Arya Uday Kumar Shetty: To what extent does China's industry hinder the achievement of Ecological and Resource Security under the Xi Government's "Comprehensive National Security" framework?

Introduction

China's industry owes a hefty reliance on fossil fuels. The infographic (Fig. 1) projects China's energy consumption for 2025 utilising data from the Tsinghua Institute of Energy, Environment and Economy. It notes that China would still produce and consume half the world's coal supply. Tsinghua University is in Beijing, where the leading air pollutant is $PM_{2.5}$ large concentration of which is shown to coincide with increased lung cancer mortality (Cao et al. 2018). Industrial coal combustion appears as the dominant contributor (17%) to the estimated average concentration of $PM_{2.5}$ in China (Ma et al. 2017). Faced with widespread protests over pollution and labour protection, during his regime, former President Hu Jintao introduced the concept of ecological and Resource security in his report delivered at the 18th National Congress of the CCP (Hu Jintao, 2012). Hu stressed the importance of restoring the ecosystem and promoting resource conservation, suggesting national ceilings for the consumption of energy. The intent was inherited by Xi Jinping who included both concepts in his 'Comprehensive National Security Framework' promising carbon neutrality by 2060 (Drinhausen and Legarda, 2022). However, the structure of China's industry poses several challenges that mask the feasibility of Xi's ambition. Prioritisation of the economy, bureaucratic hurdles and lack of legal enforcement hinder the green transition that the country desperately needs. Given China's ageing population, threatening the mortality of the future population is unwise as beyond human security it harms the prospects of a healthy labour force. Furthermore, as the CCP competes with the West to establish dominance over the new energy sector, legacies of bureaucratic challenges that persist in China's industrial sector may cost it the race. This article attempts to understand to what extent these industrial hurdles impede ecological and resource security.

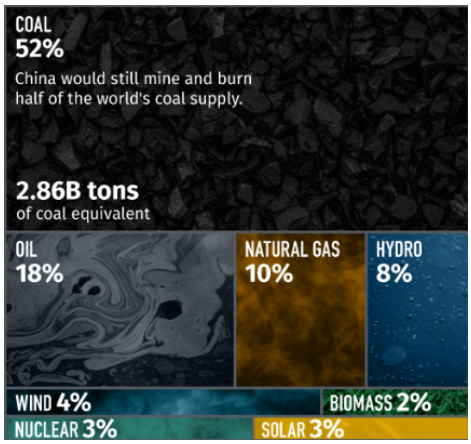

Fig. 1 Visual projection of China's Energy Consumption in 2025 (Venditti, 2021). Source:Visualizing China's Energy Transition in 5 Charts - Visual Capitalist

Under the Dome

To pursue this analysis the article will refer to investigative journalist Chai Jing's documentary "Under the Dome" to inform its understanding of the concerns associated with China's industry. The documentary is accompanied by a presentation-style review by Chai

Jing. The documentary draws attention to the concerns posed by $PM_{2.5}$ concentration on public health and the generational prosperity of the population. Her personal experiences allow us to empathise with the human implications of the environmental crisis, a perspective often ignored. Jing's almost palpable anxiety as a mother, the sight of the girl who has never seen blue skies and the many labourers working in hazardous conditions evoke a human lens for looking at environmental degradation in China.

The documentary stresses how the urgent threat to public health and the local environment has been masked over decades by various actors in the industry. A 2004 news post on Xinhuanet (Fig. 2) referred to flight delays as a product of mere fog (Jing, 2015), whereas in retrospect the incident hinted at the $PM_{2.5}$ build-up that now layers a thick toxic smog blinding the Beijing-Tianjin-Heibei metropolitan region (Ma et al. 2017). The documentary further reflects the position of the industry, outlining the various rationales that have fostered the utter disregard for the ecosystem. As the documentary underscores, it wasn't that people at that time couldn't smell the suffocating smoke, but the warmth and energy that coal brought were more important at the time (Jing, 2015).

