts on WeChat, scrolling through Moments becomes an enlightening daily routine. You start to see what topics people care about, what news articles they share, what memes or jokes are circulating, and even subtle signals of opinion. For example, during a big event (say a controversial government announcement or a celebrity scandal), your WeChat contacts' Moments might be filled with related posts – or conspicuously silent, which is itself telling. Moments gives you a personalized, ground-level view of discourse. These signals are invaluable for taking stock of the social mood. Without WeChat, you miss this grass-roots perspective entirely. You'd be stuck reading second-hand reports or English analysis that might not grasp how average Chinese netizens are reacting.

Moreover, WeChat Group Chats are where a lot of niche information and discussion circulates. Group chats (群) can include up to 500 members by default, and there are WeChat groups for everything. In recent years, group chats have become a key channel for information flow – sometimes more so than public social media – because they're semi-private and somewhat under the radar. Don't count on joining [the group chats that changed America](#) or China, but being invited into a high-quality WeChat group can dramatically broaden your insight. For example, there are groups of China-based journalists and academics who informally share tips and rumors; groups of policy advisors or businesspeople that occasionally drop insider tidbits; even local neighborhood groups that discuss daily issues. As an outsider, you won't get into most sensitive groups, but even being in a few relevant ones can be eye-opening. It's common that news of an upcoming policy or an incident might surface in group chat chatter before it's officially reported. Essentially, WeChat groups function like mini-forums or Slack channels for various Chinese communities. If you're not on WeChat, you're obviously not going to be in these groups – meaning you lose out on that real-time flow of information and discussion among engaged China insiders. It's worth noting, of course, that groups of hundreds of people can also have noise, but the active participants in any good group make it worthwhile. Usually, a core of members shares info while many others “lurk” and learn.

Even the Comments sections within WeChat's ecosystem offer insight. Under each WeChat official account article or video, users (with China-registered accounts) can leave comments, which are often moderated but still can number in the hundreds for hot topics. Reading these comments can give a sense of public reaction – albeit filtered through censorship – to a piece of news. Similarly, when a short video on Channels goes viral, the comments and likes it gets can indicate what resonates with viewers. These nuances are largely invisible if you are outside WeChat.

One more subtle benefit: Using WeChat immerses you in the same information environment as domestic Chinese users. That is a learning experience in itself. You see what the popular trending topics are within WeChat on a given day (the app often highlights hot topics or popular articles). You might notice, say, a particular patriotic song being shared widely, or a health scare rumor making the rounds. Over time, this helps you calibrate your understanding of what Chinese netizens are seeing and caring about, beyond what's reported in English. It adds texture to your research – you're not just reading official statements, you're observing how those statements get digested (or ignored) by the public online.

Finally, because WeChat touches so many aspects of life, being on it lets you observe everyday practices and challenges in Chinese society. For instance: WeChat has built-in features for ride hailing, food delivery, investments, insurance purchases, etc. Using or even exploring those features shows you how advanced (or sometimes clunky) Chinese digital services are. Curious about censorship? You might firsthand experience a message that fails to send in a chat because it had a sensitive keyword – that silent blocking tells you something about red lines. Essentially, WeChat is a microcosm of Chinese digital society. Diving in is the quickest way to get a feel for the rhythms of daily life and social currents in modern China.

Addressing the Elephant in the Room: Data Security and Privacy

A frequent objection, especially among foreign professionals, is concern about WeChat's security: “If I install WeChat, am I putting my data (or even my entire device) at risk of Chinese government

surveillance?” This deserves a clear-eyed response.

First, there is a lot of censorship built into WeChat. For example, when you share a link, sentence, or file via WeChat, it's possible that it wasn't delivered because somehow it triggered a censorship mechanism that is never explained.

Second, despite [an ex-prosecutor saying Chinese law enforcement was unable to access WeChat history via Tencent](#), which I believe to be a truthful account (that's why I published it), there are credible anecdotes showing communications on WeChat are not private. WeChat also does not offer end-to-end encryption like Signal or WhatsApp.

This may make many of you uncomfortable, but in my usual style of plain-speaking, one Chinese expert with an excellent reputation abroad and numerous Western contacts once lamented to me, many Westerners working on China think too much of themselves when they imagine themselves to be some Chinese government surveillance target. Although I believe personal consequences are unlikely for most foreigners, the safest thing to do is to exercise a certain level of self-censorship.

The third concern is whether WeChat compromises your device as a whole – i.e., is the app essentially spyware that can access unrelated data on your phone or computer? It is a heavily scrutinized app (given its size), and if it were regularly rooting phones or stealing all your files, there should have been many reports. However, just like most apps these days, WeChat requests access to your contacts, messages, microphone, camera, location, etc., because it needs many of those to function (sending audio messages, finding friends, mobile payments, etc.). As a result, on a phone where you grant WeChat those permissions, the app could glean a lot of information. Western governments have played up these risks: for example, one Western government [banned](#) WeChat from government-issued mobile devices in 2023 despite stating “we have no evidence that government information has been compromised.”

To put it differently, the primary risks lie in what you do through the app, not that WeChat will siphon off other data from your device.

If you are especially concerned, limit WeChat's permissions on your device to the bare minimum. Another approach is to use WeChat on a secondary device dedicated to it. If you absolutely don't want WeChat anywhere near your primary phone, you can get a cheap separate smartphone and install WeChat there, essentially sandboxing it. But remember to check it regularly, otherwise you are just wasting it.

Nowadays, many China professionals do carry a burner phone when traveling to China or for using Chinese apps. It's inconvenient, but that's just the world we live in.

In summary, yes, WeChat entails surveillance risks, but these can be managed. The benefits of being on the platform, in my opinion, far outweigh the risks – provided you're aware and cautious. If WeChat is absolutely critical to your work (and I argue it is for China work), and you remain very worried about device security, then the suggestion of using a dedicated device for WeChat stands.

Conclusion: Embrace WeChat or Be Left Out

Some time ago, I posted a tweet - since lost - on Twitter that basically says not using WeChat is a massive obstacle to understanding China. The tweet racked up over 100,000 views and sparked intense debate. Clearly, this struck a nerve. Some people – often those who for various reasons avoid WeChat – pushed back, arguing that they could follow China news via other means. But I stand by my statement. After all the above discussion, the logic is clear: WeChat is an irreplaceable tool for anyone serious about China. Choosing not to use it is choosing to work with a blindfold on.

To put it provocatively: a researcher on China who refuses to use WeChat is akin to a Chinese analyst of the West who refuses to use email (there are many of them!). Sure, you can still get some information via other ways, but you'll miss a colossal amount. In fact, I often gauge a Chinese acquaintance's international engagement by how much they use email – if they hardly use it, I'll take what they say with a massive pinch of salt. The same in reverse: if a non-Chinese claims to be a China specialist but doesn't use WeChat, it's a telltale sign they're out of the loop with the Chinese domestic discourse, including

Chinese perceptions of international affairs, though not necessarily the international discussion about China.

None of this is to glorify WeChat itself – it's simply the reality of China's digital ecosystem today. You have to meet it on its own terms. The great network effect of WeChat means its value to you grows as you add more contacts and follow more accounts. Admittedly, there's a hurdle at the beginning: if you join WeChat but only have a couple of contacts and follow no accounts, it might seem quiet or useless. And WeChat doesn't appear to make foreigners' registration easier by frequently requiring verification from other WeChat users. Don't let that deter you. Proactively add contacts (exchange WeChats with Chinese colleagues, sources, friends whenever you can) and follow relevant official accounts (media outlets, government orgs, topic-specific blogs). With time, your WeChat feed will flourish with information. It's an investment – in building a digital network that mirrors, as much as possible, the information network a Chinese peer would naturally have. And that is incredibly enriching for your work.

There will always be concerns – censorship, surveillance, addiction to yet another app, etc. **Using it doesn't mean endorsing it; it means you're responsibly engaging with the primary medium through which Chinese people communicate and consume content.**



Beijing Channel

Most complete collection of Chinese gov't WeChat accounts (more than 300!)

One feature of the Chinese internet is that mobile portals are now favored, if not the sole channel for the release of official information. Many official statements would appear on WeChat before they are put up on the official website of government agencies...

From: The East is Read - CCG <eastisread@substack.com>

To: joaquim@clusa-oriach.cat

Date: 24/07/2025 14:20

Subject: China massively overbuilt high-speed rail, says leading economic geographer



Zichen Wang Jul 24 · The East is Read

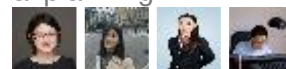
As you can tell from the headline, obviously a highly controversial argument...

China massively overbuilt high-speed rail, says leading economic geographer

Lu Dadao of the Chinese Academy of Sciences warns that oversized, underused HSR infrastructure has ignored basic economic logic, weakened public finances, and derailed regional planning.

YUXUAN JIA, XINTIAN LI, ZHAO HUIYI, AND ZICHEN WANG

JUL 24



READ IN APP ↗

What you are about to read is a lengthy, comprehensive, sharp — and at times even indignant — criticism of China's high-speed rail development by one of the country's leading official economic geographers recently.

Lu Dadao, born in 1940, is an Academician of the state-run Chinese Academy of Sciences (CAS), one of the highest honors bestowed upon a scientist in China. The title is often described as the pinnacle of scientific achievement and social prestige within the Chinese academic and research community.

