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The 13th Five-Year Plan

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Executive Summary

The 13th Five-Year Plan (FYP) (2016–2020)—ratified by the National People’s Congress (NPC) in March 2016—established Chinese President and General Secretary of the Chinese Communist Party (CCP) Xi Jinping’s vision for China’s development over the next five years. This 80-chapter, more than 60,000-character document seeks to address China’s “unbalanced, uncoordinated, and unsustainable growth” and create a “moderately prosperous society in all respects” through innovative, coordinated, green, open, and inclusive growth.¹ It is the most environmentally-focused FYP to date and reinforces the Chinese government’s commitment to rebalance the economy to more sustainable growth based on higher-value-added manufacturing and domestic consumption. The 13th FYP also broadens the Chinese government’s stated commitment to innovation, emphasized in the 12th FYP, and to improving citizens’ quality of life, an effort that began under the 11th FYP through prioritizing the environment, health, education, and social welfare. The 13th FYP created a blueprint for China’s future development based around five key themes:²

- *Innovation:* Innovation is a cornerstone of China’s development strategy in the 13th FYP and will be an important component of moving Chinese manufacturing up the value-added manufacturing chain and enhancing its future global competitiveness and technological edge. Under the 13th FYP, by 2020 the government seeks to increase its global innovation ranking from 18 to 15, the share of research and development (R&D) spending as a percent of gross domestic product (GDP) from 2.1 to 2.5, the number of patents filed per 10,000 people from 6.3 to 12, and the number of personnel in R&D.³
- *Coordinated development:* To resolve the widening disparities in regional economic development, redundant construction, duplication of industrial structures, and lack of public services, the Chinese government aims to improve regional intergovernmental coordination of policies, resources, and urban planning through urbanization, *hukou* (household registration system) reform, and the creation of the Beijing-Tianjin-Hebei megaregion and the Yangtze Economic Belt.⁴
- *Green growth:* The 13th FYP reinforces the Chinese government’s desire to address China’s severe environmental degradation and build its clean energy, green manufacturing, and environmental services sectors. Environment-related targets account for 10 out of the 25 targets laid out in the 13th FYP, and all 10 are binding targets that must be met by 2020. Targets establish caps for energy use and ambitious goals for city air quality, carbon dioxide intensity, and reduction of soil and water contamination.⁵
- *Openness:* In support of greater openness, the 13th FYP lays out objectives to expand exports and select imports, increase outbound and inbound investment, promote the international use of the renminbi (RMB), and enhance China’s role in global economic governance. The Chinese government is seeking to expand its interregional and international trade through the creation of the Beijing-Tianjin-Hebei megaregion, the Yangtze Economic Belt, and the One Belt, One Road initiative. Reflecting China’s broader industrial and economic goals, the 13th FYP also pledges to loosen foreign investment restrictions in select sectors such as elder care, banking, and finance, and encourage imports of advanced technology and equipment and high-quality consumer products.⁶
- *Inclusive growth:* The Chinese government is pursuing inclusive growth for all Chinese citizens by setting targets to alleviate poverty, raise the standard of living, improve accessibility and affordability of healthcare and other social services, and promote education.⁷

The government’s success in addressing China’s structural challenges and ensuring long-term prosperity and economic growth via the 13th FYP relies on its ability to make politically difficult tradeoffs, permit a greater role for markets, overcome entrenched interests, and attract new funding from the private sector. If implemented, China’s transition toward greater domestic consumption and more market-led economic growth could open up opportunities for U.S. businesses—provided China allows them market access. Failure to implement needed reforms could lead to China’s economic stagnation, with negative repercussions for global economic growth. In addition, China’s continued reliance on state-led economic growth rather than more market-based growth represents a considerable challenge for U.S. firms facing competition from Chinese firms in China and abroad.

Background on FYPs

China began implementing Soviet-style FYPs in 1953 to align the economy with top policy goals and communicate this directive throughout the government bureaucracy.^{*} Although earlier plans dictated economic and social behavior, FYPs since the 1990s have been designed as overarching roadmaps to guide the numerous ministries and local governments toward central government priorities while maintaining institutional flexibility and local autonomy. An overarching FYP is then followed by a cascade of ministerial and industry plans over the next two years that outline in greater detail how the Chinese government will achieve these objectives (for more detail on the formulation process for the 13th FYP, see Appendix I; for a list of select 13th FYPs and related state-directed plans, see Appendix IV).⁸

Targets outlined in the FYPs highlight the top national priorities of the central government and set red lines for government performance.⁹ Since the 11th FYP, targets have been separated into binding and expected. Binding targets are hard targets local officials must meet in order to advance in their career; expected targets, while important, are generally not introduced into the CCP evaluation system and are met primarily through market forces with government support.¹⁰ The Chinese government has been largely successful in meeting its binding and expected targets. Nevertheless, the FYP approach is ineffective at balancing contradictory objectives, easing resource and capacity constraints, and adapting to more subjective, less quantifiable objectives related to quality of life and innovation.¹¹

Summary of the 13th FYP

The 13th FYP (2016–2020)[†] largely builds off the 11th (2006–2010) and 12th (2011–2015)[‡] FYPs and reiterates many of the objectives laid out in the Third,[§] Fourth,^{**} and Fifth^{††} Plenary Sessions of the 18th CCP Central Committee (Plenums). The 13th FYP seeks to address China’s “unbalanced, uncoordinated, and unsustainable growth” and create a “moderately prosperous society in all respects” through innovative, coordinated, green, open, and inclusive growth.¹² The 13th FYP continues a shift begun under the 11th FYP toward rebalancing the economy away from infrastructure and export-led growth and toward more consumption-led, higher-value-added growth. In addition, the plan builds upon the 11th and 12th FYPs to improve the quality of life of China’s citizens through expanding environmental protection and social welfare.¹³

^{*} For a detailed analysis of China’s five-year planning system, see Sebastian Heilmann and Oliver Melton, “The Reinvention of Development Planning in China, 1993–2012,” *Modern China* 39:6 (August 2013): 580–628; U.S.-China Economic and Security Review Commission, *Hearing on China Ahead of the 13th Five-Year Plan: Competitiveness and Market Reform*, written testimony of Oliver Melton, April 22, 2015. <http://www.uscc.gov/sites/default/files/Melton%20-%20Written%20Testimony.pdf>.

[†] For the full text of the 13th FYP, see People’s Republic of China, *13th Five-Year Plan on National Economic and Social Development*, March 17, 2016. Translation. http://www.gov.cn/xinwen/2016-03/17/content_5054992.htm.

[‡] For analysis of the 12th FYP, see Joseph Casey and Katherine Koleski, “Backgrounder: China’s 12th Five-Year Plan,” U.S.-China Economic and Security Review Commission, June 24, 2011. http://www.uscc.gov/sites/default/files/Research/12th-FiveYearPlan_062811.pdf.

[§] For in-depth analysis of the Third Plenum’s proposed economic reforms, see Nargiza Salidjanova and Iacob Koch-Weser, “Third Plenum Economic Reform Proposals: A Scorecard,” U.S.-China Economic and Security Review Commission, November 19, 2013. [http://origin.www.uscc.gov/sites/default/files/Research/Backgrounder_Third%20Plenum%20Economic%20Reform%20Proposals--A%20Scorecard%20\(2\).pdf](http://origin.www.uscc.gov/sites/default/files/Research/Backgrounder_Third%20Plenum%20Economic%20Reform%20Proposals--A%20Scorecard%20(2).pdf).

^{**} For the key takeaways of the Fourth Plenum, see U.S.-China Economic and Security Review Commission, *November 2014 Economics and Trade Bulletin*, November 4, 2014, 4–6. http://origin.www.uscc.gov/sites/default/files/trade_bulletins/November%202014%20Trade%20bulletin_0.pdf.

^{††} For more information on the Fifth Plenum, see U.S.-China Economic and Security Review Commission, *November 2015 Economics and Trade Bulletin*, November 4, 2015, 4–5. http://origin.www.uscc.gov/sites/default/files/trade_bulletins/November%20Trade%20Bulletin%202015.pdf.

The latest FYP contains 25 targets, of which 13 are binding, compared with 24 targets (13 binding) in the 12th FYP and 22 targets (13 binding) in the 11th FYP* (see Appendix II for a list of 11th, 12th, and 13th FYP targets).¹⁴ It is the greenest plan to date: 10 of the 25 key targets and 10 of the 13 binding targets are related to the environment.¹⁵ Innovation is another cornerstone of the 13th FYP. It is the first major section of the plan and sets four expected targets to achieve by 2020. Beyond the 25 targets, the 13th FYP further reaffirms the Chinese government's commitment to meet its two centenary goals:[†] doubling China's 2010 GDP and the average disposable income level by 2021.¹⁶

But the 13th FYP represents a step back from China's Third Plenum pledge to allow the "market to play a decisive role in allocating resources" by reiterating the CCP's central role in China's economic and social development.¹⁷ Center for Strategic and International Studies (CSIS) researchers Scott Kennedy and Chris Johnson noted that the 13th FYP is the first FYP to include a chapter on the CCP's leadership in society.¹⁸ Rather than expand market drivers that would address many of China's economic inefficiencies, the 13th FYP solidifies the CCP's and government's roles in managing the economy.

Key Aspects of the 13th FYP

Economic Growth Remains Central

The 13th FYP lays out a 6.5 percent average annual growth target in an effort to achieve a "moderately prosperous society"[‡] by 2020.¹⁹ This 6.5 percent target is critical for the government to double China's 2010 level of GDP by 2020.²⁰ In his 2016 *Report on the Work of the Government*, Chinese Premier Li Keqiang announced the adoption of a 6.5–7 percent range for 2016 GDP growth, a departure from a fixed annual growth rate target.²¹ This range provides greater flexibility for the Chinese government to manage public expectations about China's economic slowdown but will be difficult to reach without significant fiscal stimulus.

* In the 11th FYP, 22 targets (eight binding) were divided among 4 categories: economic growth (2 targets); economic structure (4 targets); population, resources, and the environment (8 targets); and public services and people's life (8 targets). In the 12th FYP, 24 targets (13 binding) were divided among 4 categories: economic development (3 targets), scientific education (4 targets), resources and the environment (8 targets), and people's life (9 targets). In the 13th FYP, 25 targets (13 binding) are divided among 4 categories: economic development (4 targets), innovation-driven (4 targets), people's livelihood and well-being (7 targets), and resources and the environment (10 targets).

† The first centenary goal seeks to "build a moderately prosperous society" by 2021—the 100th anniversary of the founding of the CCP—through doubling (1) China's 2010 GDP and (2) average disposable income level. The second centenary goal is to transform China into a modern socialist country that is prosperous, strong, democratic, culturally advanced, and harmonious country by 2049—the 100th anniversary of the founding of the People's Republic of China. Central Compilation and Translation Press, Central Committee of the Communist Party of China, *The 13th Five-Year Plan for Economic and Social Development of the People's Republic of China*; Xinhua, "China's 12th Five-Year Plan Achievements a Milestone for Centenary Goals," October 26, 2016. http://news.xinhuanet.com/english/2015-10/26/c_134748390.htm.

‡ This term was first introduced by Deng Xiaoping (1978–1989) in 1979 with a focus on raising per capita gross domestic product. In 2002, Jiang Zemin put forward "moderately prosperous society" as an objective in the 16th National Congress of the CCP. Hu Jintao later widened the definition to include social concepts at the 17th National Congress in 2007. At the 18th National Congress in 2012, President Xi further expanded the definition to address economic, political, cultural, social, and ecological aspects, and this overarching goal forms the basis for the 13th FYP. Key aspects of this goal include: (1) achieve the two centenary goals, (2) expand Chinese citizens' participation and enhance law-based governance, (3) strengthen China's cultural soft power, (4) reduce poverty and income disparity and expand access to basic public services, and (5) improve the living environment for all Chinese citizens and shift toward more environmentally friendly development. Zhang Airu, "From 'Moderately Prosperous' to 'Moderately Prosperous Society'—The Story of the Formation and Development of Deng Xiaoping's Middle-Class Society Concept," *People's Daily*, July 14, 2014. Staff translation. <http://cpc.people.com.cn/n/2014/0714/c69113-25279758.html>; Qiu Shi, "Building a Moderately Prosperous Society in All Respects: A Crucial Step for Realizing the Chinese Dream," *Qiushi Journal* 7:4:25 (December 15, 2015). http://english.qstheory.cn/2015-12/15/c_1117354104.htm; John Ross, "'Moderately Prosperous Society' Is Key Goal for China," *China Internet Information Center*, November 14, 2012. http://www.china.org.cn/opinion/2012-11/14/content_27108452_2.htm.