Fig. 2. "Beijing Capital Airport experiences worst flight delays in recent years due to fog" December 2, 2004 Xinhuanet (Jing, 2015)
Source: Chai Jing's review: Under the Dome – Investigating China's Smog **柴静**雾霾调查：穹顶之下 (full translation)

A latecomer to the industrialisation bandwagon, China pursued a process of rapid reform and opening from 1976 under Deng Xiaoping (Gilley, 2024). The reform allowed it to enter the global economy and capitalise on its cheap labour and raw materials to export manufactured goods as a transnational factory. The rush to compete with Western markets and establish a global presence however rendered them blind to the degrading environment and China dove headfirst into developing its Industry. As the documentary aptly reflects, for a largely agricultural country eager to develop, smokestacks were a sign of progress (Fig.3). Part of the drive was certainly driven by nationalistic sentiment to restore China to its former glory and seek retribution for the 100 Years of Humiliation it faced under imperial forces from Japan and the West. The unequal concessions imposed upon China such as the Treaty of Nanjing 1842 fuelled ambitious industrialisation projects (Wen, 2016) in hopes of preventing future subjugations by imperial powers. When criticised for being the largest contributor to climate change China often countered that as a developing state, it should not be responsible for mitigating climate change and the responsibility falls on the industrialised Western states. Jing however stresses the implications such an attitude could have considering the scale and population of China. The documentary further stresses that the developing state's excuse is unreasonable as it's often the poorest people who suffer the most from pollution (Fig. 4).

Fig. 3. Smoke billowing from a steel plant in Hebei Province (Myllyvirta, 2017)
Source: China's smokestack economy makes roaring comeback in 2017 - Unearthed

Fig. 4. Rural households in China are affected by domestic combustion of fossil fuels in addition to pollution emanating from Factories situated in close proximity.
Source: Air pollution in China: Poor people likely to be worst off | CAS

Analysis

Reverting to the research question, we discuss what the concrete challenges that China's industrial sector poses to Ecological and Energy security are.

The high $PM_{2.5}$ concentration in China is in part owing to the high consumption of fossil fuels specifically coal. Jing highlights that the Low quality of coal utilised disseminates far more particles making it worse for the environment. The legal requirement to wash the coal to remove the useless polluting elements is ignored by the industry in an attempt to be cost-efficient. For instance, the legislation on the recall of defective automobiles only applies to

products that pose an unreasonable danger towards the safety of people. As such emission trackers and environment protection devices can be omitted without worry as it does not pose any imminent harm to the user. Despite the correlation between $PM_{2.5}$ concentration and the presence of carcinogens suggesting serious prospective health concerns (Cao et al. 2017). The Atmospheric Pollution Prevention Act issues the right to penalise illegal production that pollutes the environment. However, as Jing highlights, the Law had never been used due to the vague wording that the law can only be enforced by departments with the legal right of supervision. Since it does not explicitly state which department that is, the Ministry for Environment Protection cannot be held accountable for any violations of ecological security standards. Scholars have long suggested public attention and collective action to enforce legislation and hold the government accountable (Li et al. 2022). However, in a one-party system that shifts blame across departments, the public complaint is fundamentally pointless. This Bureaucratic struggle renders accountability foggy ultimately allowing the industry to prolong profit-maximisation at the cost of the environment.

Beyond the Bureaucratic struggle that fosters legal paralysis, we observe an economic stake in the fossil fuel industry. The employment structure in China is deeply integrated with the fossil fuel economy. If stringent carbon policing is pursued, it would facilitate the prosecution of providers of essential services which might have severe economic ramifications. Much of the non-standardised illegal transport also serves as the lifeline for metropolitan activity which leaves officials wary of toppling the system. Furthermore, due to the lack of effective occupational mobility measures to retrain the employees working in the fossil fuel industry, any attempts at decarbonisation of the economy or energy transition can have critical impacts on the lives of the labour force. For instance, the Xi government's project to attain carbon neutrality by 2060 is projected to precipitate a loss of over 20 million jobs within coal-related sectors (Niu et al. 2024). The lack of efficacy is expressed in the former Chief Engineer for Sinopec and now director of oil standards' remark to Jing as he said: "Sinopec is big… Just like a person … Excessively fat." (Jing, 2015).

Conclusion

The article has addressed the hurdles China's industrial sector poses to Energy and Ecological Security. It argues that the economic ramifications alongside bureaucratic struggles render a pragmatic achievement Xi Government's ambition unfeasible. China's policy also has global implications for the Belt and Road initiative. In the documentary, a transport vehicle prosecuted was en route to export coal to Africa and other places. China is investing in massive coal plants in many African states which is aimed at facilitating development and generating employment. A sudden transition to new energy will render the heavy investment fruitless. The embeddedness of the fossil fuel industry and the involvement of China's workforce have made it a sensitive sector to touch.

Word count: 1476

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