According to his official biography at the CAS's Institute of Geographic Sciences and Natural Resources Research, Lu, President of the Geographic Society of China between 1999 and 2010, was

a participant in the drafting of China's "National Master Plan for Land Use" led by then State Planning Commission, the predecessor of today's National Development and Reform Commission (NDRC), and organized and contributed to the formulation of major national-level plans such as the "Land Use Plan for the Beijing-Tianjin-Tangshan Region" and the "Economic Development Plan for the Bohai Rim Region," as well as numerous other development strategy studies and planning projects. He has also led or participated in drafting a large number of reports and policy recommendations on national land development, regional development, and governance. Among these, nine reports were submitted by the CAS to the State Council. He has also been involved in drafting major plans and reports for then State Planning Commission on more than ten occasions.

Lu has long warned about the risks of highway, railway, and airport overbuilding in China. In 2010, Lu headed a team of government researchers that issued a report criticizing the nation's vast transportation-building program for excessive investment. In 2011, he told Caixin, China's leading business media outlet, in an interview [reprinted](#) by the Wall Street Journal, that he "faced great pressure" from officials unhappy with the report.

In 2013, Lu was among the experts who [briefed](#) China's then Premier on urbanisation. What is he now saying about China's high-speed rail (HSR)? The following article was [published](#) on June 15, 2025, in the WeChat blog called China National Conditions and Development Forum, which describes itself as jointly initiated in 2018 by the [Bureau of Academic Divisions](#) and the [Institute of Geographic Sciences and Natural Resources Research](#) of the CAS.



高铁辉煌，高铁问题如何了？ **The Glory of High Speed Rail: What About Its Problems?**

I. Introduction: Wave after wave of High-Speed Rail (HSR) development in China

Over the past four decades of reform and opening up, the Party and the government have attached great importance to the development of transportation infrastructure. Today, China commands a vast, integrated and largely modernised transport network: high-capacity passenger and freight corridors span the country; its merchant fleet plies every major sea lane; and its airlines serve destinations worldwide.

Bottlenecks that once plagued key routes—between border regions, between Beijing and Shanghai, between the Pearl River Delta and the southwest (Sichuan, Yunnan, Guizhou), and between the Yangtze River Delta and the northwest—have been substantially eased. The mainline railway network linking the nation's heartland with the southwest, northwest and northern frontiers, while meeting national-defence needs, is essentially complete. In terms of capacity, layout and geographic reach, this system has strongly supported the rapid development of China's economy and society. The old saying that "to travel is to suffer" has, for most people, become a thing of the past.

China's capacity to research, develop and manufacture transport equipment is now formidable, and management across the sector continues to improve. By international safety metrics and in the public's own sense of safety, China is now comparable to some Western countries. Numerous engineers, technicians and construction crews have shown exceptional grit and dedication, conquering soaring mountains and deep gorges, broad rivers, glaciers, permafrost, and deserts, to create a host of engineering miracles.

However, it is also known that the transportation sector, as a major national industry, has received substantial financial investment from the state at various stages. While remarkable achievements have been made, this progress has come at a significant cost. Particularly in the latter half of the 11th Five-Year Plan period (2006-2010), the government launched an ultra-large-scale transportation planning and construction campaign that drove transport investment to an exceptional 7–9% of GDP. This is an unusually high ratio. Between 2008 and 2010, annual transportation investment sharply increased to

nearly 3 trillion yuan. In 2009 alone, national investment in HSRs reached 700 billion yuan. This situation persisted for several years, leading to a serious bout of overbuilding.

The following discussion will specifically address the issues arising in China's HSR planning and construction from the perspectives of rationality and economy.

During the latter part of the 11th Five-Year Plan, specifically, in 2009, China adopted the [Mid-to-Long Term Railway Network Plan](#). It envisioned building a “four-vertical, four-horizontal” grid of passenger-dedicated lines and an intercity express network, creating fast-travel corridors that link provincial capitals and large and medium-sized cities.

However, industry regulators [announced](#) that the “four-vertical, four-horizontal” grid would be finished within three to five years, aiming to “lead China fully into the HSR era.” Construction of 250 km/h Electric Multiple Unit (EMU) lines surged, and the launch of the Beijing–Tianjin route triggered a nationwide rollout of 350 km/h long-distance corridors. By 2012, the network already spanned 18,000 km. Conventional K-series express trains were steadily replaced by EMUs, followed quickly by the grand entry of the HSR era.

The [2011 corruption enquiry](#) of the railway minister exposed deep-seated corruption and poor workmanship in China's HSR programme. That year, projects worth about one trillion yuan were paused. Yet many ills of Liu Zhijun's tenure—dubious approvals, reckless timelines, and a web of unwritten rules and backroom deals—were never fully brought to light. Waste and accidents on the ground received only superficial investigation.

Even so, during the 12th and 13th Five-Year Plans (2011–2020), the “Great Leap Forward” of China's HSR resumed to popular applause. Ambitions for long-distance, intercity and suburban high-speed lines in major cities stayed far too grand, and mega-projects sped through approval. In ten years, the network added another 20,000 km, reaching 37,900 km by the end of the 13th Plan and, by early 2025, is set to hit 46,000 km. The “four-vertical, four-horizontal” grid finished ahead of schedule, while an even denser “eight-vertical, eight-horizontal” network was taking shape.

In August 2021, China Railway Group Limited released the [Outline of the Railway-First Strategy for Building a Strong Transportation Nation in the New Era](#), setting a target of 70,000 km of HSR by 2035—nearly double the mileage in 2022. The consequence of this unrelenting drive for speed is becoming increasingly clear.

Although the “railway head” (the Ministry of Railways) was overhauled in 2013, with construction and operations restructured under China Railway Corporation [which was restructured into China Railway Group Limited in 2019], the newly minted “railway boss” continued to act with overbearing confidence and blatant disregard for national economic trends, market demand, and public sentiment. The target of 70,000 km of HSR by 2035 was a staggering all-or-nothing gamble.

However, just six months later, in March 2022, the state finally issued the [Opinions on Improving Railway Planning and Construction](#), which effectively applied the “emergency brake” to the nationwide HSR “Great Leap Forward.” For reference, the front-page report of the Economic Daily on April 18, 2022, outlined numerous serious problems in HSR planning and construction over the past decade. [We have been unable to locate this report. —Translators' note] Since then, construction of medium- and long-distance HSR across the country has essentially come to a halt.

However, immediately afterwards, various regions turned to aggressively developing short-distance HSR, centred around megacities and large cities, connecting areas within a 100 to 200-kilometre radius.

The economic losses continued to expand and extend across China's vast territory.

Former Minister of Railways Liu Zhijun, who held office for eight years, and former general manager of China Railway Corporation [Sheng Guangzu](#), who served for six years, were the two most prominent figures implicated in railway-related corruption. [Li Zaiyong](#) from Guizhou [former vice chairman of the Guizhou Provincial Committee of the Chinese People's Political Consultative Conference] is another key figure. Both Liu and Sheng were directly or indirectly involved in a wide range of misconduct, spanning project approvals and contracting, construction quality, equipment and material standards, and overall governance. Projects that should never have been approved were nonetheless launched; irrational and even illegal ventures were pushed through; and substandard materials and workmanship were overlooked. Bribery and graft lay at the root of these failures, while the exposure and

concealment of quality problems were the consequences. The causal chain is clear.

This article attempts to tackle all these issues, albeit from a peripheral angle, and can only expose a fraction of the full picture.

II. What Is HSR?

What is HSR? It stands for high-speed rail. Compared with conventional railways, HSR differs in several fundamental ways.

First, the faster the train, the larger the required curve radius of the railway line. For example, a high-speed rail line operating at 350 km/h requires a minimum curve radius of about 6,000 metres. By contrast, a line designed for 200 km/h can manage with a radius of around 3,500 metres, while conventional railways in China—designed for speeds up to 120 km/h—require only about 600 metres. Moreover, higher speeds demand gentler gradients, meaning HSR routes must be “straight and flat.” In mountainous or uneven terrain, this necessitates extensive tunnelling and bridge construction, resulting in massive volumes of earthwork and engineering effort.

Second, higher speeds demand stronger and higher-grade materials for the subgrade, track bed, and rails. High-speed rail requires rails weighing up to 75 kilograms per metre. By contrast, conventional railways typically use rails weighing between 45 and 55 kilograms per metre, while suburban light rail systems may use rails as light as 30 kilograms per metre.

Third, the railway switches used in HSR systems, as well as the train wheels, require specialised materials and advanced manufacturing techniques. At present, these components are still likely dependent on imports.

Fourth, the maintenance costs of HSR lines, including stations, are significantly higher than those of conventional railways. According to the World Bank’s Implementation Completion and Results [Reports](#) on six Chinese HSR projects (designed for speeds of 250 km/h) published before 2010, the annual maintenance cost is approximately 1 million yuan per route-km.

Fifth, dedicated to speed, HSR handles exclusively passenger transport. In some countries, on a few mainlines where trains operate at around 200 km/h, such as in Germany, certain mainlines with operating speeds around 200 km/h are classified as high-speed rail and still accommodate both passenger and freight trains. In China, however, lines designed for speeds of 250 km/h and above do not carry freight traffic.

Sixth, on the construction costs of China’s HSR network: In the early 2000s, China launched the development of several EMU lines designed for speeds of 250 km/h. At the time, construction in the eastern plains region of China cost approximately 80 to 100 million yuan per route-km, while in low mountainous and hilly areas, the figure rose to about 150 million yuan.

During the 12th Five-Year Plan period, large-scale construction of 350 km/h lines began. In the eastern plains, costs climbed to around 200 million yuan per route-km, rising to approximately 300 million yuan in hilly regions. In some mountainous areas of the southwest, costs reached as high as 400 to 500 million yuan per route-km.