Identifying the importance of transitioning to a more consumption-led, higher-value-added economy, the 13th FYP is seeking to improve China's labor productivity and boost its service sector. In part to address China's shrinking workforce and rising competition from lower-cost neighbors, the 13th FYP adds a new target to increase China's overall labor productivity—the amount of GDP produced by an hour of labor—from \$12,985 (RMB 87,000) per person in 2015 to more than \$17,910 (RMB 120,000) per person by 2020.²² In addition, the 13th FYP strengthens its 11th FYP and 12th FYP targets to increase the service sector's share of GDP. In 2015, China's service sector reached 50.5 percent of GDP, ahead of the 12th FYP target of 47 percent.²³ Under the 13th FYP, China aims to grow the service sector's share of GDP to 56 percent in 2020, requiring a 5.5 percent average annual growth rate.²⁴ The Chinese government has highlighted education, health, entertainment, and fitness as service sectors it would like to develop. For example, China's *National Fitness Plan* (2016–2020) sets 2020 targets to have the number of Chinese citizens participating in physical activity at least once a week to more than 700 million and the number of people participating in physical activity every day to 435 million.²⁵ If these targets are reached, the Chinese government expects health and fitness expenditures to reach \$223.9 billion (RMB 1.5 trillion),²⁶ creating both an enormous new consumer market and a healthier population.

But despite such targets, China's growth in 2015 and 2016 has come in large part from government stimulus measures. New loans in just the first nine months of both 2015 and 2016 exceeded even the \$1.4 trillion (RMB 9.6 trillion) of new loans in the entire first year of the rollout of China's 2008–2009 bank-led stimulus program.²⁷ By once again relying on credit-fueled investment to stimulate the economy, the Chinese government is not only going back on its promise to abandon investment-led growth as it rebalances the economy toward consumption, but also is adding to China's debt troubles. China's tight capital controls, large foreign reserves, and high savings rates ensure limited direct global exposure and enable the Chinese government to manage existing debt obligations.* However, China is accumulating a significant amount of new debt just as its economy slows, and this investment is creating less growth per RMB.²⁸ The international ratings agency Fitch Ratings noted, “The longer debt grows, the greater the risk of asset quality and liquidity shocks to the banking system.”²⁹

Innovation-Driven Development (创新发展)

As the first major section of the 13th FYP, innovation is emphasized as a cornerstone of China's development strategy. Innovation “essentially set the overarching framework from which many of the other areas of the plan flow,” stated Damien Ma, a fellow at The Paulson Institute, at the Commission's April 2016 hearing on “China's 13th Five-Year Plan.”[†] ³⁰ The Chinese government is seeking to use innovation to accelerate efforts to move Chinese manufacturing up the value-added chain, reestablish China as a global center of innovation and technology, and ensure long-term productivity.³¹ On May 19, 2016, the CCP Central Committee and State Council released *Guidelines for China's Innovation-Driven Development Model* that builds upon the 13th FYP and establishes broad goals for China's economy to become an “innovative nation” by 2020, an international innovation leader by 2030, and a world powerhouse of scientific and technological innovation by 2050.³²

* For more information on China's fiscal and financial challenges, see U.S.-China Economic and Security Review Commission, Chapter 1, Section 3, “China's 13th Five-Year Plan,” in *2016 Annual Report to Congress*, November 2016, 161–164, 167–168, 173–174. http://origin.www.uscc.gov/sites/default/files/Annual_Report/Chapters/Chapter%201%2C%20Section%203%20-%2013th%20Five-Year%20Plan.pdf; For more information on China's shadow banking sector, see U.S.-China Economic and Security Review Commission, Chapter 1, Section 3, “Governance and Accountability in China's Financial System,” in *2013 Annual Report to Congress*, November 2013, 113–152. http://origin.www.uscc.gov/sites/default/files/Annual_Report/Chapters/Chapter%201%2B%20Section%203%20Governance%20and%20Accountability%20in%20China%27s%20Financial%20System.pdf.

† For testimony and transcript from the hearing, see U.S.-China Economic and Security Review Commission, *Hearing on China's 13th Five-Year Plan*, April 27, 2016. <http://www.uscc.gov/Hearings/hearing-china%E2%80%99s-13th-five-year-plan>.

The 13th FYP largely reiterates the Chinese government's state-directed strategy started under the 12th FYP,^{*} including "indigenous innovation," an initiative strongly condemned by U.S. and other foreign governments and firms upon its inclusion in the 12th FYP.³³ U.S. and other foreign governments and firms have argued that this policy inherently discriminates against foreign firms by seeking to replace foreign technology with products and services from Chinese firms.[†] In August 2016, the State Council released its *13th Five-Year Science and Technology Innovation Plan*, which reiterates three targets in the 13th FYP and provides nine additional targets (see Table 1 below).³⁴ By 2020, this plan aims to increase China's global innovation ranking from 18 to 15,[‡] the share of R&D spending as a percent of GDP from 2.1 to 2.5, the number of patents filed per 10,000 people from 6.3 to 12, and the number of personnel in R&D.³⁵

Major targets include:

- *Increase spending on R&D:* Under the 12th FYP, overall spending on R&D increased from \$105 billion (RMB 706.3 billion) in 2010 to \$194.3 billion (RMB 1,301.6 billion) in 2014 but failed to reach the 12th FYP's 2.2 percent target for R&D spending as a share of GDP by 0.1 percentage points.³⁶ The 13th FYP raises the 12th FYP's 2.2 percent target to 2.5 percent by 2020.³⁷ In comparison, projected spending on R&D in the United States reached 2.8 percent of GDP in 2014.³⁸ If China reaches its target, public and private R&D spending will total \$1.2 trillion (RMB 8 trillion) during the 13th FYP.[§] The *13th Five-Year Science and Technology Innovation Plan* expands upon the 13th FYP targets by pursuing growth of R&D intensity, or firm's R&D expenditures as a share of its net sales.³⁹ This focus on both overall spending and more market-based company spending targets some of wasteful spending that occurred under the 11th and 12th FYPs.
- *Raise the quality and volume of Chinese patents:* The 13th FYP accelerates the successful uptick in filing for patents under the 12th FYP by raising the target for the number of patents per 10,000 people from 6.3 in 2015—nearly double the 12th FYP target of 3.3—to 12 by 2020.⁴⁰ But while the quantity of patents has skyrocketed, the quality of these patents is debatable.⁴¹ To address the quality of patents, the *13th Five-Year Science and Technology Innovation Plan* aims to raise the number of international citations and Patent Cooperation Treaty patents, which are higher bars to meet.⁴²
- *Enhance human capital:* The *13th Five-Year Science and Technology Innovation Plan* sets goals to increase the share of China's R&D personnel and population with scientific degrees to enhance its scientific base. China plans to increase the number of R&D personnel per 10,000 people employed per year from 48.5 in

^{*} For a comprehensive analysis of China's state-directed science and technology, industrial, defense, and energy development plans, see Tai Ming Cheung et al., "Planning for Innovation: Understanding China's Plans for Technological, Energy, Industrial, and Defense Development," *University of California Institute on Global Conflict and Cooperation* (prepared for the U.S.-China Economic and Security Review Commission), July 28, 2016. <http://origin.www.uscc.gov/sites/default/files/Research/Planning%20for%20Innovation-Understanding%20China%27s%20Plans%20for%20Tech%20Energy%20Industrial%20and%20Defense%20Development072816.pdf>.

[†] For an overview of foreign firms' concerns regarding indigenous innovation, see James McGregor, "China's Drive for 'Indigenous Innovation': A Web of Industrial Policies," *American Chamber of Commerce*, 2010. https://www.uschamber.com/sites/default/files/legacy/reports/100728chinareport_0.pdf.

[‡] This ranking is based on the Country Innovation Index compiled by the Chinese Academy of Science and Technology for Development under the Ministry of Science and Technology. In 2015, the Country Innovation Index ranked China as the 18th most innovative country; the United States was ranked first followed by Japan, Switzerland, South Korea, and Israel. By comparison, the 2016 Global Innovation Index published by Cornell University, French business school INSEAD, and the World Intellectual Property Organization ranked Switzerland first, followed by Sweden, the United Kingdom, and the United States at fourth. The 2016 Global Innovation Index placed China 25th out of 128 countries. Ministry of Science and Technology of the People's Republic of China, "Country Innovation Index Report 2015" Released, July 25, 2016. Staff translation. http://www.most.gov.cn/kjbgz/201607/t20160725_126747.htm; Soumitra Dutta, Bruno Lanvin, and Sacha Wunsch-Vincent, eds., "The Global Innovation Index 2016," 2016. <https://www.globalinnovationindex.org/gii-2016-report>.

[§] R&D spending from 2016 to 2020 assumes China reaches its 2.5 percent target for R&D spending and its GDP target of RMB 92.7 trillion by 2020 with an annual R&D growth rate of 2.73 percent and an annual GDP growth rate of 6.5 percent. People's Republic of China, *13th Five-Year Plan on National Economic and Social Development*, March 17, 2016. Staff translation. http://www.gov.cn/xinwen/2016-03/17/content_5054992.htm

2015 to 60 in 2020 and the share of its total population with scientific degrees from 6.2 percent in 2015 to 10 percent by 2020.⁴³

Table 1: The 13th Five-Year Science and Technology Innovation Plan's Targets

Target	2015	2020
Global innovation ranking	18	15
Contribution of science and technological advances to economic growth	55.3%	60%
R&D as share of GDP	2.1%	2.5%
Number of R&D personnel per 10,000 people employed per year	48.5	60
Revenue of high-technology enterprises	22.2 trillion RMB	34 trillion RMB
Share of value-added knowledge-intensive services industries to GDP	15.6	20
R&D Intensity*	0.9	1.1
Global ranking for the number of citations in international science and technology papers	4	2
Patents filed under the Patent Cooperation Treaty† per 10,000 patents	3.05	6.1
Patents filed per 10,000 people	6.3	12
National technical contract turnover	983.5 billion RMB	2 trillion RMB
Proportion of the total population possessing scientific degrees	6.2%	10%

Note: In this table, all targets in bold are key targets in the 13th FYP (see Appendix II).

Source: State Council of the People's Republic of China, *13th Five-Year Science and Technology Innovation Plan*, August 8, 2016.

Translation. http://www.gov.cn/gongbao/content/2016/content_5103134.htm.

The 13th FYP adds two additional targets to improve its innovation capability: Internet penetration and the contribution of science and technology to economic growth (see Appendix II).⁴⁴ The expansion of the penetration ratio for fixed and mobile broadband subscriber ratios aligns with the Chinese government's broader push to leverage the interconnectivity and data from the Internet to optimize manufacturing, finance, healthcare, and government.⁴⁵ The contribution of scientific and technological advances to economic growth should grow from 55.3 percent to 60 percent, but how the Chinese government will measure this contribution remains unclear.⁴⁶ To facilitate this innovation, municipal governments are creating technology and innovation hubs. For example, Tianjin plans to build 100 innovative hubs by the end of 2016, and Suzhou aims to build more than 300 such hubs by 2020.⁴⁷

The ambitions of the 13th FYP and its subsequent science and technology innovation plan are dampened by the fact that innovation efforts under the 12th FYP were plagued by inefficient allocation of funding, worthless patents, and plagiarism.⁴⁸ According to Kai-Fu Lee, a former Google and Microsoft Corporation executive who founded the China-based venture capitalist fund Innovation Works, while China's planned establishment of at least 400 innovation hubs dwarfs the 44 such hubs in San Francisco, only 5 percent of China's incubators have the necessary funding and high-quality services to support startups.⁴⁹

* R&D intensity is a firm's total expenditures on its R&D divided by its net sales.