By comparison, under similar conditions, conventional railways—electrified double-track lines with a maximum design speed of 160 km/h—cost only 50 to 60% as much. All figures are based on prices at the time. As I lack access to primary data, these numbers should be understood as indicative rather than precise. The high construction and relatively higher maintenance costs of HSR form the fundamental basis for evaluating the rationality of China’s land-based rail transit hierarchy and the feasibility of individual lines.

III. On the planning and construction of China’s HSR

(1) Fundamental principles to be followed in designing China’s HSR network

I summarise the following key points:

1. HSR construction is generally reasonable between megacities that possess large-scale passenger flow distribution. Examples include the Beijing–Shanghai, the Beijing–Guangzhou (including Beijing–Hong Kong), and the Beijing–Shenyang lines.
2. Even if the endpoints of a line are not major passenger hubs or top-tier national

megacities, it is still justifiable to construct an HSR if it links several cities, each with a population of over one million, within a relatively short distance.

3. Special circumstances may also justify construction, for example, 250 km/h HSRs linking Beijing, the national capital, or Shanghai, the country's largest economic centre, with key cities in ethnic minority regions or strategically important border areas.
4. Within China's three major city clusters—the Beijing-Tianjin-Hebei region, the Yangtze River Delta, and the Pearl River Delta—and possibly the Chengdu-Chongqing cluster as well, both internal and national (including transit) passenger flows exist. Internally, between core cities and their surrounding areas, light rail is generally sufficient to meet commuting demand—the primary reason for building railways—as well as commercial and socio-cultural travel needs. If passenger flows originate from or are destined for a core city and pass through several large or medium-sized cities within the cluster, or if significant regional network traffic transits the area, HSR may be justified. In such cases, the total volume of passenger traffic should determine whether the line is designed for 250 km/h or 350 km/h service.

It is important to emphasise that passenger transport within large city clusters requires a “door-to-door” approach. Accordingly, overall passenger transport planning must adhere to the principle of “systematisation,” optimising and coordinating the integration of HSR, conventional railways, expressways and various levels of roads, subways, light rail, buses, and transfer stations at both spatial and temporal levels. From the perspective of the guiding philosophy, “systemic thinking” must take precedence over “goal-oriented thinking.” The pursuit of a single transport mode system within large city clusters should be resisted.

In recent years, the media have vigorously promoted the establishment of a “[rail-based Beijing-Tianjin-Hebei city cluster](#).” However, the specific requirements, standards, and implications behind this slogan have not been carefully examined. Perhaps encouraged by this trend, since 2024, media coverage has increasingly emphasised the development of a “[rail-based Greater Bay Area](#)” and a “[one-hour living circle](#)” within the region. Yet such slogans risk causing misunderstandings and may lead to large-scale, redundant construction. If the projects merely involve short-distance, lower-grade conventional railway branches or suburban light rail lines, this would not be problematic. Otherwise, the implications could be far more serious.

(2) Basic requirements for HSR planning and construction

The above characteristics and planning principles make clear the following: high-speed rail entails heavy investment and high maintenance costs; its development must be backed by substantial passenger demand; and its construction must follow a systematic approach, taking account of the entire transportation network and regional transit systems.

China ranks first in the world in both passenger and freight volume. HSR serves as the backbone of the nation's land transport system. As previously noted, its primary role is to link major passenger hubs—large and mega cities, as well as urban clusters—underscoring its “prestigious” and “high-end” character. It is not designed for “door-to-door” service. Must such a basic fact still be reiterated? I should think not. Yet in today's world, it is often the most obvious truths that are the easiest to overlook. It is said that the total length of blood vessels in the human body is about 96,000 km, while the abdominal and thoracic aorta measures only around 20 centimetres. Though the analogy may not be exact, it serves to make the point.

Without adequate passenger demand, the construction of HSR is simply a waste. According to online sources, official standards stipulate that 350 km/h operation is only permitted under two specific conditions: first, when both terminal stations demonstrate annual passenger throughput exceeding 25 million travellers, with medium- to long-distance journeys accounting for at least 70 percent of total ridership; second, for routes handling 20 million annual passengers that serve critical functions within the national railway network. For other routes that do not meet these criteria, the construction of HSR lines with a 350 km/h operation speed is not permitted.

Although HSR entails significant capital investment and ongoing maintenance costs, it should only accounts for a small share of China's total passenger turnover. The majority of land-based passenger transport is undertaken by conventional railway systems, highway networks, and urban public

transportation infrastructure. Of course, conventional railways themselves operate across multiple different classes and infrastructure levels based on passenger traffic volume—single or double track, different traction power (electrified, diesel, or steam-powered), as well as varying station capacities for train marshalling and maintenance operations. Similarly, China's highway system encompasses multiple hierarchies: from high-capacity expressways down to Class I, II, III and IV arterial roads, in addition to various substandard roadways.

Passenger transport in major cities and their surrounding areas—including the central city and nearby small and medium-sized cities and rural areas with significant commuter flows—should, and indeed must, be handled by an integrated transport system combining metro lines, incoming intercity rail (including HSR), and surface transit such as buses and light rail. Such integration provides the most efficient and practical means of delivering truly “door-to-door” service.

In urban settings—whether in major cities, megacities, or city clusters comprising core cities and their satellite communities—passenger transport is invariably carried out through a coordinated, multimodal system. This integrated approach forms a well-designed, efficiently connected network for short-distance rapid transit. To suggest using HSR for such urban transport needs would be both unrealistic and utterly absurd.

Government authorities and media alike tend to highlight the completion of large-scale intercity transport projects, presenting them as major accomplishments. However, far less attention has been paid to achieving seamless connectivity within major cities, megacities, and their satellite communities, particularly the integration of subways, surface transit (including light rail, buses, and trams), and long-distance railway terminals. Yet this is precisely what matters most to the general public. Regrettably, this vital issue continues to be neglected in China.

Policy pronouncements calling for “HSR access for all prefecture-level cities” [There are 293 prefecture-level cities in China, Translator's note] and “expressway access for every county” lack a sound scientific basis. Many prefecture-level cities were already well served by conventional rail and highway networks before the advent of HSR. Why insist on HSR coverage? Numerous countries in Europe and North America have no HSR systems, yet are widely regarded as modern and well-connected. Blanketing the country with “prestigious” HSR lines—and treating them as casually as buses—risks turning national planning into a farce. Indeed, consequences are already emerging along sections of the “eight-vertical, eight-horizontal” network (to be discussed further below).

From my observation, the design philosophy behind many transportation projects, HSR included, prioritises “advance planning” with requirements such as “ensuring design capacity for the next 30 years” (likely an informal industry policy). Yet little attention is paid to what actual passenger and freight volumes these regions will face three decades down the line. Due to limited vision and constraints in technical expertise, reliable scientific forecasts are rarely achievable. This has been a key factor driving the “Great Leap Forward” and the overexpansion of China's HSR network over the past two decades.

Particularly among relevant authorities and some local officials at the prefectural and county levels, there is a widespread tendency to dismiss conventional railways, some not even bothering to consider them. HSR is proposed even where it is unnecessary; where 250 km/h would suffice, a demand is made for 350 km/h instead. In some cases, parallel high-speed lines are put forward based on dubious justifications. Can these authorities offer a clear and concrete rationale? I believe not. It's like a child's game of make-believe—devoid of reason.

Some may not be aware that during the first fifty years of the People's Republic of China, the construction and management of the railway system achieved remarkable progress. Starting from a dilapidated network of just 21,000 km in 1949, the system expanded to 26,300 km by the end of the 1st Five-Year Plan in 1957, and reached 51,700 km by the early 1980s. During this period, key trunk lines such as the Beijing–Shanghai, Beijing–Guangzhou, Beijing–Harbin, and the eastern section of the Lanzhou–Lianyungang line were upgraded through double-tracking, electrification, and the adoption of automated train marshalling technology.

The construction of heavy-haul rail corridors such as the Datong–Qinhuangdao and Shouzhou–

Huanghua lines—dedicated to coal transport—effectively resolved long-standing logistics bottlenecks, particularly for Shanxi's coal exports and north-to-south coal distribution. By the late 1970s and early 1980s, the Tianjin–Pukou line alone carried 50 million tons of freight annually and operated over forty pairs of daily passenger trains—including express, regular, and slow services—linking eastern China (Shanghai, Nanjing, Zhejiang, Fujian, Anhui, and parts of Jiangxi) with the north, northwest, northeast China, and Shandong Province.

China also ranked among the world's best in the quality of subgrade and trackbed construction, as well as ballast laying and maintenance. On the Beijing–Tianjin corridor, a train passed every seven minutes. The national railway timetable and its logistical organisation were likewise highly advanced. While today's rail operations feature more sophisticated logistics systems, it is worth noting that express services on conventional rail lines remain the most popular, the most heavily used, and the most revenue-generating segment of the network.

IV. What challenges has China's HSR brought?

(1) How did the severe operational losses in HSR come about?

During the 9th and 10th Five-Year Plan periods (1996–2005)—the first transformative decade in China's reform and opening-up—significant strides were made in alleviating capacity constraints and congestion in both passenger and freight traffic along key directional flows. Building on that, the government then moved to accelerate transport speeds and enhance overall network efficiency.

In the early 2000s, China introduced Electric Multiple Unit (EMU) trains capable of speeds between 200 and 250 km/h. These represented a major breakthrough and led to the development of the country's first dedicated passenger lines, which garnered warm public acclaim.

However, in the later years of the Eleventh Five-Year Plan period (2009–2010), transportation investment surged to unprecedented levels. Annual spending on the sector reached 3 trillion yuan, with HSR projects alone accounting for an average of 700 billion yuan per year and reaching 850 billion yuan in certain years.

During the decade spanning the 12th and 13th Five-Year Plans, amid widespread public praise, China's high-speed rail system continued its “Great Leap Forward.” It was during this phase that the majority of the heavily loss-making lines were built. Numerous medium- and long-distance HSR routes, lacking sufficient passenger demand, were completed, including a surprising number of segments under 300 km with very low ridership. Within the “eight-vertical, eight-horizontal” national HSR blueprint, more than 100 such short-distance lines now exist.

Most of these projects were approved in the final years of the 11th Five-Year Plan under Liu Zhijun—reportedly nicknamed “Liu the Leaper” by industry insiders. The expansion was often justified on the basis of Spring Festival travel peaks and seat shortages, and framed as efforts to build “passenger-dedicated lines,” “intercity railways,” or “parallel double-track corridors.”

As the network grew, vertical and horizontal corridors gradually took shape, giving rise to 20 to 30 loosely defined “major trunk lines” and “major corridors”—conceptual catchalls that effectively incorporated every large city and hundreds of small- and medium-sized prefecture- and county-level cities into the HSR system. This process has produced a national HSR network now totalling 46,000 km in length, with additional large-scale HSR projects still underway.

In 2016, President Xi Jinping [emphasised](#) that “no large-scale development will be allowed”—a directive that referred to the Yangtze River Economic Belt but could also serve as a national guideline. He also stressed the importance of pursuing high-quality development. Nevertheless, many government departments and localities maintained their fervent enthusiasm for large-scale infrastructure projects. As the 14th Five-Year Plan period (2021–2025) began, a new wave of high-speed rail fervour emerged.

At the same time, problems with HSR have gradually emerged. On May 9, 2024, it was [reported](#) that by 2023, China's cumulative HSR debt had reached 6 trillion yuan, with only six HSR lines nationwide showing some profit. In other words, out of 46,000 km of HSR lines, only six lines roughly break even

on their annual operating revenues and expenditures. However, this merely covers operating costs for the year and does not account for the initial construction investments. Broadly speaking, approximately 40,000 km — accounting for 80 to 85% of the total HSR network — are operating at a loss, some even severely so. According to the World Bank's [report](#) on Chinese HSR development, a medium-distance HSR line needs annual traffic densities of 35 to 40 million passengers in order to achieve profitability.

According to statistics, China's railway system incurred a loss of 55.5 billion yuan in 2020 alone, with cumulative debt reaching 5.57 trillion yuan, as [reported](#) on the WeChat blog *Zouxiang Jiexue* on January 22, 2022. It is important to note that this figure reflects losses across the entire national railway system, not HSR specifically. China's conventional railway network, which spans over 100,000 km and handles both passenger and freight transport, remains profitable. Earnings from this sector have partially offset the losses sustained by high-speed rail. So, what is the true annual loss attributable to HSR? I believe the figure could be as high as 100 billion yuan—or even more.

Some may argue that transportation infrastructure is a public good intended to be universally accessible and to support broad economic and social development, and therefore should not be judged solely by financial accounting metrics above. However, this argument is not necessarily valid. Every system requires a degree of balance. Persistent and severe imbalances are ultimately unsustainable. I invite readers to reflect on this issue and share their perspectives.

(2) A brief commentary on the necessity and rationality of the “eight-vertical, eight-horizontal” HSR network

The “eight-vertical, eight-horizontal” HSR lines, also referred to as the eight vertical and eight horizontal corridors, include the following lines or segments.

The eight vertical corridors: the Coastal corridor; the Beijing–Shanghai corridor (comprising the original Beijing–Shanghai HSR and the second Beijing–Shanghai HSR); the Beijing–Hong Kong (Taipei) corridor; the Beijing–Harbin, Beijing–Hong Kong (Macau) corridor; the Hohhot–Nanning corridor; the Beijing–Kunming corridor; the Baotou (Yinchuan)–Haikou corridor; the Lanzhou (Xining)–Guangzhou corridor;

The eight horizontal corridors: the Suifenhe–Manzhouli corridor; the Beijing–Lanzhou corridor; the Qingdao–Yinchuan corridor; the Eurasia Continental Bridge corridor; the Yangtze River corridor; the Shanghai–Kunming corridor; the Xiamen–Chongqing corridor; and the Guangzhou–Kunming corridor, among others.

Medium- and Long-Term High-Speed Railway Network Plan



The notion of achieving “HSR access for all prefecture-level cities” is embedded in the construction of **the so-called “eight-vertical, eight-horizontal” HSR network**. By repeatedly bending and rerouting lines, planners have managed to incorporate all locally proposed railways into one of these corridors. But what kind of corridors are these, really? Many of the lines grouped under a single corridor have no meaningful relationship to one another.

Take the Beijing–Shanghai corridor, for example. It consists of just two main lines: the original Beijing–Shanghai HSR and the so-called “second Beijing–Shanghai HSR.” The latter is a patchwork of segments, including the Beijing–Tianjin intercity railway; the Tianjin–Weifang HSR; the Weifang–Suqian HSR; the Suqian–Huai’an section of the Xuzhou–Yancheng HSR; the Huai’an–Yangzhou section of the Lianyungang–Zhenjiang HSR; the Yangzhou–Nantong section of the Shanghai–Nanjing–Hefei HSR; and the Nantong–Shanghai section of the Shanghai–Suzhou–Nantong railway. High-speed rail on these small lines is entirely unnecessary.

The remaining corridors are, in effect, oversized hodgepodes—collections of rail segments linking unrelated small and medium-sized cities, bundled together and served to top leadership as grand plans. The so-called “Second Beijing–Shanghai HSR,” for example, trades on the prestige and performance of the original Beijing–Shanghai line to secure approval from senior leaders and, in turn, reinforce the political standing of its backers.

Figures such as the so-called “Liu the Leaper” and his successors appear to be bent on discarding over sixty years of hard-won achievements in China’s national railway development, effectively rewriting the country’s railway history.

(3) Absurdly located and excessively grand HSR stations

HSR stations in China are being constructed increasingly farther from the cities they are intended to serve, in areas with ever-declining population density.

The rise of HSR in China has upended a long-standing principle in both domestic and international railway development: that railway lines, designed to connect cities of various sizes, typically locate

their stations in city centres or at least right on the edge of the city. Over the past two decades, a significant number of HSR stations in China have been constructed in remote suburban areas—often more than ten or even twenty km from city centres, and in some cases, over one hundred km away—frequently situated in sparsely populated mountainous or hilly terrain.

Some internet users have sarcastically remarked that experts “deliberately” choose to build HSR stations far from where people actually live. Is it deliberate? Yes and no. Local government officials often have their own motivations: placing the HSR station near a planned “new district” can help minimise land acquisition disputes while also bolstering their political credentials. Similarly, professional planning institutions may seek to avoid the complications of urban relocation compensation, reduce investment and construction costs, and pursue their own vision of infrastructure delivered “as quickly, efficiently, and economically as possible”—slogan of the Great Leap Forward.

What is conspicuously absent from these considerations, however, is prioritisation of the needs of ordinary travellers for convenience, affordability, and relief from travel fatigue.

1. HSR stations that are dauntingly distant for the general public

In its [14th Five-Year Plan](#), China’s transportation authorities listed “comfort” as a key objective and slogan. However, in my view, true comfort lies in seamless and efficient connectivity throughout the entire journey, not merely in high train speeds or grand, extravagant station buildings. As one academician and former senior official of what used to be the Ministry of Construction observed, at Beijing Capital International Airport’s Terminal 3, the long trek from check-in to the farthest boarding gate often leaves “elderly passengers and women with children full of complaints.”

Take, for example, the Beijing–Shanghai HSR, which spans 1,318 km and includes 21 stations. On average, these stations are located about 20 km from the urban centres they are meant to serve. With the exception of the termini and a few provincial capitals, most stations are situated in remote suburban or even sparsely populated rural areas—places that previously lacked any basic urban infrastructure or supporting amenities. As a result, additional road construction has often been required to connect these stations to their respective cities.

Can urban residents genuinely feel “comfortable” after taking overcrowded public transportation and enduring multiple transfers between urban and suburban areas just to reach the station? If this is the case for the Beijing–Shanghai line—China’s most important HSR trunk line—the situation on other routes is even more challenging.

The following are examples of HSR stations located unreasonably far from city centres, often due to flawed route planning or the financial limitations of local governments. Across the country, dozens of HSR stations remain idle, while the number operating in a semi-idle state is difficult to quantify. As some netizens have observed, the construction of HSR stations has become a prime example of “excessive” and “ineffective” infrastructure investment.

Haitou HSR Station in Danzhou, Hainan Province, occupies an area of 4,000 square meters, with a station building covering nearly 2,000 square meters. Yet it has remained unused for eight years since its completion. According to official responses, daily passenger traffic at Haitou Station is fewer than 100 people, and opening the station would result in significant operational losses for the railway authority. Remarkably, Danzhou, a county-level city composed of several small towns that were formerly classified as rural areas, has built three HSR stations.

The Tongren South HSR station in Guizhou Province is located deep in the mountains, 60 km away from the urban area of Tongren. Its building area exceeds 10,000 square metres. For a prefecture-level city of such limited size, reaching the station by taxi takes more than 1 hour and costs nearly 200 yuan.

Astonishingly, Guilin has constructed nine high-speed rail stations—enough to resemble a metro grid or a network of bus stops.

Xiaogan North Station, designated a First-Class Station [the second tier in China’s six-level station classification system, which is intended for facilities handling more than 15,000 passengers per day], was built at a cost of 120 million yuan. Yet on most days, it serves just over a hundred passengers,

fewer than the number of staff who operate it. Strikingly, the station is located nearly 100 km from the city's urban area. Unsurprisingly, unless absolutely necessary, local residents are unwilling to spend one to two hours to reach the station in order to board a high-speed train.