† The Patent Cooperation Treaty is an international patent law treaty that creates a unified patent filing procedure, allowing one to protect an invention in the 150 parties to the treaty. World Intellectual Property Organization, "Summary of the Patent Cooperation Treaty (PCT) (1970)." http://www.wipo.int/treaties/en/registration/pct/summary_pct.html.

In addition, Damien Ma noted that the Chinese government needs to build the necessary institutional capital for innovation by strengthening its legal regimes for intellectual property protection, supporting universities that promote entrepreneurship, and allowing failure and nonconformity.⁵⁰ Furthermore, the Chinese government needs to shift from an active role in the market to “a mere referee” to create breathing room for the Chinese private sector to operate and allow for a fair competitive playing field to spur genuine innovation and entrepreneurship.⁵¹ But continued state control hinders academic freedom, market competition, and the free flow of ideas—the key foundation and driver of innovation.⁵²

Shift to Higher-Value-Added Manufacturing

The Chinese government recognizes that heavy industry* and low-end manufacturing are creating neither sustainable engines of growth nor the jobs matching China’s increasingly educated and skilled workforce. The 13th FYP reiterates support for the “Made in China 2025” (中国制造 2025; *zhongguo zhizao*) and “Internet Plus” (互联网+; *hulianwang*) initiatives as key policies to move up the value-added chain.⁵³ These initiatives seek to accelerate China’s transition to higher-value-added, intelligent manufacturing† by focusing on innovation and upgrading emerging industries, such as high-end equipment, integrated circuits, biomedicines, cloud computing, mobile Internet, and e-commerce.⁵⁴ In support of these sectors, the Chinese government cultivates local and national champions, negotiates for technology transfers as the price of market access, regulates foreign investment and technology imports through government catalogues, promotes Chinese technology standards domestically and internationally, and supports greater Chinese exports through its “Going Out” strategy.⁵⁵ However, without meaningful reform, the 13th FYP’s policies to move up the value-added chain through indigenous innovation and other state-directed policies risk recreating the overproduction and distorted market conditions that occurred under the 12th FYP with strategic emerging industries (see Table 3 for a list of strategic emerging industries).⁵⁶

Made in China 2025

The *Made in China 2025 Action Plan* lays out 12 targets with 2020 and 2025 deadlines that focus on enhancing China’s innovation, productivity, quality, digitalization, and efficiency (see Table 2).⁵⁷ For example, automation and efficiency targets aim to improve Chinese firms’ productivity and move their products up the value-added chain by increasing intelligent manufacturing capabilities.⁵⁸ In addition, this initiative seeks to build domestic firms that are globally competitive with a goal of gradually substituting foreign technology and products with local technology and production first at home then abroad.⁵⁹ Although this top-down initiative reiterates the Chinese government’s long-held objectives toward indigenous innovation and import substitution, Made in China 2025 is larger in scope and resources with greater government coordination than previous plans.⁶⁰

Made in China 2025 targets ten key sectors for additional government support.⁶¹ These sectors are: (1) new energy vehicles, (2) next-generation information technology (IT), (3) biotechnology, (4) new materials, (5) aerospace, (6) ocean engineering and high-tech ships, (7) railway, (8) robotics,‡ (9) power equipment, and (10) agricultural machinery.⁶² Many of these listed sectors are not new and merely redouble government support for long-held strategic industries (see Table 3). For example, next-generation IT was previously supported as a strategic emerging industry in 2010 and a heavyweight industry in 2006.

* Heavy industry generally refers to energy-intensive sectors with high capital costs and high barriers to entry such as chemicals and plastics, steel and oil refining and production, mining, industrial machinery, automobile manufacturing, and mass transportation.

† Intelligent manufacturing seeks to integrate information technology into the manufacturing process for more precise, easily scalable, efficient production.

‡ For in-depth analysis of China’s industrial and military robotics development, see Jonathan Ray et al., “China’s Industry and Military Robotics Development” (prepared for the U.S.-China Economic and Security Review Commission), *Defense Group, Inc.*, October 25, 2016.

http://origin.www.uscc.gov/sites/default/files/Research/DGI_China%27s%20Industrial%20and%20Military%20Robotics%20Development.pdf.

Table 2: The *Made in China 2025*'s 2020 and 2025 Targets

Target	2015 (Actual)	2020	2025
R&D spending as a share of operating revenue	0.95%	1.26%	1.68%
Number of patents per 100 million RMB of total revenue	0.44	0.7	1.1
Quality competitiveness index*	83.5	84.5	85.5
Growth of industrial value-added	5.9%	7.9%	9.9%
Average annual productivity growth	6.6%	7.5%	6.5%
Penetration of broadband internet	50%	70%	82%
Use of digital design tools in R&D	58	72	84
Use of numerical control machines in key production processes	33	50	64
Change in industrial energy intensity from 2015 levels	—	-18%	-34%
Change in carbon dioxide emissions intensity from 2015 levels	—	-22%	-40%
Change in water usage intensity from 2015 levels	—	-23%	-41%
Reuse of solid industrial waste as a share of total waste	65%	73%	79%

*Note**: This index reviews the implementation of quality management and supervision and planned quality improvements based on data from 250,000 enterprises.

Source: State Council of the People's Republic of China, *Made in China 2025*, May 8, 2015. Translation.

http://www.gov.cn/zhengce/content/2015-05/19/content_9784.htm; Jost Wubbeke et al., "Made in China 2025: The Making of a High-Tech Superpower and Consequences for Industrial Countries," *Mercator Institute for China Studies*, December 2016, 19.

https://www.merics.org/fileadmin/user_upload/downloads/MPOC/MPOC_Made_in_China_2025/MPOC_No.2_MadeinChina_2025.pdf.

Table 3: China's Key Industries

Made in China 2025 (2015)	Strategic Emerging Industries (2010)	Strategic Industries (2006)	Heavyweight Industries (2006)
(1) New energy vehicles	(1) Clean energy technologies	(1) Armaments	(1) Machinery
(2) Next-generation IT	(2) Next-generation IT	(2) Power generation and distribution	(2) Automobiles
(3) Biotechnology	(3) Biotechnology	(3) Oil and petrochemicals	(3) IT
(4) New materials	(4) High-end equipment manufacturing	(4) Telecommunications	(4) Construction
(5) Aerospace	(5) Alternative energy	(5) Coal	(5) Iron, steel, and nonferrous metals
(6) Ocean engineering and high-tech ships	(6) New materials	(6) Civil aviation	
(7) Railway	(7) New energy vehicles	(7) Shipping	
(8) Robotics			
(9) Power equipment			
(10) Agricultural machinery			

Source: State Council of the People's Republic of China, *Made in China 2025*, May 8, 2015. http://www.gov.cn/zhengce/content/2015-05/19/content_9784.htm; U.S.-China Economic and Security Review Commission, *Hearing on China's Five-Year Plan, Indigenous Innovation and Technology Transfers, and Outsourcing*, written testimony of Willy C. Shih, June 15, 2011.

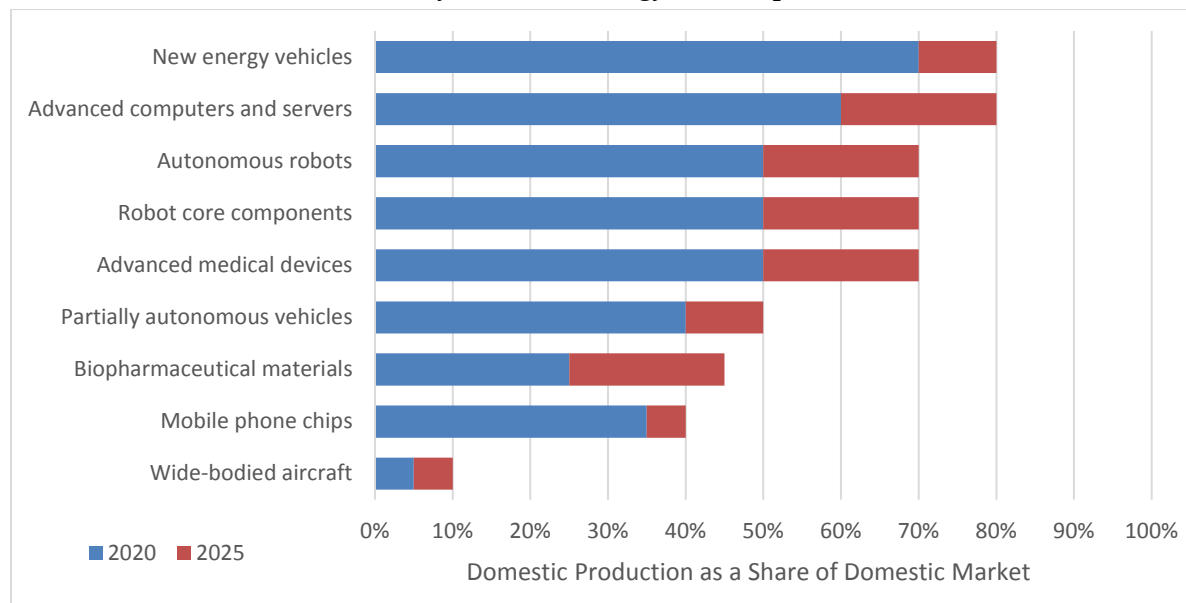
<https://www.uscc.gov/sites/default/files/6.15.11Shih.pdf>; U.S.-China Economic and Security Review Commission, *Hearing on the Extent of the Government's Control of China's Economy, and Implications for the United States*, written testimony of George T. Haley, May 24–25,

2007; U.S.-China Economic and Security Review Commission, Chapter 1, Section 1, “The Relationship’s Current Status and Significant Changes during 2007,” in *2007 Annual Report to Congress*, November 2007, 38–39.
https://www.uscc.gov/sites/default/files/annual_reports/2007-Report-to-Congress.pdf.

In October 2015, the Chinese Academy of Engineering, a think tank under the State Council, released the *Made in China 2025 Key Area Technology Roadmap* that outlines localization targets for these sectors (see Figure 1).⁶³ For example, the roadmap aims to increase the domestic market share of Chinese branded new energy vehicles to 80 percent by 2025.⁶⁴ Reaching these localization targets would gradually close China’s growing market to U.S. and other foreign firms, a major loss of market and job opportunities.⁶⁵

The Chinese government is channeling significant state funding to support the Made in China 2025 initiative and its designated sectors. In November 2016, the China Development Bank announced it will provide at least \$44.8 billion (RMB 300 billion) in total financing to support the implementation of the Made in China 2025 initiative during the 13th FYP.⁶⁶ The Chinese government has also created a \$20 billion (RMB 139 billion) National Integrated Circuit Fund, a \$3 billion (RMB 20 billion) Advanced Manufacturing Fund,^{*} and a \$6 billion (RMB 40 billion) Emerging Industries Investment Fund.⁶⁷ Local governments are also providing strong financial support. For example, 21 cities and 5 provinces have pledged a combined \$6 billion (RMB 40 billion) in subsidies for robotics.⁶⁸

Figure 1: Select *Made in China 2025 Key Area Technology Roadmap*’s 2020 and 2025 Localization Targets



Source: Expert Commission for the Construction of a Manufacturing Superpower, “Made in China 2025 Key Area Technology Roadmap,” October 29, 2015. *Chinese Academy of Engineering*, Translation. <http://www.cae.cn/cae/html/files/2015-10/29/20151029105822561730637.pdf>.

^{*} The \$3 billion (RMB 20 billion) Advanced Manufacturing Fund is composed of \$895.5 million (RMB 6 billion) from the central government, \$746.2 million (RMB 5 billion) from the Industrial and Commercial Bank of China, \$597 million (RMB 4 billion) from the State Development and Investment Corporation, and additional funding from provincial governments. Jost Wubbeke et al., “Made in China 2025: The Making of a High-Tech Superpower and Consequences for Industrial Countries,” *Mercator Institute for China Studies*, December 2016, 23.

https://www.merics.org/fileadmin/user_upload/downloads/MPOC/MPOC_Made_in_China_2025/MPOC_No.2_MadeinChina_2025.pdf.