According to online reports, reaching Zunyi South Station from the urban area of Zunyi can take passengers up to three hours by public transportation.

Huizhou City, with a land area of 11,000 square km and a GDP of 560 billion yuan in 2023—over 60% of which came from exports, primarily in small- and medium-sized manufacturing—has nonetheless built nine HSR stations. These were intended to serve trains arriving from Zhejiang, Fujian, and eastern Guangdong. However, given Huizhou's proximity to Guangzhou—only about 30 km away—the number of scheduled services from these directions is already limited. How many passengers are actually boarding or disembarking at these nine stations within Huizhou?

In Boluo County, one of Huizhou's administrative divisions, an HSR station was constructed in a small basin surrounded by low hills. Although just 8 km from the county seat, Boluo Station, opened in 2023, remains largely underutilised, despite its 7,945 square meters of floor space, its 800-person capacity, and its sleek, modern architectural design.



As part of the Pearl River Delta, Huizhou already enjoys extensive transport connections to Guangzhou and Shenzhen. This makes the construction of nine HSR stations in the city highly questionable.

Although Jiangsu Province is one of China's leading economic powerhouses, three HSR stations in Suzhou were shut down in April 2020 due to low passenger volumes. Meanwhile, two stations in the provincial capital, Nanjing, have remained unused for over a decade since their completion. Passenger flow has fallen far short of projections, yet the result is still being described as “unexpected.”

2. Grand, extravagant HSR stations

In recent years, a number of so-called “grand and classy” high-speed rail stations, along with several major airports, have sprung up across China's megacities. These are imposing structures, complete with sweeping façades and plazas that stretch nearly a kilometre. Step inside, and you're met with cavernous domes soaring several dozen meters and interior walls lavishly adorned with artistic flourishes. But what exactly are these vast spaces and decorative excesses for? The vast majority of passengers—domestic and international alike—rush through them without a second glance. In what other country are railway stations designed with such theatrical opulence? And which foreign visitor, on seeing them, would seriously believe that this signals a developed or civilised society? Modernity and civilisation are not defined by sheer scale of big engineering projects.

One new “sub-centre” in northern China is racing to complete what is being touted as Asia's largest integrated transport hub—said to be a 100-billion-yuan mega-project. After four to five years of underground construction, the project has now moved above ground, with over 200 heavy machines operating around the clock. When exactly will it be finished? The station is said to offer a level of luxury without precedent. And yet, the city already has eight railway stations, two of which, the city's West

and South Stations, accommodate both high-speed and conventional rail. A third is reportedly also equipped to handle high-speed services.

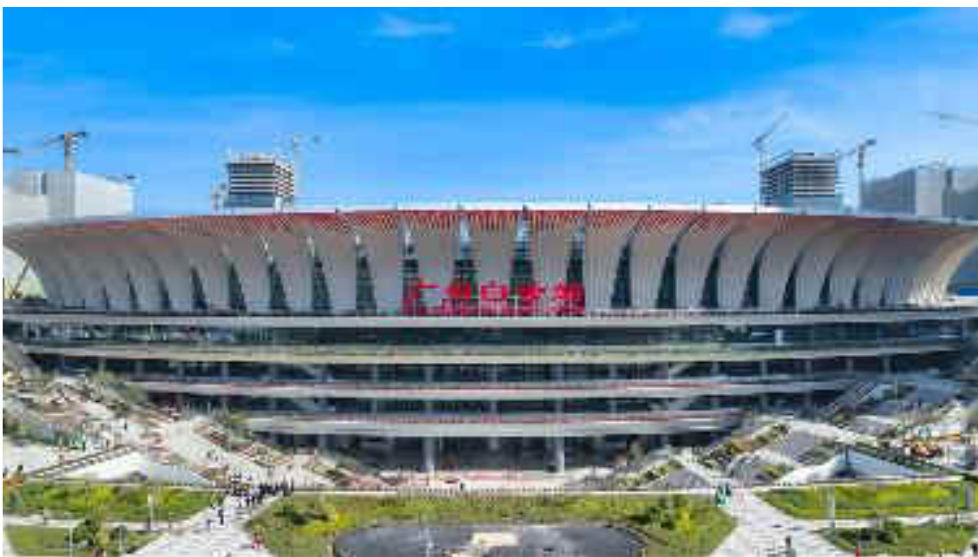
One certain New Area in northern China has constructed what is being billed as “Asia’s largest” HSR station. Promoted as the central hub of China’s “eight-vertical, eight-horizontal” HSR network, the 30-billion-yuan facility reportedly spans an area equivalent to 66 football fields (not sure whether this refers to the building area or total land use). The station boasts grand, imposing Chinese-style architecture, designed to convey both luxury and solemnity. Yet photos show it is largely unused.

Another example is Baiyun Railway Station in Guangzhou, which has also been [labelled](#) “the largest railway station in Asia” and, by [some](#) media outlets, even “the largest railway station in the world.” Construction began in 2017 and was completed in 2023. The station is a key component of Guangzhou’s railway hub, serving both high-speed and conventional trains, with a layout of 11 platforms and 24 tracks.

The initial impression upon arrival is one of sheer scale and visual spectacle. Baiyun Station covers an area four times that of the city’s South Railway Station and comprises seven floors—three above ground and four below.

Its design features include a “breathing plaza” and a “light valley,” framed within an architectural theme titled “Cloud Mountains and Pearl Waters, Blossoms of a Flourishing Era.” The station is expansive and modern, with ornamental flourishes such as 25 petal-shaped decorative walls within the “light valley.” The roof alone features 12 ribbon-like petals on both east and west sides, 15 inner petals, and 25 outer petals, totalling 104 decorative petal structures. It has quickly been branded a new city landmark.

And yet, nearly two years after its completion, passenger activity remains scarce, and the station has become the subject of growing criticism among internet users.



Guangzhou Nansha HSR Station is currently under construction. According to media [reports](#), once both phases are complete, it is expected to become “the largest HSR station in Asia.” Envisioned as a “super” transportation node for the Greater Bay Area, the project carries a total investment exceeding 10 billion yuan. Upon full completion, the station is planned to accommodate 14 platforms and 29 tracks, surpassing Guangzhou Baiyun Station’s 11 platforms and 24 tracks.

The first phase alone covers a construction area of 120,000 square meters. Architecturally, the design draws inspiration from the surging tides of the Pearl River, adopting a wave-like form intended to evoke layers of cascading spray. Completion is scheduled for 2028.

Nansha Station is intended to be a super transportation node in the Greater Bay Area and a core component of the region’s “one-hour living circle.” Nansha itself, situated at the geometric centre of the Greater Bay Area, is being developed as a national-level new district, on par with Shenzhen and Pudong, Shanghai.

Over the past two years, a vast multimodal transport system—centred on newly built, under-construction, and planned HSR projects—has been expanding at remarkable speed. The number and scale of HSR stations being developed are without precedent.

The largest high-speed rail hub in western China—Chongqing East Station—has been completed and is poised to begin operations. Located in the Chuayuan New District on the southern bank of Chongqing, the station encompasses a total construction area of 1.22 million square meters and features 15 platforms and 29 tracks. The total investment is estimated at 16.7 billion yuan.

Upon arrival, passengers will enter a colossal waiting hall, designed around the theme of “Vast Landscapes and Towering Nobility.” Central skylights composed of nine blue, droplet-shaped glass panels and the ribbon-like roof structure are intended to evoke the fluid grace of natural scenery. Tree-shaped columns adorned with yellow lattice-patterned panels punctuate the hall, adding to its visual effect. Once operational, the station is projected to accommodate up to 60 million passengers annually.



In front of Chongqing East Station, a core commercial district is currently under construction, featuring high-end infrastructure such as large-scale international exhibition centres, branded hotels, cultural venues, and medical facilities. The project aspires to integrate essential urban functions—dining, accommodation, transportation, tourism, shopping, and entertainment—through a “station-city fusion” model, promoted as a Transit-Oriented Development (TOD) pilot.

This concept is reportedly inspired by Japan’s “compact city” concept, developed in response to limited land availability and highly concentrated urban populations. In Japan, transportation systems, daily living, cultural centres, and commercial hubs are densely and vertically integrated, not dispersed across remote suburbs with sparse populations.

By contrast, Chongqing East Station is situated in the Chayuan New District on the city’s southern bank, far beyond the established urban core, in an area with a scattered population. Images circulating on social media from various angles suggest the surroundings are little more than a “wilderness.” Nonetheless, the project’s backers aim to leverage 10 to 20 billion yuan in state investment to attract large-scale private capital and stimulate substantial land value appreciation across a broad surrounding area.

Consider this: once the station becomes operational, how many passengers—whether arriving in Chongqing or departing from it—would, rather than hurrying through, actually pause to enjoy a meal, do some shopping, or even stay overnight in the surrounding area? Travellers returning home tend to go directly to their residences, while those arriving for business or meetings head straight to their appointments or accommodations in the city. The reverse is equally true.

Shenzhen is now constructing its “largest” HSR station, with a total investment approaching 40 billion yuan. Designed as a super HSR hub for the Greater Bay Area, the project will span a construction

area of 910,000 square meters—equivalent to 169 standard football fields—and include 13 platforms and 25 tracks. The construction is scheduled to take four years, with completion expected by the end of 2028.

It is set to surpass the city's current "largest" station, Shenzhen North Station.

Already, Shenzhen North Station is a lavish spectacle: upon entry, visitors are greeted by several crystal chandeliers glittering beneath a dome that soars several dozen meters overhead. Who knows what level of grandeur and ornamental flourish awaits in this latest, "largest" HSR station?

(4) Extensive construction of short-distance HSR: economic losses, even severe losses, are inevitable

Many cities in China are currently constructing or planning to construct short-distance HSR lines. Such irrational and uneconomical developments will cause widespread severe economic losses and should be halted. Short-distance HSRs, especially between a large city and a medium-sized city, will be unprofitable. Insufficient passenger volume is unavoidable. Instead, suburban light rail, conventional railway branch lines, or even highway buses would suffice.

Within city clusters, in areas surrounding central cities, and among some medium-sized cities, a new wave of "short-distance HSR (most under 200 km) fervour" has emerged. Examples include the Shanghai–Suzhou–Huzhou HSR; the Shenzhen–Nansha (Guangzhou)–Jiangmen HSR; the ongoing large-scale Guangzhou–Zhanjiang HSR project in the Pearl River Delta; and in Hubei Province, eight HSR lines are currently under construction, including the Jingmen–Jingzhou HSR, Wuhan–Yichang HSR, Xiangyang–Jingmen HSR, and the Xi'an–Shiyan HSR. Chengdu and Chongqing are also planning similar short-distance HSR routes radiating from their urban cores to nearby medium-sized cities.

Take, for example, the Guangzhou–Shantou HSR: the total distance is just 360 km, yet it includes 15 stations. What kind of high-speed rail is this? Why build it? Are losses not inevitable? And is there truly sufficient passenger demand?

Regarding the construction of the HSR between Jingmen and Jingzhou, designed for speeds up to 350 km per hour, I have explicitly expressed my [opposition](#). I believe such phenomena also exist elsewhere and are continuing to spread, which calls for vigilance. Below is my brief analysis and viewpoint:

According to local media [reports](#), the Jingmen–Jingzhou HSR spans a newly built mainline of 77.5 km and includes three stations: Jingmen West, Shayang West, and Jingzhou. Designed for a maximum speed of 350 km/h, the line opened in December 2024. I estimate that the total investment—including infrastructure and equipment—will exceed 20 billion yuan.

Jingmen and Jingzhou are two medium-sized cities less than 100 km apart, with neither substantial commuter traffic nor notable commercial passenger flow. The cities are already linked by a conventional railway and an expressway, with a travel time of approximately 1.5 hours. Bus terminal stations are located near respective city centres, making "door-to-door" journeys by bus generally feasible.

Now, the Jingmen–Jingzhou HSR plan even includes an additional intermediate stop between the two cities, meaning that the train, having just accelerated to its designated speed, will have to begin braking within a matter of minutes. Taken together, the line will not attract the necessary passenger volume and is economically unviable.

However, the aforementioned types of HSR projects should, in principle, be replaced with conventional rail (electrified branch lines) or even suburban light rail integrated with surface bus systems. Once completed, these lines will almost certainly follow the same pattern as over 80% of China's existing HSR network: suffering from critically low passenger volumes and significant operational losses.

[Notice No. 27 \[2021\]](#) issued by the General Office of the State Council emphasised that HSR planning must take into account "urban scale and the functional role of the transport network." This calls for systematic thinking rather than a target-driven mindset when addressing the complex transportation challenges of large metropolitan regions.

Goals or slogans like “half-hour HSR interconnection among Shenzhen, Guangzhou, Dongguan, Zhongshan, and Jiangmen within the Greater Bay Area” have no practical significance. In the information age, it is both unreasonable and uneconomical to define travel-time targets solely through high-speed rail. Focusing on core megacities like Guangzhou or Shanghai and developing seamless transit systems that integrate metro networks, light rail, and surface buses can fully realise a 1.5-hour transport circle. That is the direction we should pursue.

(5) How absurd HSR new towns are!

The rational siting of an enterprise and the successful establishment and development of a new district depend on a range of factors: access to and development of resources, transport systems aligned with actual demand, availability of land and freshwater, necessary technologies and industrial know-how, capital investment, access to product markets, and adequate urban living conditions. It is entirely unrealistic to attempt to build a new district or town solely around an HSR station that is isolated from nearly all these essential elements. To do so betrays an ignorance of industrial planning and development.

When industrial and economic factors have not yet generated large-scale economies of agglomeration, and the industrial level has not reached a certain threshold, discussions about HSR new districts, new towns, or even HSR economic belts are mere luxuries. Blind investment may become a development trap for small and medium-sized cities, saddling them with heavy debt burdens and leaving behind a batch of deserted ghost cities.

HSR new towns are basically unworkable. Since HSR stations are often sited far from existing urban areas—sometimes just a few kilometres, other times more than ten—the areas between the HSR new town and the established city must also be considered in terms of development. This entails an enormous investment in urban construction.

[Report](#) suggests that even grander roles are being assigned to Foshan’s HSR station—namely, to anchor the development of a “Foshan West Station new town” and use it as the core and Foshan’s Nanhai New District as the main axis to establish a Guangdong–Guangxi–Guizhou HSR Economic Belt Cooperation Pilot Zone (Guangdong Park). This so-called economic belt would stretch across three provinces and regions, linking over a dozen cities along the route, including Nanning and Guilin in Guangxi, Guiyang and Qiannan in Guizhou, and Guangzhou and Foshan in Guangdong. The plan aspires to create a high-quality Pan–Pearl River Delta cooperation platform, promoting cross-regional collaboration in industrial resources, technological innovation, culture, and more, in order to achieve mutually beneficial regional cooperation.

But this is pure fantasy—an outright reverie. The joint initiative by Guangdong, Guangxi, and Guizhou to establish an HSR economic belt to chase “HSR dividends” is, to put it harshly, absurd. Similarly, some local officials have proposed transforming the Hangzhou–Wenzhou HSR into a provincial “one-hour transport circle” to spur economic growth across the whole province. This is equally detached from reality.

When it comes to high-speed rail and local economies, numerous “HSR new towns” have proved disappointing, with only a few exceptions. They have only generated considerable complaints from the general public, while officials receive illusory performance metrics and some enterprises reap profits.

(6) Excessive construction of HSR brings a serious debt burden

1. Excessive construction of HSR is a key driver of China’s heavy debt burden

In March 2004, Liu Zhijun—then one year into his tenure as Minister of Railways—put forward an ambitious [medium- and long-term plan](#) for high-speed rail development. Following this proposal, the government began allocating dedicated annual funding for railway construction. When the global financial crisis struck in 2008, the Chinese government launched a 4 trillion yuan stimulus package. Beginning in 2009, annual railway investment exceeded 700 billion yuan, surpassing the country’s total rail spending from the entire fifteen-year period between 1990 and 2003. At the time, the Ministry of Finance reported that national fiscal revenue reached 8.308 trillion yuan in 2010, marking a 21.3% increase from the previous year and making China the world’s second-richest government in terms of revenue.

In 2010, during the peak of high-speed rail construction, Liu Zhijun secured 2 trillion yuan in loans from state-owned banks under government authorisation, and obtained additional financing from other banks as well. Liu was later dismissed, but the projects continued. A real problem emerged: the Ministry of Railways' HSR debt ratio (the ratio of liabilities to total assets, an important indicator of corporate financial risk) had already reached 70%.

In 2013, the Ministry of Railways was formally restructured into the China Railway Corporation (now China State Railway Group Co., Ltd.). But in reality, bankruptcy was never an option, as the entity remained, in essence, the former Ministry of Railways. Genuine restructuring was impossible. What is the debt ratio today, in 2024? It has almost certainly climbed further, and the financial predicament appears inescapable. Privatisation is not a viable path either. The burden rests with the state—and, ultimately, with the public.

Yet construction continues, even intensifies, leaving us no choice but to ask: What is the current state of China's high-speed rail problem?

2. Excessive infrastructure construction (with HSRs playing a major part) leads to rising local debt, almost out of control

At the 2025 “two sessions” [the annual meetings of China's top legislature, the National People's Congress (NPC), and the top political advisory body, the National Committee of the Chinese People's Political Consultative Conference (CPPCC)], it was emphasised that the continuous increase of national and local debt must be strictly controlled. In reality, due to large-scale infrastructure construction in recent years, local debt in China has been steadily rising and is now almost out of control. In ten provinces, local debt exceeds 5 times their fiscal revenue; one-third of cities are unable to pay interest on their debts. Fiscal revenue is declining while expenditures are rising, resulting in a fiscal deficit of 5.74 trillion yuan.

During the 2025 “two sessions”, the Ministry of Finance [announced](#) that accumulating new debt without repaying old debt must be prohibited as a matter of “iron discipline.” Large-scale borrowing for HSR construction and the substantial operational losses of these projects are a major driver of worsening fiscal conditions.

50% of the funding for railway construction projects, including HSR, is jointly provided by the central competent authority and the relevant provincial, municipal, or autonomous regional governments. The local government finances its portion of this 50% through borrowing, and as the authority responsible for project construction, may waive repayment obligations. The remaining 50% of project funding is raised through the issuance of local government bonds. **[Translator's note: We do not think that this summary accurately reflects the actual situation. It is better understood as ballpark numbers.]**

In recent years, the economic landscape has become increasingly challenging, and mounting debts, including national debt, foreign debt, state-owned enterprise debt, local government debt, and private corporate debt, have collectively rendered China a major debtor nation.

China's HSR is sinking ever deeper into financial losses, and any turnaround is fundamentally impossible. The reason is simple: massive infrastructure investment has led to a supply that far exceeds demand.

Some high-speed rail lines operate only a handful of trains per day, and their construction and maintenance are barely sustained through subsidies. Yet HSR ticket prices are already three times higher than those of conventional rail. As many netizens have noted, it's common to see entire rows of empty seats on numerous HSR routes across the country. Under such conditions, there is no room left for further fare increases.