Internet Plus

To capitalize on China's huge online consumer market and optimize manufacturing, finance, healthcare, and government, the Internet Plus plan is aimed at building up the country's domestic mobile Internet, cloud computing, big data, and the Internet of Things* sector firms and creating global competitors by assisting domestic firms' expansion abroad.⁶⁹ China's Internet Network Information Center reported there were 710 million Internet users in China as of June 2016, far outstripping the second-largest Internet user country, the United States.⁷⁰ China's big data market is expected to grow from RMB 110.5 billion (\$17 billion) to RMB 879 billion (\$135.2 billion) by 2020.⁷¹ Under the 13th FYP the Chinese government wants to improve Internet access in rural China—thus increasing China's consumer base—by raising the fixed broadband household penetration ratio from 40 percent in 2015 to 70 percent in 2020 and the mobile broadband subscriber penetration ratio from 57 percent in 2015 to 85 percent by 2020.⁷² In January 2017, National Development and Reform Commission (NDRC) and Ministry of Industry and Information Technology announced that China would invest \$179.1 billion (RMB 1.2 trillion) to improve broadband and mobile networks from 2016 to 2018 to include the construction of more than 56,000 miles (90,000 kilometers) of high-speed fiber optic cables and 2 million 4G base stations.⁷³ The Cyberspace Administration of China and the Ministry of Finance launched the \$14.9 billion (RMB 100 billion) China Internet Investment Fund in January to provide equity investment in Chinese Internet and Internet of Things sector firms.[†] The Agriculture Bank of China, China Development Bank, and the Industrial and Commercial Bank of China will provide \$22.4 billion (RMB 150 billion) in credit lines for firms that the fund has invested in.⁷⁴ Although this area offers enormous potential, the Chinese government continues to maintain significant restrictions on the Internet, limiting information availability and global connectivity. These restrictions have not only limited the domestic innovation potential but also harmed foreign technology and Internet firms' operations in China.[‡]

Strengthen State-Owned Enterprises

13th FYP objectives reinforce the reforms outlined in the September 2015 *Guiding Opinion on Deepening the Reform of State-Owned Enterprises*⁷⁵ to include greater CCP and state control over state-owned enterprises (SOE), separation of SOEs into commercial and public interest enterprises, and expansion of mixed ownership.[§] Analysis

* The Internet of Things refers to the interconnectivity between physical objects, such as a smartphone and electronic appliance, via the Internet, that allows these objects to share data. For more information, see Harald Bauer, Mark Patel, and Jan Veira, "The Internet of Things: Sizing up the Opportunity," *McKinsey & Company*, December 2014.
http://www.mckinsey.com/insights/high_tech_telecoms_internet/the_internet_of_things_sizing_up_the_opportunity.

† The \$14.9 billion (RMB 100 billion) fund received \$4.4 billion (RMB 30 billion) in initial investment; the Industrial and Commercial Bank of China contributed \$1.5 billion (RMB 10 billion). Other contributors include the state-owned Citic Guoan Group, China Post Insurance, China Mobile, China Unicom, and China Telecom. The NDRC, the Ministry of Industry and Information Technology, and the CCP's Publicity Department have also provided support. It remains unclear whether the funds will support private Chinese firms. Xie Yu, "China Sets Up 100 Billion Yuan State Fund to Invest in the Internet," *South China Morning Post*, January 22, 2017.
<http://www.scmp.com/business/china-business/article/2064386/china-sets-100-billion-yuan-state-fund-invest-internet>; Xinhua, "China Launches \$14.6B Internet Investment Fund," *State Council of the People's Republic of China*, January 23, 2017.
http://english.gov.cn/news/top_news/2017/01/23/content_281475549246254.htm; Yang Ge, "Beijing Launches 100 Billion Yuan Internet Fund," *Caixin*, January 23, 2017. <http://www.caixinglobal.com/2017-01-23/101048242.html>.

‡ For more information of the impact on Internet censorship on U.S. firms, see the U.S.-China Economic and Security Review Commission, Chapter 1, Section 3, "Commercial Espionage and Barriers to Digital Trade in China," in *2015 Annual Report to Congress*, November 2015, 192–219. http://origin.www.uscc.gov/sites/default/files/Annual_Report/Chapters/Chapter%201%2C%20Section%204%20-%20Commercial%20Cyber%20Espionage%20and%20Barriers%20to%20Digital%20Trade%20in%20China.pdf; U.S.-China Economic and Security Review Commission, *May 2016 Economics and Trade Bulletin*, May 4, 2016, 7–8.
http://origin.www.uscc.gov/sites/default/files/trade_bulletins/May%202016%20Trade%20Bulletin.pdf.

§ For additional analysis on China's SOE reforms, see U.S.-China Economic and Security Review Commission, Chapter 1, Section 2, "State-Owned Enterprises, Overcapacity, and China's Market Economy Status," in *2016 Annual Report to Congress*, November 2016, 91–114. http://origin.www.uscc.gov/sites/default/files/Annual_Report/Chapters/Chapter%201%2C%20Section%202%20-%20State-Owned%20Enterprises%2C%20Overcapacity%2C%20and%20China%27s%20Market%20Economy%20Status.pdf; U.S.-China Economic and Security Review Commission, *Hearing on China's Shifting Economic Realities and Implication for the United States*, February 24, 2016. <http://www.uscc.gov/Hearings/hearing-china%E2%80%99s-shifting-economic-realities-and-implications-united-states>.

by Dr. Kennedy and Mr. Johnson found the 13th FYP “breaks no new ground on SOEs,” but rather announces reforms that seek to “strengthen SOEs as national champions at home and abroad and protect their interests.”⁷⁶ For one lead Chinese official, the measure of SOE reform success is increasing the number of Chinese SOEs in the Fortune 500 from 54 to 108 by 2020.⁷⁷ Such measures are meant to increase productivity and competition and reduce operating and personnel costs.⁷⁸ But these reforms will almost certainly fall short of what China needs to do to create competitive, profitable, and innovative* SOEs.⁷⁹

Coordinated Development (协调发展)

The Chinese government is deepening urban-rural, interregional, and global integration to reduce economic disparity, enhance urban planning and infrastructure development, redistribute industry drivers, and improve energy efficiency and environmental conservation.⁸⁰ The 13th FYP outlines urbanization, the Beijing-Tianjin-Hebei megaregion,[†] the Yangtze Economic Belt initiative, and the Silk Road Economic Belt and 21st Century Maritime Silk Road initiatives (or One Belt, One Road; 一带一路; *yidai yilu*) as key to its coordinated development policy agenda.⁸¹ In April 2016, the State Council approved a Chengdu-Chongqing city cluster that will boost interregional development and pursue greater integration with the One Belt, One Road and Yangtze Economic Belt initiatives.⁸²

Increase Urbanization

The 13th FYP builds upon the 11th and 12th FYPs and the *National Plan on New Urbanization (2014–2020)*[‡] to lessen the economic disparity between urban and rural residents and spur consumption and economic growth by creating a new consumer base and expanding the middle class.⁸³ During the 12th FYP, sustained urbanization efforts exceeded the plan’s targets, increasing the share of the population in urban areas from 47.5 percent in 2010 to 56.1 percent in 2015 (far above the 51.5 percent expected target), and produced more than 64 million urban jobs in five years (higher than the expected target of 45 million urban jobs).⁸⁴ In addition, government subsidies were used to build over 40 million affordable urban housing units—far more than the 12th FYP’s target of 36 million units.⁸⁵ The *National Plan on New Urbanization (2014–2020)*, released in March 2014, incentivizes rural migration to third- and fourth-tier cities by making it easier to obtain national household registration (or hukou; 户口)[§] there and providing affordable housing for 100 million current residents through the renovation of existing urban shantytowns and new construction.⁸⁶ The 13th FYP builds upon this framework and pledges by 2020 to raise urbanization levels

* Strong Party control within Chinese firms, particularly SOEs, represents a significant barrier to innovation because it can “compromise the proprietary nature of a firm’s strategic direction, operations, and competitive advantage.” Regina M. Abrami, William C. Kirby, and F. Warren McFarlan, “Why China Can’t Innovate,” *Harvard Business Review*, March 2014. <https://hbr.org/2014/03/why-china-cant-innovate>.

† A megaregion is a clustered network of metropolitan areas and their suburbs that share transportation, economic growth patterns, history, and natural resources. U.S. Department of Transportation, Federal Highway Administration, *Role of Regional Planning Organizations in Transportation Planning across Boundaries*, October 20, 2015. http://www.fhwa.dot.gov/planning/megaregions/reports/regional_planning_organizations/page01.cfm.

‡ Key goals outlined in the *National Plan on New Urbanization (2014–2020)* are: (1) increase the migration of an additional 100 million rural residents, or approximately 6 percent of its population, to cities in central and western provinces; (2) develop affordable housing for 100 million current urban residents; (3) improve access to public services and social security by expanding urban hukou registration for 100 million rural migrants currently residing in cities; and (4) enhance the environmental sustainability of cities by 2020. Collectively, the first three policies are known as the “three 100 million people.” People’s Republic of China, *National Plan on New Urbanization (2014–2020)*, March 16, 2014. Staff translation. http://www.gov.cn/zhengce/2014-03/16/content_2640075.htm; *People’s Daily*, “Government Work Report: The ‘Three 100 Million People’ Principles Expound New-Type Urbanization,” March 5, 2014. Translation.

§ The hukou establishes eligibility for education and access to government services for all Chinese citizens based on the status of one’s parents and place of birth. The holder of a given hukou can only receive government services and benefits where he or she is registered, particularly disadvantaging the 270 million rural residents who have migrated to cities. For more information on the hukou, see U.S.-China Economic and Security Review Commission, Chapter 2, Section 5, “China’s Five-Year Plans and Technology Development and Transfers to China,” in *2011 Annual Report to Congress*, November 2011, 88–106. http://origin.www.uscc.gov/sites/default/files/annual_reports/annual_report_full_11.pdf.

to 60 percent, create more than 50 million urban jobs, and renovate 20 million housing units in urban public housing (a binding target).⁸⁷

Urbanization also plays a key role in the Chinese government's plans for alleviating poverty. Damien Ma noted that China's poverty reduction target of 55.8 million (a binding target) and new urban job target of 50 million are roughly in line with each other.⁸⁸ He explained, "This is likely not a coincidence—the majority of new urban jobs, Beijing hopes, would be concentrated in the central and western regions, where most of the poverty alleviation will take place."⁸⁹ More inclusive growth is another key theme of the 13th FYP, which the Chinese government is seeking to achieve through hukou system reform, among other reforms (see "Inclusive Growth" later in this report).

Coordinate Regional Development

The Chinese government is focusing on coordinated regional development in an attempt to address widening regional disparities, redundant construction, duplication of industrial structures, and the lack of public services.⁹⁰ The government hopes greater intergovernmental coordination of policies, resources, and urban planning will unleash new sources of economic growth and alleviate existing urban problems, including overpopulation, pollution, traffic, high real estate costs, and resource scarcity.⁹¹ Key areas of coordination will include:

- *Government policies:* The central government is attempting to coordinate regional government policies on public services (i.e., education, medicine, and social security), transportation, innovation promotion, law enforcement operations, and environmental protection.⁹² For example, in December 2015, the governments of Beijing, Tianjin, and Hebei Province signed an environmental cooperation framework agreement to create a regional regulatory system for environmental pollution.⁹³
- *Industrial economy:* According to Zhang Shuyu, a researcher at the University of International Business and Economics, greater coordination will allow the cities to reconfigure their regional industrial layout.⁹⁴ For example, in the Beijing-Tianjin-Hebei megaregion, greater coordination could harness the lower labor costs in Hebei and good infrastructure in Tianjin.⁹⁵ Beijing would remain the national center of politics, culture, and technological innovation; Tianjin would strengthen its role as a major shipping hub and national manufacturing R&D base; and Hebei Province would transition away from heavy industry to become a national trade and logistics base.⁹⁶
- *Transportation:* The Chinese government is seeking to coordinate intercity regional air, car, rail, and sea transportation networks, particularly in the Beijing-Tianjin-Hebei megaregion, the Yangtze River Delta, the Pearl River Delta, middle Yangtze River region, central China, Chengdu-Chongqing region, and Shandong Peninsula.⁹⁷ This greater interconnectivity will maximize resource allocation, improve logistics, ease congestion, increase rural access to urban centers, expand accessibility of jobs and housing options for Chinese citizens, and accelerate the transportation of goods and people.⁹⁸ In May 2016, the State Council approved the creation of a Yangtze River Delta city cluster that will cover 30 cities in the Shanghai, Jiangsu, Zhejiang, and Anhui regions, to include Nanjing, Hangzhou, Hefei, Suzhou, Wuxi, Changzhou, and Ningbo, among others.⁹⁹ A key part of this plan will be building a comprehensive, interconnected transportation system involving high-speed railway, subway, highway, and the Yangtze River.¹⁰⁰ Overall, under the 13th FYP, the government plans to construct more than 50 commercial airports, 30,000 kilometers (km) (18,750 miles) of high-speed rail covering 80 percent of major Chinese cities, and 30,000 km (18,750 miles) of new expressways, including 7 national expressways from Beijing, 11 north-to-south expressways, and 18 east-to-west expressways (see Figure 2 for a map of China's 2030 high-speed railway network).¹⁰¹ Yang Yudong, vice minister of the Ministry of Transport, noted that China expects to invest \$522.4 billion (RMB 3.5 trillion) to achieve its 2020 railway expansion target.¹⁰²

Figure 2: Map of China's 2030 High-Speed Railway Network



Source: People's Republic of China, *13th Five-Year Plan on National Economic and Social Development*, March 17, 2016. Translation. http://www.gov.cn/xinwen/2016-03/17/content_5054992.htm.