3. China's HSR network is approaching large-scale maintenance. Where will the funding come from?

HSR trains have been delivered on a large scale since 2007. After more than a decade, these trains are facing ageing issues. HSRs designed for speeds of 350 km/h may enter a large-scale maintenance period before 2035. Referring to the experience of developed countries, future maintenance and repair costs are expected to account for more than 20% of fixed asset investment.

As noted above, over the past 15 years, the total length of China's high-speed rail network has expanded from 9,000 to 45,000 km, while the China State Railway Group Co., Ltd.'s total debt has reportedly reached 6 trillion yuan. However, when I led the Chinese Academy of Sciences' [Academic Divisions](#) working group in 2016 to assess the feasibility of a Bohai Strait railway tunnel, I was reliably informed that the Group's debt to the state had already reached 5 trillion yuan at that time. This raises the question: Is the figure of 6 trillion yuan actually an underestimate?

Some netizens have commented: incomes have not increased, yet HSR ticket prices have risen. The era of the revival of conventional rail is coming. Railway authorities should expand conventional train services to better meet the needs of the public.

In this context, attention has finally turned back to the conventional railway system, which for years seemed neglected by decision-makers. One cannot ignore China's national conditions or its current stage of development.

China's current approach is to use profits from freight transport to subsidise the losses from HSR passenger services. Yet let me stress one more time: HSR systems around the world are designed exclusively for passenger use, because freight transport does not require high-speed service. Yet today, China's railway sector is operating using freight revenues to compensate for passenger services. Freight transport is the cost-efficient, high-capacity core of the railway system. Again, globally, HSR is for passengers only, not freight, because freight transport does not require high-speed service.

In China, a large proportion of expressways and HSR lines are built on elevated viaducts. As a result, the original "two highs"—highways and HSR—have become "four highs" with the widespread addition of elevated structures.

This stands in contrast to global practices such as Japan's Shinkansen system, which rarely relies on continuous elevated piers. This allows for easier boarding, more seamless integration with existing urban transit systems, lower overall investment (without the need to construct a large number of station complexes), improved engineering safety, simplified maintenance, and more effective emergency response. The downside, however, is more land occupation (both farmland and urban land) and prolonged construction timelines due to demolition and relocation.

Elevated construction, by contrast, carries precisely the opposite implications. Often driven by the interests of government departments and planning agencies, it introduces significant long-term risks: safety hazards (pier deformation as a result of differential settlement), complexity in maintenance and repair, and serious impediments to emergency response in the event of an accident.

V. What are the causes behind the HSR's problems?

(1) What should be the guiding principles for HSR planning?

HSR planning must be carried out with a big-picture perspective, clearly articulating the nation's transport capacity and scale, the structure of multimodal transport, major trends in future supply and demand, capacity and demand along key corridors, the relationship between domestic and global transportation, as well as the current levels and future targets in safety, technology, and management. China's vision of becoming a "transportation power" must be grounded in the realities of its national conditions. Principles of economic efficiency, scientific planning, rationality, and cost-effectiveness must never be compromised under any circumstances. What will be the true cost of connecting all major Chinese cities with HSR? Has a comprehensive estimation been conducted? In many sections, such as between ordinary provincial capitals, governmental travel demand is minimal. Are the volumes of commercial and socially driven travel truly substantial? And among these passenger flows, how many belong to the "time is money" demographic? Is it absolutely necessary to build HSR, or even 350 km/h HSR?

In recent years, HSR planning in China also faced methodological issues: was it grounded in traffic volume analysis and flow projections, or was it merely a product of "map-drawing"? China's top-level land transport framework (excluding aviation) is conceived as the "four-vertical, four-horizontal" network, which later evolved into the denser "eight-vertical, eight-horizontal" HSR configuration. However, the country's population and urban distribution do not naturally conform to such schematic layouts. Large and megacities function as hubs for the collection and dispersion of passenger flows, and the spatial relationships among them resist simple geometric design. Therefore, in planning routes for major trunk lines and integrated transport corridors, thorough consideration must be given to

economic and social factors.

Along several major passenger and freight corridors, the authorities overseeing different modes of transport have each proposed major trunk line projects, yet coordination across sectors remains lacking. The experts within these departments should know this. What are the guiding principles of such planning? What specific work has been carried out??

(2) On planning experts

There are indeed unprofessional experts. But even among departmental specialists, there is often a lack of objectivity when analysing and forecasting supply and demand. They tend to view issues from the perspective of their own sector, only citing the low national per capita density of China's transport network, claiming that highway density is only 70% of the global average, and railway density about 60%. Yet, they rarely acknowledge that per capita transport indicators in many Chinese provinces already far exceed those of Japan, South Korea, and much of Western Europe. Relying solely on national per capita figures is misleading.

At present, transport infrastructure plans are drafted separately by individual departments, each producing its own "grand vision," which is then submitted to overarching agencies such as the National Development and Reform Commission (NDRC) for coordination. In practice, however, departmental proposals often carry decisive weight.

What is now even more urgent is to address a fundamental question: after years of large-scale infrastructure investment that earned China the moniker of an "infrastructure maniac," has the country's infrastructure reached a point of saturation? In this context, "saturation" refers to a dynamic equilibrium between supply and demand, one that must correspond to the country's current stage of development and socioeconomic conditions.

The 14th Five-Year Plan for transportation placed great emphasis on making passenger travel "comfortable," identifying it as an important objective in building a "transportation power." I must ask: what exactly is meant by "comfort"? Do you personally feel "comfortable" when you travel?

In my view, the grand long-term goal should be to build a scientifically grounded and rational transportation system under unified management. Yet this is precisely where China's greatest weakness and challenge lie. Within China's land-based transport system, conventional rail continues to play an essential role. However, it is frequently neglected; expressways are often overlooked; and the capacity and functional suitability of provincial and local roads for various types of passenger and freight traffic are regularly disregarded. Additionally, the seamless integration of different transport sectors and the connection between transport hubs and urban areas are too often ignored. As a result, transport sectors operate in isolation, stations are constructed on an excessive scale, and are increasingly sited far from residential zones. This kind of artificially imposed inconvenience and travel fatigue can hardly be called "comfort." A transportation power is not built through grandiose infrastructure alone!

Large-scale infrastructure development no longer drives economic growth to the extent once imagined. In the 1930s and 1940s, the Roosevelt administration in the United States invested up to 18 billion USD in infrastructure, employing millions of workers in sweeping construction programs that helped the country recover from the Great Depression. Similarly, in 2008, China launched a major stimulus program through large-scale infrastructure investment, with a central government plan of 4 trillion yuan—though the actual total, including local contributions, reached an estimated 30 trillion yuan. This did, to some extent, support economic growth.

Can today's large-scale infrastructure projects still generate significant employment? The answer is that their impact is far smaller than often assumed. Modern construction has become highly mechanised, with large and extra-large machinery having replaced most of the manual labour, drastically reducing the demand for workers. The idea that massive infrastructure spending can boost economic growth is increasingly difficult to sustain.

Take, for example, the ongoing construction of a certain city's Sub-Centre Transportation Hub—billed as Asia's largest integrated transport hub—located northeast of the capital. More than 200 massive

machines operate around the clock in a high-profile, large-scale effort, yet within the vast steel framework and layered foundations, human presence is barely visible.

A similar scene unfolds at Foshan's Gaoming Airport—an integrated air-ground-underground complex—and at the Foshan Railway Station along the Guangzhou–Zhanjiang line. Across a 7 km by 2 km expanse of what were once forested hills, every tree and patch of topsoil has been stripped away. What remains is an unceasing mechanical ballet, running 24/7. In countless short videos online, human workers are scarcely seen.

An [observation](#) circulating online notes the declining impact of infrastructure investment on GDP growth. Prior to 2011, each unit of new infrastructure investment was said to generate approximately 0.5 units of GDP growth. By 2013–2014, this multiplier had dropped sharply to just 0.13. By 2015–2016, the economic return had virtually disappeared, and infrastructure investment had largely lost its power to stimulate growth. [This observation attributes the data to a study by the National School of Development at Peking University, though we have not been able to verify the original source. — Translators' note.]

Ignorance and corruption among decision-makers have also played a role. Many local decision-makers lack a comprehensive and dialectical understanding of the relationship between transportation and socioeconomic development. Other factors are certainly involved, and they believe: “If it's needed, we'll build it. If it's not needed, we can still build it.” Even projects that violate regulations are pushed forward. If planning were truly grounded in scientifically sound decision-making, why would backdoor dealings be necessary? After all, the funds don't come out of their own pockets. Debts incurred today won't come due while they're still in office. So why not borrow? Why not pursue grand construction schemes? The more HSR projects a region has underway, the more funding it attracts from multiple sources, and the greater the rewards for local leaders. Over time, this has given rise to an addiction to large-scale construction.

Another contributing factor is the pursuit of departmental self-interest. Decades of large-scale infrastructure expansion across the country have led to the rapid growth in the number of administrative personnel, planning and design teams, and engineering firm employees. In today's era of high-quality development, some departments are now scrambling for projects for subsistence. This has fuelled fierce interdepartmental competition for major projects.

Finally, there is the persistent temptation to claim the title of “world's No. 1.” Phrases like “creating world miracles,” “ranked No. 1 globally,” “the tallest on earth,” “Guinness World Record breakers,” and “defying the limits of nature” are relentlessly promoted through high-intensity propaganda. This is the golden age for designers to realise their grand ambitions—how can one miss it? Under the guise of “reasonable forward-thinking,” unreasonably oversized structures, unconventional designs, and extreme operating speeds are justified in order to create “world miracles.”

The Shenzhen–Zhongshan Link, for example, is said to hold 11 world records [Public [reports](#) that we have found cite 10 —Translators' note]. In another case, Shennan Road in Shenzhen has been promoted as the world's most spectacular and widest boulevard, surpassing even the Katy Freeway in the United States, with some sections stretching to 350 meters in width—another “world No.1.”

Realising such ambitions would involve razing entire districts and starting from a blank slate, on which to paint the newest and most spectacular designs. This may be the requirement of influential architects from construction firms, but it also aligns with corporate and local decision-makers' interests.

VI. My suggestions

Domestic freight movement no longer faces geographical or logistical constraints that would justify the current bottleneck speed and scale of infrastructure expansion. HSR, expressways, cross-sea bridges, long-distance underwater tunnels, gigantic high bridges built almost on levelled mountain plateaus, as well as super-tall skyscrapers and “enormous, magnificent, unconventional, and unique” landmark architectures in mega-cities—all point to an overcapacity, even severe overcapacity. This phenomenon stems from flawed judgment and misguided decision-making by industry leaders and regional officials, or a push to transform large-scale infrastructure into “cash cows” or “trophy assets” for local economies and industries.

One must never forget that expressways and HSRs are only the highest-level trunk transport lines. In

practice, they must be integrated and systematised regionally. This means they must be closely connected with a large number of branch line networks rather than treated as standalone, independent “door-to-door” systems.

Many cities in China are currently planning and constructing short-distance HSR lines, which will result in widespread and significant economic losses. Short-distance HSR, especially between a large city and a medium-sized city, typically lacks a large volume of commuter traffic. How could such lines meet the passenger volumes required for HSR? Insufficient passenger volume is inevitable. Therefore, suburban light rail or surface-level bus services should be used instead.

Also, in today's world, how much do speed and convenience in “conquering distance” truly contribute to human happiness? Many global metropolises still have to suffer from rush-hour congestion. In Tokyo, for example, commuters on key approach roads to the central district routinely face standstills lasting over 30 minutes.

At present, the overall scale of major engineering projects in China is immense, with total investment figures that defy imagination, particularly in the case of large and mega-scale transportation projects across many regions. One region stands out in particular, [which region, though, the author does not identify. — Translators’ note]

In my opinion, whether at the regional or sectoral level, what is needed is systematic thinking rather than determining construction scale and timelines based on target-driven logic.

If some argue that the issues above should be seen merely as local challenges within a larger picture, I can readily admit that the point is fair. But these irrational and wasteful phenomena and behaviour—are they not wrong? Are they not real? Remarkable progress has indeed been made, but problems remain problems, and I want them to be brought to light and emphasised.

The accumulation of debt to push large infrastructure projects has ultimately made policy adjustment a forced and unavoidable choice. What is urgently needed now is a stable and balanced path of development.

Attachment to this article:

Maglev Train: The “Chinese Concorde” that Should be Cancelled!

Regarding maglev trains

This February, at a spring seminar of a well-known forum, a senior engineer from China’s railway establishment delivered a report on the development trajectory of the country’s high-speed maglev programme. Rather than addressing pressing and important questions such as how to utilise the 70–80% idle capacity within the vast HSR system, he chose instead to take an “advance planning” approach, devoting his presentation exclusively to what he called “an innovative mode of transport”: maglev technology.

He asserted that “China has already established a developed railway network and a modernised HSR system,” and that he “remains committed to developing a 600 km/h maglev system to maintain China’s leading position in land-based HSR and support the construction of a transportation power,” claiming it would “fill the speed gap between HSR and air travel.”

From scientific, economic, systemic, and broader benefit perspectives, however, China neither possesses a world “leading position” nor “a modernised HSR system.” The notion of “filling the speed gap” is, at best, ambiguous.

The senior engineer’s report went on to “emphasise that planning and constructing a 600 km/h maglev railway is technically feasible and closely aligned with national strategic demands and market trends. However, maglev development still depends on continued technological innovation and urgently requires stronger policy support.”

These last remarks, I understood—he was calling for the state to make major investments in maglev railways.

In 2002, the world’s first commercial high-speed maglev line—the Shanghai Maglev Demonstration Operation Line—was completed and put into operation, with a maximum operating speed of 430 km/h. Over the past 20-plus years, China has built and put into operation 3 maglev lines in Shanghai, Changsha, and Beijing (Mentougou District). Currently, 2 more lines are under construction, both short-distance routes serving tourist areas. However, relevant authorities have already planned more

than ten key maglev lines for the future, some exceeding 300 km in length. During the 13th and 14th Five-Year Plans, the state supported research on “key technologies for maglev transportation systems” and achieved several individual research breakthroughs.

Apart from Shanghai, there is still no other commercially operating maglev train in the world. In the early to mid-1990s, China cooperated with German maglev railway research teams and introduced some of their technologies. After the Shanghai maglev was built, some German institutions proposed constructing two test lines—the Berlin-Hamburg line and the Munich central station-to-airport line—but both were rejected. Subsequently, Germany completely ceased its maglev research and trial operations. After the cancellation of the entire project in Germany, technical cooperation between China and Germany was completely interrupted. The Shanghai maglev train has consistently operated at a significant loss.

Japan has a maglev test line in Yamanashi Prefecture, where operating speeds once reached 603 km/h. However, they have pursued low-temperature superconducting maglev technology, which has proven to present substantial technical difficulties and safety concerns. It is reported that Japan has shifted its focus towards high-temperature superconducting maglev technology. To date, they have not constructed any actual commercial maglev lines.

Should this engineering technology research and application continue? My answer is clear: no—it is neither necessary nor viable. Research in this area should be limited to small-scale theoretical and technical studies conducted at a designated location.

The reasons are as follows:

There is no necessity for China to extensively develop maglev transportation infrastructure, and the prospects for experimental research and application are not promising. China has already built a vast, modernised HSR network and a large-scale, finely managed conventional rail system. Most importantly, many of these impressive HSR lines and stations are severely underutilised or essentially idle. To put it more bluntly, they are abandoned. It would be inappropriate to invest in new maglev technologies and their large-scale application without addressing the existing problems.

Maglev tracks are incompatible with other land-based rail transport modes, which poses an unsolvable and unacceptable limitation for China’s transportation connections with neighbouring countries. How can maglev technology be widely promoted under these conditions? Promoting maglev would require systematic reconstruction of existing rail lines, involving comprehensive rerouting and relaying of tracks on land, resulting in disconnection from transportation systems of other countries. The scale of loss would be enormous.

The cost is prohibitively high. In the late 1990s, Shanghai completed the 30-km maglev line at 10 billion yuan, which amounts to over 300 million yuan per km. Adjusted for current prices, the cost per route-km should be around 500 to 600 million yuan. The Shanghai maglev can complete its route in 8 minutes, with a ticket price of 60 yuan, indicating that it is essentially designed for tourism and experience purposes. Beijing’s S1 line, judging from online videos, operates at speeds of only 50 to 60 km per hour, with a trackbed height of 2 to 3 metres, flanked by some vegetation and no residential areas nearby. This line also appears to serve mainly a tourism function.

The strong electromagnetic radiation generated during maglev train operation adversely affects the surrounding environment and the health of nearby residents. This is one of the reasons why maglev technology has not been widely promoted either in China or globally. In contrast, HSR technology is very mature and widely used, while maglev trains remain a rare and specialised technology.

There are also serious technical obstacles. Based on differences in conductor materials, there is electromagnetic suspension (EMS), which includes the Shanghai system, and superconducting maglev (SCMaglev), which can be divided into low-temperature superconductors (LTS) and high-temperature superconductors (HTS). From discussions with experts in specialised departments for research and testing, it is clear that currently, China’s technology for ensuring carriage stability and safety during high-speed maglev operation remains immature and is far from ready for widespread deployment.

In light of the above, I solemnly call for the cancellation of maglev train development and its infrastructure projects as a new mode for land-based rail transportation.

Note:

I believe the trajectory of the Concorde supersonic aircraft in the UK and France—its research,

deployment, and eventual retirement—offers a useful analogy for why maglev train development should likewise be brought to a close.

In November 1962, the UK and France signed a joint development agreement, investing heavily in creating a supersonic passenger aircraft capable of crossing the Atlantic. Around 1970, the so-called “Concorde” officially entered service. Its maximum cruising speed could reach 2,179 km per hour. Benefiting from the Earth’s rotation, flights landed earlier than their departure times, earning it the industry nicknames “a time machine” and “the high-altitude club” due to its luxurious onboard amenities. Flights from New York to London or Paris took only 2 hours and 53 minutes. It was highly favoured by elite upper-class passengers.

However, it had two major drawbacks:

The operating costs were extremely high, and ticket prices were exorbitant. During cruising flight, the Concorde consumed an average of 20 metric tons of fuel per hour, nearly 4 times that of the Airbus A350, yet the latter could carry 3 to 4 times as many passengers. In the 1990s, a round-trip ticket crossing the Atlantic on the Concorde cost as much as 10,000 USD, equivalent to about 20,000 USD in today’s money. As a major fuel consumer and carbon emitter, it faced criticism from environmentalists as early as the 1970s.

Supersonic flight generates intense sonic booms. The United States had long voiced strong objections. In 2000, an Air France Concorde crashed at Charles de Gaulle Airport, killing over 100 people. Although the crash was not caused by faults in the aircraft or pilot error, it shattered the nearly flawless safety record of the model. In April 2003, British Airways and Air France simultaneously announced the retirement of the Concorde, marking the end of its era.