Green Growth (绿色发展)

The Chinese government is attempting to clean up the severe environmental degradation left by its “growth at any cost” strategy and shift toward a more sustainable economic model. Official reports found that 20 percent of China’s arable land and 33 percent of its surface water are polluted, and more than 80 percent of underground well water used by farms, factories, and households is too polluted to safely drink or bathe in.¹⁰³ In addition, China is the world’s largest carbon dioxide emitter, accounting for more than one-quarter of global carbon dioxide emissions.¹⁰⁴

Under the 12th FYP, China’s government dedicated significant funds and high-level attention to environmental degradation and building its clean energy industries.* Based on official Chinese data and independent research, the Chinese government largely met its 12th FYP targets for energy consumption and carbon and pollutant emissions reduction.¹⁰⁵ But acknowledging that these efforts were insufficient, Premier Li “declared war” on pollution at the 2014 NPC, and in 2016 he stressed strict enforcement of environmental standards—a key weakness of environmental efforts under the 12th FYP—stating that violators would be “severely punished.”¹⁰⁶

The 13th FYP builds upon this momentum. Ten out of the 25 targets are related to the environment, and all 10 environmentally related targets are included as part of the 13 binding targets that must be achieved by 2020 (see Appendix II).¹⁰⁷ Kevin Mo, managing director for climate and sustainable urbanization at the Paulson Institute, noted that “what’s exciting is that the government is taking an integrated approach, tackling air quality, climate change, and the development of a new model of growth together instead of treating them as separate issues.”¹⁰⁸

* For a comprehensive analysis of China’s energy and environmentally related development plans, see Tai Ming Cheung et al., “Planning for Innovation: Understanding China’s Plans for Technological, Energy, Industrial, and Defense Development,” *University of California Institute on Global Conflict and Cooperation* (prepared for the U.S.-China Economic and Security Review Commission), July 28, 2016, 68–112. <http://origin.www.uscc.gov/sites/default/files/Research/Planning%20for%20Innovation-Understanding%20China%27s%20Plans%20for%20Tech%20Energy%20Industrial%20and%20Defense%20Development072816.pdf>.

In the last year, the Chinese government has stepped up its efforts to enforce environmental regulations through national emissions monitoring systems and central government-led inspections in 15 provinces.¹⁰⁹ In November 2016, official Chinese news outlets reported that central government inspections in Hebei Province, a heavily polluting province and key contributor to Beijing's pollution problems, led to the closure of 200 polluting factories and punishment of more than 1,000 government officials and company leaders. According to the Ministry of Environmental Protection, 10 were dismissed or moved to other positions, 5 were handed to judicial organs, nearly 500 were admonished, and the rest received demerits and other forms of punishment.¹¹⁰

However, lax enforcement and competing policy objectives continue to undercut the Chinese government's efforts to prevent and mitigate pollution.¹¹¹ According to Ma Jun, director of the China-based environmental nonprofit the Institute of Public and Environmental Affairs, the fines for polluting are "still cheaper than the cost of compliance," and polluting firms continue to enjoy significant local government support.¹¹² In addition, the promotion of local government officials has prioritized economic growth and social stability over environmental protection objectives, weakening incentives to enforce environmental regulations on firms that create jobs and economic growth. For example, based on a study by the Ministry of Environmental Protection and Nanjing University, shutting down outdated factories in the Beijing-Tianjin-Hebei megaregion would reduce air pollution at the expense of a more than \$41.8 billion (RMB 280 billion) drop in GDP and nearly 190,000 jobs.¹¹³ Local government officials remain concerned that implementing environmental regulations may create short-term instability through layoffs and slower economic growth. Despite clear targets to reduce steel capacity and pollution, in the second quarter of 2016, Greenpeace found that air pollution, which had improved over the last year, worsened in roughly a third of the 367 Chinese cities surveyed, as local governments allowed steel and concrete production to increase.¹¹⁴

Expand Nationwide Monitoring and Evaluation Metrics

The 13th FYP focuses on creating a baseline for the scale of the environmental challenges and expanding the central and local governments' access to real-time, online data for more effective monitoring, evaluation, and enforcement. Under the 12th FYP, the Chinese government concentrated on deploying air quality monitoring systems. By the end of 2014, the Chinese government had established more than 1,400 air monitoring stations nationwide for real-time, publicly available data on 6 pollutants: PM10,^{*} PM2.5,[†] sulfur dioxide, nitrogen dioxide, ozone, and carbon monoxide.¹¹⁵ These stations have enabled the Chinese government to regulate sources of pollution, hold localities responsible, and set air quality targets in the 13th FYP, according to Deborah Seligsohn, an expert on China's energy sector and environment.¹¹⁶ The 13th FYP builds upon this success and expands monitoring to address soil and water pollution with the launch of ground pollution surveys and a comprehensive, nationwide pollution census.[‡] The 13th FYP also outlines the creation of a national cap-and-trade system, a national ecological safety warning system, a nationwide environmental monitoring system, a national water monitoring system, and an audit system of CCP officials' performance in meeting environmental targets.¹¹⁷ These systems would allow the central government to hold local governments and firms accountable and establish more directed targets in the future. In July 2016, the Ministry of Environmental Protection announced it will set up river and lake water quality monitoring

^{*} PM10 is made up of solid or liquid particulates measuring 10 micrometers or smaller in diameter. Due to its ability to reach lower regions of the respiratory tract, excessive exposure can affect breathing, damage lung tissue, and contribute to higher incidences of cancer and premature death. U.S. Environmental Protection Agency, *Particulate Matter (PM-10)*. <https://www3.epa.gov/airtrends/aqtrnd95/pm10.html>.

[†] PM2.5 is made up of metal, organic chemical, acid, soil or dust, and allergen particulates measuring 2.5 micrometers or smaller in diameter. Excessive exposure to PM2.5 aggravates existing heart and lung disease and is linked to higher incidences of heart attacks, asthma attacks, and bronchitis. U.S. Environmental Protection Agency, *Basic Information*. <https://www3.epa.gov/airquality/particlepollution/basic.html>.

[‡] China's Ministry of Environmental Protection, State Statistics Bureau, and Ministry of Agriculture conducted the first national census on pollution sources in 2010. This census identified the major sources of water contamination, air pollution, and solid and hazardous waste and formed the basis for the 12th FYP's targets and implementation. State Council Information Office, *1st National Census on Pollution Sources Completed*, February 9, 2010. http://www.china.org.cn/china/2010-02/09/content_19394384.htm.

stations in 338 prefecture-level cities* in 31 provinces; the stations will use 21 metrics to determine water quality.¹¹⁸ Establishing these nationwide monitoring and evaluation systems will be a herculean task due to the number of monitors required and the technical complexities in both installing and interpreting the readings.¹¹⁹

Set Energy and Carbon Dioxide Emissions Intensity Reductions

The 13th FYP established energy and carbon dioxide emissions intensity reduction targets and an energy cap in an effort to improve energy efficiency, lower emissions, and encourage China's transition away from the heavy industry to the less energy-intensive service sector. The 13th FYP raises the binding targets under the 12th FYP to reduce China's carbon dioxide intensity[†] (the amount of carbon dioxide China emits per unit of GDP) by 18 percent and reduce its energy intensity[‡] (energy consumption per unit of GDP) by 15 percent over the next five years.¹²⁰ These targets will contribute to China's efforts to meet its international commitments to peak its carbon emissions in 2030 under the Paris Agreement on Climate Change,[§] which the United States and China signed in September 2016.¹²¹

In the 13th FYP, a first-ever nationwide total energy cap for all energy sources is set at less than the equivalent of five billion tons of coal** over the next five years.¹²² Experts in China and abroad believe the energy cap, although not a key target, is easily achievable.¹²³ Growth in China's energy usage slowed under the 12th FYP, growing 2.3 percent annually from 2012 to 2015, a departure from the average annual growth of 6.4 percent between 2005 and 2012.¹²⁴

To meet these targets, the government increased clean energy use targets in the 13th FYP from 12 percent under the 12th FYP to 15 percent by 2020 (a binding target).¹²⁵ In December 2016, the *13th Five-Year Renewable Energy Development Plan* announced \$373.1 billion (RMB 2.5 trillion) in total investment for new installed capacity of renewable energy by 2020: \$74.6 billion (RMB 500 billion) for hydropower, \$104.5 billion (RMB 700 billion) in wind, \$149.3 billion (RMB 1 trillion) in solar, and additional investments in biomass, power generation, biogas, and geothermal energy utilization.¹²⁶ Shuttering excess capacity within heavy industry will also be an important contributor to gains in energy efficiency and reductions in carbon and air pollution, but efforts to close outdated and unneeded plants, specifically in the steel sector, have been politically difficult.¹²⁷ In addition, central and western provinces are still proceeding with the construction of new coal-fired power plants, one of the largest contributors to carbon emissions, with 210 new plants approved in 2015 and at least 55 more awaiting approval this year.¹²⁸ In January 2017, the National Energy Administration suspended 101 coal power projects—around \$64.2 billion (RMB 430 billion) of total investment—due to concerns of oversupply.¹²⁹

Improve Air, Soil, and Water Quality

The 13th FYP seeks to improve the quality of China's air, soil, and water and builds off the 12th FYP, the 2013 *Action Plan on Air Pollution Prevention and Control*, the *National Climate Change Plan (2014–2020)*, the 2015 *Action Plan on Water Pollution Prevention and Control*, the Fifth Plenum, and the 2016 *Action Plan on Soil Pollution Prevention and Control*.¹³⁰ Overall, China's efforts under the 12th FYP and the *Action Plan on Air Pollution Prevention and Control* appear to have led to improved air quality—a high priority for the Chinese

* A prefecture-level city is a government administrative classification that ranks below a province but above a county.

† A cut in carbon intensity does not necessarily result in a reduction in total carbon emissions. For example, if an economy grows faster than cuts in carbon intensity, a country will still emit more carbon dioxide even though it is using less carbon per unit of GDP.

‡ Energy intensity measures the energy efficiency of an economy. Higher level indicate that more energy is needed to create GDP. The transition to the less energy-intensive service sector should lower this figure.

§ For more on the agreement, see the U.S.-China Economic and Security Review Commission, *January 2016 Economics and Trade Bulletin*, January 7, 2016. http://origin.www.uscc.gov/sites/default/files/trade_bulletins/Jan%202016%20Trade%20Bulletin.pdf.

** The equivalency appears to be in terms of energy usage, not carbon dioxide emissions. Thus, a clean power source such as a solar array would still contribute to total energy use under the cap.

government after air pollution levels in northeast China reached hazardous levels in January 2013.* Using satellite data, a study by the environmental activist nonprofit Greenpeace estimated that PM2.5 levels decreased by 17 percent from 2010 to 2015.¹³¹ These improvements are impressive; however, the Chinese public desires “good” air quality ratings every day, so a reduction of air pollution levels from 20 times to 10 times the “good” level will not suffice.¹³² As Ms. Seligsohn noted, in order to “get to the kind of clean air that we feel comfortable in, you have to do things like reduce emissions from a coal-fired power plant by 95 to 98 percent.”¹³³

Air Pollution

The 13th FYP includes a new, binding requirement that by 2020 Chinese cities meet “good” air quality ratings more than 80 percent of the time, a slight increase from its current ratio of 76.7 percent.¹³⁴ The number of days when levels of the air pollutant PM2.5 exceed allowable limits will also need to fall by 18 percent.¹³⁵ Additionally, the 13th FYP sets higher emissions reduction targets for sulfur dioxide and nitrogen oxides, air pollutants associated with respiratory damage.¹³⁶ The Chinese government easily met its emission reduction targets under the 12th FYP, exceeding the sulfur dioxide target by 10 percentage points and the nitrogen oxides target by 8.6 percentage points.¹³⁷ In the 13th FYP, China for the first time addresses volatile organic compounds (VOC), a category of pollutants coming from fossil fuels, paints, solvents, and several industrial processes and contributors to PM2.5 pollution. VOCs are emitted from a wide range of sources, making them more difficult for Chinese regulators to reduce.¹³⁸ The 13th FYP aims to reduce VOC emissions by 10 percent over the next five years.¹³⁹

Additionally, the 13th FYP calls on Chinese oil refiners to produce a higher quality gasoline to address key contributors of China’s smog: diesel trucks and automobiles.¹⁴⁰ The lack of high-quality gasoline has caused vehicles to experience mechanical issues and emit more pollutants.¹⁴¹ Chinese state-owned oil firms long resisted pressure to improve their fuel quality due to the high costs required to produce cleaner fuel (the price of which is determined by the NDRC) and to upgrade their facilities, estimated at \$3.2 billion–\$4.8 billion (RMB 20 billion–30 billion).¹⁴² Overcoming resistance from China’s state-owned oil firms, China’s central and municipal governments are raising fuel standards, rolling out the “National Five” standard† nationwide by 2017. The National Five permits a maximum level of sulfur content of ten parts per million and should reduce car pollutants by 15 to 20 percent.¹⁴³ In January 2016, the NDRC announced that the savings accrued from setting gasoline’s price above global market prices may be used to finance such facility upgrades.¹⁴⁴

Soil Pollution

The 13th FYP takes some modest steps to address China’s soil pollution, including a national census to determine the extent of the problem and set a target of less than 2.14 million hectares of land used for new construction—a move meant to encourage denser building.¹⁴⁵ In May 2016, the State Council released the *Action Plan on Prevention and Control of Soil Pollution* that provided greater detail on how the Chinese government plans to tackle soil pollution and set targets to decontaminate 90 percent of polluted farmland by 2020 and 95 percent by 2030.¹⁴⁶ With the Action Plan, the Chinese government wants to determine the scale of the problem through a nationwide survey of contaminated sites, create accountability by establishing soil quality monitoring sites and a soil quality database, regulate land usage for new construction, remediate contaminated land, and strengthen legislation on soil protection.¹⁴⁷ The plan sets ambitious targets to revise China’s 1995 soil quality standards by 2017, remediate

* At the height of the so-called “airpocalypse” in January 2013, hourly PM2.5 levels in Beijing reached hazardous levels 177 times and exceeded the index 24 times (reaching a high of 886) based on data from the U.S. Embassy in Beijing. Based on the U.S. Environmental Protection Agency’s Air Quality Index, a reading of the micrograms of PM2.5 per cubic meter of air between 0 and 50 qualifies as “good,” while a reading over 301 qualifies as “hazardous.” Any reading over 500 is “beyond the index.” U.S. Department of State, U.S. Embassy in Beijing, *Historical Data*. <http://www.stateair.net/web/historical/1/1.html>.

† The Ministry of Environmental Protection, similar to the U.S. Environmental Protection Agency, has established progressively more stringent standards for maximum levels of sulfur and other emission content levels in fuels, beginning with National One.

666,000 hectares of farmland by 2020, and return around 5,000 square miles of polluted land to forest and grassland by 2020.¹⁴⁸

This plan is ambitious, but the scale of the problem, lack of government capacity and expertise, and high costs will be significant challenges, according to Greenpeace East Asia's Ada Kong and Wang Jing.¹⁴⁹ Local environmental protection officials lack access to accurate data and are overwhelmed by the number of factories they must oversee.¹⁵⁰ In Jiangsu Province, for instance, one inspector may be responsible for hundreds of factories.¹⁵¹

Implementation will be costly.¹⁵² Nanjing-based integrated securities firm Huaitai Securities estimated in April 2016 that soil remediation projects for the next five years will cost up to \$89.4 billion (RMB 590 billion); full remediation (a condition under which crops can be grown and livestock safely raised on formerly contaminated land) will cost an estimated \$1.1 trillion (RMB 7.4 trillion).¹⁵³ China's financing problems are compounded by the dearth of market incentives to encourage private participation, and requiring polluters to pay—while useful— involves tracking the responsible parties (usually years after they contaminated the soil) and imposing high fines on potentially bankrupt firms.¹⁵⁴ Cleanup programs such as those in the United States have largely relied on government funding.¹⁵⁵ But local governments in China are already cash-strapped, and the central government's \$1.3 billion (RMB 9 billion) budget for soil remediation in 2016, despite experiencing 146 percent year-on-year growth, is far short of the investment needed.¹⁵⁶ The Chinese government's plan for funding such projects is expected to be laid out in the Soil Pollution Prevention and Control Law, which is slated to be approved by the NPC in late 2017.¹⁵⁷

Water Quality

The Chinese government is simultaneously seeking to address its severe water contamination and overuse. China only has 7 percent of the world's freshwater supplies but accounts for around 20 percent of the world's population.¹⁵⁸ Rapid urbanization in dry northern China, pollution, and increases in water demand have stressed existing groundwater supplies, leading to the construction of the world's largest physical water transfer project, the South-North Water Transfer Project.* The 13th FYP keeps in place the 12th FYP's binding reduction targets for chemical oxygen demand and ammonia nitrogen, which are sources of water pollution.¹⁵⁹ China exceeded its 8 percent emissions reduction target in chemical oxygen demand with a 12.9 percent decrease, and surpassed its 10 percent ammonia nitrogen emissions reduction target by 8.6 percentage points.¹⁶⁰ Beyond reducing water pollutants, the 13th FYP reiterates the *Action Plan on Water Pollution Prevention and Control* and establishes new binding targets to raise the quality of surface water: more than 70 percent will need to meet or exceed Class III, and less than 5 percent will need to meet or exceed Class V.† The 13th FYP attempts to improve the efficiency of water usage with a 23 percent binding reduction target in water consumption per 10,000 RMB of GDP by 2020.¹⁶¹ This target is a more modest reduction in the water consumption intensity‡ target when compared to the 12th FYP's 30 percent cut in water usage as a share of GDP over five years.¹⁶² Although not one of its 25 key targets, the 13th FYP also sets a higher water consumption cap than the 12th FYP after exceeding its 2015 goal for reduced water use. During the 12th FYP, China exceeded its target water consumption cap of 600 billion cubic meters by 18 billion cubic meters.¹⁶³ The 13th FYP sets a higher cap of 670 billion cubic meters.¹⁶⁴

* The South-North Water Transfer Project is a three-canal project that diverts 44.8 billion cubic meters of water annually from the Yangtze River in southern China to northern China.

† China's Ministry of Environmental Protection classifies surface water into five categories based on toxicological indicators such as chemical oxygen demand, ammonia, mercury, and lead. Class I and II can be used as drinking water. Liu Hongqiao, "Who Is Responsible for China's Water?" *ChinaDialogue*, October 4, 2015. <https://www.chinadialogue.net/article/show/single/en/7839-Who-is-responsible-for-China-s-water->. For a complete list of these categories, see Ministry of Environmental Protection, *National Standards of the People's Republic of China*, GB3838-2002.

http://english.mep.gov.cn/standards_reports/standards/water_environment/quality_standard/200710/W020061027509896672057.pdf.

‡ Water consumption intensity is the amount of water used by a country relative to its economic activity.

Support Domestic Green Industries

The Chinese government will support the growth of its energy-saving and environmental protection industries into globally competitive firms.¹⁶⁵ Industries singled out for support include new energy vehicles, soil remediation, and advanced energy-saving technologies and equipment.¹⁶⁶ The 13th FYP continues the 12th FYP's strong support for two strategic emerging industries: new energy vehicles and advanced energy-saving technologies and equipment.¹⁶⁷ For example, state-directed subsidies for renewable energy—a strategic emerging industry—under the 12th FYP allowed China to achieve global dominance in the solar and wind sectors* in less than a decade.¹⁶⁸ But this support also created overcapacity and distorted the market.¹⁶⁹ According to Greentech Media, 112 U.S. and European solar energy firms from 2009 to 2014 have either declared bankruptcy, closed, or were acquired in a fire sale due to weakened market conditions.¹⁷⁰ Yingli Green Energy Holding Co., the world's largest solar panel maker, is teetering toward bankruptcy following a long list of now insolvent former global solar leaders such as Chinese firm Suntech, South Korean and German-headquartered firm Q-Cells SE, and U.S. firm SunEdison Inc.¹⁷¹ It is unclear how the Chinese government plans to prevent overcapacity and distorted markets from occurring in other green industries, the way they have occurred in previously designated sectors.

The 13th FYP is also attempting to retool China's heavy industry by pushing for green construction[†] and green mining[‡] and mobilizing domestic and international investment toward green industries, pollution and climate change mitigation efforts, and environmentally friendly projects through green financing.[§] ¹⁷² Based on estimates from the State Council's Financial Research Institute, green bonds could fund approximately \$46.2 billion (RMB 300 billion) of China's needed green energy investment.¹⁷³ However, attracting additional funding requires greater transparency and clarity on the legal and regulatory frameworks governing public-private partnerships and green financing, and further opening of the financial sector to global investors.¹⁷⁴ For example, in light of differing definitions and practices on green financing, global investors are pushing for a standardization of definitions, reporting, and impact assessments to ensure investments are used for their intended purpose.¹⁷⁵

Openness (开放发展)

This theme centers on opening the world to China, not China to the world.¹⁷⁶ The 13th FYP sets goals to benefit China's domestic industries' expansion abroad by increasing exports and outbound investment, supporting the international use of the RMB,** and strengthening China's role in driving the international economic agenda and setting international standards.¹⁷⁷ Encouragement of imports and inbound foreign investment is limited to designated sectors, where China is seeking to meet existing demand and build domestic capacity.¹⁷⁸ This imbalance signals that foreign firms will continue to face significant barriers to access China's market. In addition, the Chinese government is seeking to expand its interregional and international trade through the creation of the Beijing-Tianjin-

* For in-depth analysis of China's wind and solar policies, see Jacob Koch-Weser and Ethan Meick, "China's Wind and Solar Sectors: Trends in Deployment, Manufacturing, and Energy Policy," *U.S.-China Economic and Security Review Commission*, March 9, 2015. http://origin.www.uscc.gov/sites/default/files/Research/Staff%20Report_China%27s%20Wind%20and%20Solar%20Sectors.pdf.

† Energy efficiency, location, water conservation, indoor air quality, and onsite construction practices are five major components of green construction. Drew Liming, "Careers in Green Construction," *U.S. Department of Labor, Bureau of Labor Statistics*. <http://www.bls.gov/green/construction/>.

‡ Green mining seeks to reduce the energy usage per ton produced, water usage and wastewater production, and air emissions. Massachusetts Institute of Technology, "Environmentally Sensitive 'Green' Mining." <http://web.mit.edu/12.000/www/m2016/finalwebsite/solutions/greenmining.html>.

§ Green financing is a relatively new concept with no established definition. It can be broadly defined as financial investment in sustainable development projects, industrial pollution control, water sanitation, biodiversity protection, environmental products, etc. Nanette Lindenberg, "Definition of Green Finance," *German Development Institute*, April 2014. https://www.die-gdi.de/uploads/media/Lindenberg_Definition_green_finance.pdf.

** For more information on RMB internationalization, see Eswar Prasad, "China's Efforts to Expand the International Use of the Renminbi" (prepared for the U.S.-China Economic and Security Review Commission), February 4, 2016. <http://origin.www.uscc.gov/sites/default/files/Research/China%27s%20Efforts%20to%20Expand%20the%20Internationalization%20of%20the%20RMB.pdf>.

Hebei megaregion, the Yangtze Economic Belt, and the One Belt, One Road initiative.¹⁷⁹ Priorities of China's openness theme include:¹⁸⁰

- *Increasing exports:* The 13th FYP attempts to boost exports with faster processing of export tax rebates, expansion of cross-border e-commerce, expansion of free trade zones, and support of trade in services.¹⁸¹ By 2018, the Chinese government is hoping to lower the share of logistics costs to sales revenue for manufacturers from 8.9 percent in 2014 to around 8.5 percent, and for wholesale and retail sellers from 7.7 percent to around 7.3 percent.¹⁸² The 13th FYP also aims to increase trade in services as a percentage of total foreign trade to 16 percent through diversification of export markets, particularly emerging markets, and the domestic development of China's education, health, pensions, entertainment, and fitness sectors.¹⁸³
- *Encouraging select imports:* Expansion of advanced technology and equipment and high-quality consumer product imports is strongly encouraged under the 13th FYP,¹⁸⁴ potentially creating opportunities for U.S. high-value-added exports. In addition, the 13th FYP plans a greater opening of the finance, education, health, culture, Internet, and logistics sectors to foreign firms.¹⁸⁵ But this expansion of imports appears short-lived. The *Consumer Products Standards and Quality Upgrading Plan (2016–2020)* in support of the Internet Plus and Made in China 2025 initiatives aim at building Chinese firms into international brands and improving the share of its consumer products that meet international quality standards.¹⁸⁶
- *Guiding investment to industrial and economic objectives:* The 13th FYP highlights ongoing negotiations of bilateral investment treaties with the United States and the EU and loosening of capital controls and some market access restrictions. To meet growing domestic demand and remedy the lack of domestic capacity, the 13th FYP pledges to loosen foreign investment restrictions on preschools and childcare centers, elder care, architecture, accounting, auditing, banking, insurance, and securities. Reflecting both its industrial and economic objectives, the 13th FYP also encourages greater foreign investment in advanced manufacturing, high-tech, energy-saving and environmental protection, and modern services, particularly in central and western provinces.¹⁸⁷ However, China maintains a pattern of first welcoming foreign investment into strategic sectors to gain foreign technology, intellectual property, and know-how then restricting investment in those sectors as domestic firms become competitive.* This policy creates market space for China's new firms by pushing out foreign competitors.¹⁸⁸ Thus, the sectors outlined in 13th FYP will likely enjoy only a temporary respite from a loosening of China's market access barriers. Foreign companies operating in industries championed by the 13th FYP are likely to see market barriers temporarily loosened in ways that benefit domestic competitors.
- *Strengthening China's leadership in the international system:* The 13th FYP outlines a greater role for China in reforming the international economic system and driving the international economic agenda through promotion of more equitable participation of developing countries; the pursuit of bilateral and multilateral free trade agreements; participation in the development of global Internet governance and international standards; and the formulation of international standards for the Internet, deep sea, the Arctic and Antarctica, and space.¹⁸⁹ However, China's role in blocking India's entry into the Nuclear Suppliers Group in July 2016 raises broader questions about China's willingness to promote the role of developing countries such as India within the international system.¹⁹⁰

* For an example of how this investment pattern manifested in the automobile sector, see U.S.-China Economic and Security Review Commission, Chapter 1, Section 2, "Foreign Investment Climate in China," in *2015 Annual Report to Congress*, November 2015, 84–87. http://origin.www.uscc.gov/sites/default/files/Annual_Report/Chapters/Chapter%201%2C%20Section%202%20-%20Foreign%20Investment%20Climate%20in%20China.pdf.

Promote the One Belt, One Road Initiative

President Xi's One Belt, One Road* initiative, first announced in 2013, is a cornerstone of the 13th FYP's openness objective, accounting for an entire chapter in the plan.¹⁹¹ This initiative is composed of a land-based economic corridor through Central Asia and a maritime counterpart that will run through Southeast Asia and the Indian Ocean to Africa and the Mediterranean Sea (see Figure 3). The goal of the One Belt, One Road initiative is to facilitate access to natural resources and encourage economic development in China's poorer western provinces. Vice Premier Zhang Gaoli further explained the priorities of the One Belt, One Road as strengthening transportation infrastructure, easing investment and trade, enhancing financial cooperation, and deepening cultural exchanges.¹⁹² CSIS researcher Chris Johnson noted that beyond these stated objectives, the Chinese government is hoping to use OBOR to export China's enormous excess industrial capacity and strengthen debt-laden SOEs' international competitiveness "through abundant financing and markets where competition is not particularly fierce."¹⁹³ The One Belt, One Road will be supported not only by the Silk Road Fund, created specifically for this purpose, but also by the China Development Bank, the Export-Import Bank of China, and the newly created China-led Asian Infrastructure Investment Bank and New Development Bank.^{† 194}

OBOR could provide significant economic benefits for the region through greater connectivity and development. However, because it prioritizes China's economic interests, OBOR could create regional dependence, especially among less developed countries, allow China to delay reining in its excess capacity, and limit access for non-Chinese firms to projects. For example, OBOR's state-directed financing and preference for Chinese SOEs raises concerns about the openness of OBOR to U.S. and other foreign firms' participation.¹⁹⁵

* The One Belt, One Road (OBOR) is composed of six economic corridors and six channels for communications and distribution. The six economic corridors are the New Eurasian Continental Bridge, the China-Mongolia-Russia corridor, the China-Central Asia-West Asia corridor, the China-Indochina Peninsula corridor, the China-Pakistan Economic Corridor, and the Bangladesh-China-India-Myanmar corridor. Highways, railways, airlines, waterways, pipelines, and information networks make up the six channels for communications and distribution. National Development and Reform Commission, *Report on the Implementation of the 2015 Plan for National Economic and Social Development and on the 2016 Draft Plan for National Economic and Social Development* (Fourth Session of the 12th National People's Congress, Beijing, China, March 5, 2016), 7.

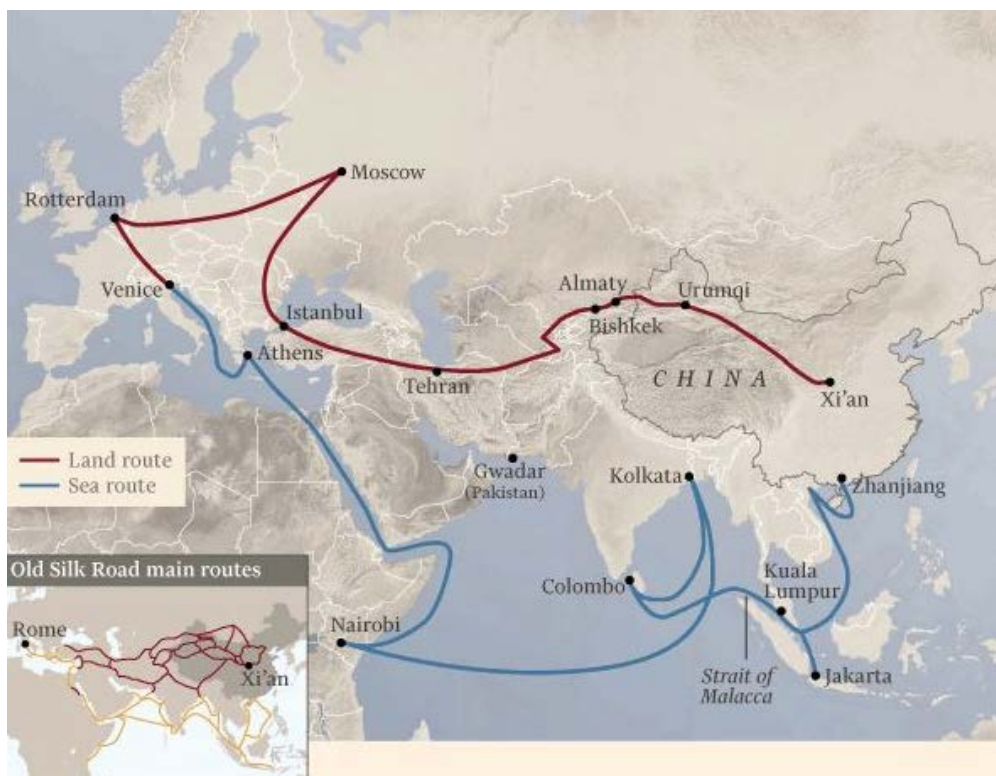
http://online.wsj.com/public/resources/documents/NPC2016_NDRC_English.pdf. For more information on the Silk Road Economic Belt, see U.S.-China Economic and Security Review Commission, Chapter 3, Section 1, "China and Central Asia," in *2015 Annual Report to Congress*, November 2015, 391–418.

http://origin.www.uscc.gov/sites/default/files/Annual_Report/Chapters/Chapter%203%2C%20Section%201%20-%20China%20and%20Central%20Asia.pdf; for more on the 21st Century Maritime Silk Road, see U.S.-China Economic and Security Review Commission, Chapter 3, Section 2, "China and Southeast Asia," in *2015 Annual Report to Congress*, November 2015, 448–449. http://origin.www.uscc.gov/sites/default/files/Annual_Report/Chapters/Chapter%203%2C%20Section%202%20-%20China%20and%20Southeast%20Asia.pdf.

† For additional information on the Asian Infrastructure Investment Bank and the New Development Bank, see Sabrina Snell, "China's Development Finance: Outbound, Inbound, and Future Trends in Financial Statecraft," *U.S.-China Economic and Security Review Commission*, December 16, 2015, 60–62.

<http://origin.www.uscc.gov/sites/default/files/Research/China%E2%80%99s%20Development%20Finance.pdf>.

Figure 3: China's Silk Road Economic Belt and 21st Century Maritime Silk Road



Source: Charles Clover and Lucy Hornby, "China's Great Game: Road to a New Empire," *Financial Times*, October 12, 2015.

Inclusive Growth (共享发展)

The 13th FYP expands upon the 12th FYP's push to create a "harmonious society" (和谐社会; *hexie shehui*) toward pursuing "inclusive growth" (共享发展; *gongxiang fazhan*) for all Chinese citizens by alleviating poverty, raising Chinese citizens' standard of living, improving accessibility and affordability of healthcare services, and promoting education.¹⁹⁶ Over the last five years, the Chinese government aggressively sought to reduce the rural-urban divide and expand the social safety net by raising provincial and city-set minimum wages, providing subsidized housing, increasing rural and urban healthcare coverage, strengthening the pension system, and creating more educational opportunities in rural areas.¹⁹⁷ While average incomes rose and access to healthcare services expanded under the 12th FYP, poverty, urban-rural inequality, and affordability of housing and healthcare remain significant challenges for average Chinese citizens.

The 13th FYP outlines seven targets that address these remaining challenges; three are binding (see population-related targets in Appendix II).¹⁹⁸ These targets seek to increase household disposable income, expand basic retirement insurance coverage, reduce the number of residents living below the poverty line, redevelop urban shantytowns, and expand average education levels.¹⁹⁹ Broader urbanization efforts, higher-value-added manufacturing, and environmental reforms will also bolster the 13th FYP goals to alleviate poverty, boost domestic consumption, and create new drivers of economic growth.

Reform the Household Registration System

A major contributor to China's urban-rural divide is the hukou (household registration system), which controls individuals' access to healthcare, education, pensions, and other aspects of the social safety net based on their place

of birth. Around 260 million rural residents have migrated to urban areas over the last three decades in pursuit of higher paying jobs, but have been largely unable to access urban public services, schools, and healthcare due to the hukou controls.²⁰⁰ Based on the 2005 One Percent Population Survey (latest data available), 85.5 percent of local urban hukou holders in Beijing and Shanghai have obtained pension benefits compared with 12.7 percent of rural migrants living in Beijing and Shanghai.²⁰¹ For unemployment benefits, the 2005 One Percent Population Survey found that 47 percent of urban residents in Beijing and Shanghai had coverage compared with 5.6 percent of rural migrants in those same cities.²⁰² As a result of limited access to healthcare and education, migrant workers left more than 60 million children behind with grandparents or on their own while they moved to the cities for work.²⁰³

The 13th FYP reaffirms plans—originally laid out in the Third Plenum and detailed in the Fifth Plenum—to reform the hukou system.²⁰⁴ The 13th FYP aims to increase the share of the population registered as permanent urban residents under the hukou from 39.9 percent in 2015 to 45 percent in 2020, specifically in central and western provinces.²⁰⁵ As Damien Ma noted, this increase is “a very modest target.”²⁰⁶ While an improvement, the net labor productivity gains from urbanization (i.e., higher wages, more educated workforce) remain limited because the Chinese government is halting population growth in megacities,* where the most stable employment and high-quality education opportunities are located, and instead attempting to shift this migration to second-, third-, and fourth-tier cities.²⁰⁷ Beijing, Shanghai, Guangzhou, and Tianjin control the number of migrants earning those cities’ hukou by maintaining a points system based on factors such as employment, housing, educational background, and skill level.²⁰⁸ This system is rigged against migrants, who are generally unable to meet the necessary qualifications and, even if they qualify, are still not granted those cities’ hukou.²⁰⁹ In 2015, the Shanghai municipal government provided urban hukou to only 26,000 of the 300,000 migrant workers who met minimum requirements.²¹⁰ The Shanghai municipal government is unlikely to add a significant number of new urban hukou registrants because it plans to keep the city’s 2040 population at 25 million, roughly equal to its current population.²¹¹ In August 2016, the State Council announced it would create a national basic public service market to include services such as pension, healthcare, and compulsory education,²¹² which would allow for greater portability of benefits. However, it remains to be seen how this policy will be implemented and paid for.

Raise the Standard of Living

Although more than 800 million Chinese citizens were lifted out of poverty since the 1980s, China remains home to more than 70 million people—mainly in rural areas—living below the poverty line of \$376 in annual income (at 2010 prices).²¹³ The 13th FYP sets a binding target to reduce the number of rural residents living in poverty by 55.75 million by 2020.²¹⁴ In support of this goal, Premier Li announced in March 2016 an 8 percent increase in per capita subsidies for people living in extreme poverty in rural areas and a 5 percent increase in per capita subsidies for people living in extreme poverty in urban areas.²¹⁵ In addition, the Chinese government will relocate around 16 million people in impoverished areas to more developed areas: 9.8 million are below the \$2 per day poverty line; 3.2 million live in areas affected by severe soil erosion, water depletion, and severe desertification; and 3.4 million live in remote areas without access to basic infrastructure, education, or medical care.²¹⁶ The central and local governments announced they will consult with these citizens on where they will be relocated and provide job training, health insurance, a pension, and livelihood support to those relocated.²¹⁷

More broadly, the 13th FYP sets targets to raise disposable income, expand access to public services, and encourage limited population growth. The 13th FYP moves away from separate urban and rural annual per capita disposable

* In 2014, the State Council defined megacities as cities with a population that exceeds 10 million people. Shanghai, Beijing, Chongqing, Guangzhou, Tianjin, and Shenzhen all surpass this threshold. For example, in 2014, Shanghai’s registered population totaled 24.3 million, and Beijing’s reached 21.5 million. Li Jing, “China Creates New Megacity Label for Biggest Urban Centers,” *South China Morning Post*, November 21, 2014. <http://www.scmp.com/news/china/article/1644834/china-creates-new-megacity-label-biggest-urban-centres>; Yang Jian, “City Set for Global Excellence by 2040,” *Shanghai Daily*, August 23, 2016. <http://www.shanghaidaily.com/metro/society/City-set-for-global-excellence-by-2040/shdaily.shtml>; Zheng Jinran and Cao Yin, “Beijing to Limit Population Growth this Year,” *China Daily*, January 24, 2015. http://www.chinadaily.com.cn/china/2015-01/24/content_19394117.htm.

income targets pursued in the 11th and 12th FYPs to a national average target of more than 6.5 percent annual average growth of per capita disposable income, a slight decrease from the 7 percent annual growth target under the 12th FYP.²¹⁸

China's aging population and shrinking workforce are placing significant pressure on China's social safety net, healthcare system, and labor cost competitiveness. The proportion of China's population aged 65 and over is projected to increase from 9.6 percent in 2015 to 24.6 percent by 2040, and the absolute number of working-age people in China peaked in 2012.²¹⁹ Beyond moving up the value-added chain and improving its healthcare, China aims to increase universal social security coverage from 82 percent in 2015 to 90 percent of the senior population by 2020.²²⁰ The 13th FYP also reiterates the Fifth Plenum's pledge to relax China's family planning policy—commonly referred to as the “one-child” policy—and widen the eligibility of families to have two children.²²¹ A population cap is no longer a target as it was in the 11th and 12th FYPs; in fact, China hopes the relaxed family planning policies will increase China's population from 1.38 billion in 2015 to around 1.42 billion in 2020.²²²

Build a Healthy China

The 13th FYP continues efforts started under the 12th FYP to create a healthcare system that is efficient, safe, affordable, and accessible by reducing the cost of medicine, improving rural access to healthcare, and improving medical assistance programs.^{*} ²²³ Under the 12th FYP, the Chinese government expanded its basic health insurance to provide near universal coverage.²²⁴ The Chinese government also spent \$1.3 trillion from 2008 to 2014 on health to bring down the share of Chinese citizens' out-of-pocket healthcare spending from 40 percent in 2008 to 32 percent in 2014.²²⁵ However, the Chinese government has not been able to rein in the soaring medical costs and overcrowding at large hospitals that this expanded access brings,²²⁶ and substandard care[†] remains a key challenge.²²⁷ To reduce health-related costs for Chinese citizens over the next five years, the annual government medical insurance subsidy for rural and unemployed urban residents will increase 10.5 percent from around \$57 (RMB 380) to over \$64 (RMB 420) per person.²²⁸ Although an improvement, this subsidized insurance covers only a very limited number of services.²²⁹ Medical bills still account for 44 percent of Chinese families pushed into poverty, according to official data.²³⁰ The central government has also earmarked \$1.9 billion (RMB 12.6 billion) to train general practitioners in order to address the shortfall in the number of Chinese doctors.²³¹ Through these efforts, the Chinese government is striving to increase the average life expectancy by one year from 76.3 in 2015 to 77.3 in 2020.²³²

Promote Education

Education continues to be a major determinant of a Chinese citizen's job prospects and social mobility. The 13th FYP supports higher education of China's population and aims to improve the affordability and quality of education, particularly for poor and rural Chinese citizens. The 13th FYP builds upon the successes of the 11th and 12th FYPs

^{*} For more information on China's healthcare industry, see U.S.-China Economic and Security Review Commission, Chapter 1, Section 3, “China's Healthcare Industry, Drug Safety, and Market Access for U.S. Medical Goods and Services,” in *2014 Annual Report to Congress*, November 2014, 127–171.

http://origin.www.uscc.gov/sites/default/files/Annual_Report/Chapters/Chapter%201%3B%20Section%203%20China%27s%20Health%20Care%20Industry%2C%20Drug%20Safety%2C%20and%20Market%20Access%20for%20U.S.%20Medical%20Goods%20and%20Services.pdf; U.S.-China Economic and Security Review Commission, *Hearing on China's Healthcare Sector, Drug Safety, and the U.S.-China Trade in Medical Products*, April 3, 2014. <http://www.uscc.gov/Hearings/hearing-china%E2%80%99s-healthcare-sector-drug-safety-and-us-china-trade-medical-products-webcast>.

[†] Interest in high-quality medical treatment has led a growing number of Chinese citizens travelling to the United States for medical treatment. For more information, see Matt Snyder and Nicole Stroner, “Chinese Tourism and Hospitality Investment in the United States,” *U.S.-China Economic and Security Review Commission*, July 25, 2016, 10–12. http://origin.www.uscc.gov/sites/default/files/Research/Staff%20Report_Chinese%20Tourism%20and%20Hospitality%20Investment072516.pdf.

to increase the rate of school enrollment to reach an average length of schooling among the working-age population (people aged 16–59) of 10.8 years by 2020, up from 10.23 years in 2015.²³³

The 13th FYP targets also aim at reducing the widening urban-rural and rich-poor divides by increasing the affordability and quality of education. Currently, hukou restrictions prevent rural students from enrolling in subsidized urban education, so rural students must rely on their local schools, which are generally overcrowded, academically weaker, and poorer.²³⁴ These rural students then compete for seats in universities against better-prepared urban students, who are able to afford high school education and the additional tutors they need to do well on their university entrance exams.²³⁵ Income disparity worsens these divides. For example, introduction fees—in effect, bribes—for entry into better urban schools alone can total more than \$10,000, far exceeding the 2015 annual per capita disposable income of average urban and rural workers at \$4,656 (RMB 25,337) and \$1,705 (RMB 8,998), respectively.²³⁶ To improve the quality of education in rural and poorer regions, the central government pledged to reduce the size of classes from 66 to less than 57 students by 2020 and allocate a greater share of funds to the poorer central and western regions in China, while also increasing teachers' salaries and benefits in rural areas.²³⁷ In addition, plans for loosening hukou restrictions promise to remove another barrier for migrants' children to attend school in the urban areas where their parents work, but progress has been limited in megacities, where the best jobs and schools are located.

Recent efforts to expand access to higher education for students from impoverished regions have faced backlash from urban residents.²³⁸ In May 2016, the Ministry of Education ordered 12 cities and provinces to set aside 160,000 spaces at universities for students from 10 impoverished regions such as Yunnan and Guizhou at the expense of reductions to the number of locally admitted students.²³⁹ Parents in Wuhan, Harbin, and at least six cities in Jiangsu Province protested outside government offices against this reallocation, which would make it more difficult for their children to get into top-ranked local universities.²⁴⁰ Hubei, Jiangsu, Zhejiang, Sichuan, and Shaanxi Province yielded to these demands, scrapping plans to admit nonlocal students, highlighting the difficulty between fixing the unfair education system and resistance from entrenched interests that have benefited from the current system.²⁴¹

Funding Challenges

Achieving the ambitious objectives laid out in the 13th FYP will be costly: urbanization, healthcare, and green energy and environmental priorities alone will require \$8.1 trillion (RMB 54 trillion) of public and private investment by 2020 (see Table 4 for the costs of select 13th FYP initiatives). An April 2015 report by more than 40 leading Chinese financial policy and regulation experts and government officials estimated that the Chinese government will only be able to fund between 10 to 15 percent of the estimated \$1.5 trillion (RMB 10 trillion) investment required over the next five years for meeting its energy and environmental priorities.*

To close the funding gap, the Chinese government is encouraging greater domestic and international private investment through promoting public-private partnerships and loosening capital controls on capital inflows. However, despite all levels of government heavily promoting public-private partnerships, only 39 percent of the more than 600 public-private partnership projects implemented in the first half of 2016 have private business partners, according to the Ministry of Finance.²⁴² Weiping Wu, professor and chair of the Department of Urban and

* The \$1.5 trillion (RMB 10 trillion) of needed investment includes: \$597 billion (RMB 4 trillion) in environmental protection, \$373.1 billion (RMB 2.5 trillion) for clean transportation, \$373.1 billion (RMB 2.5 trillion) for clean energy, and \$149.3 billion (RMB 1 trillion) for energy efficiency. This estimate is based on the *12th FYP Environmental Protection Plan* and the Ministry of Environmental Protection environmentally-related investments during the 12th FYP (final investment expected to exceed RMB 5 trillion under the 12th FYP), *2014 Plan on Water Pollution Prevention* (RMB 2 trillion expected), *2014 Plan on Air Pollution Prevention and Control* (RMB 1.7 trillion expected), *China Railway Annual Report* (RMB 800 billion allocated in 2014), Renewable Energy Policy Network (RMB 350 billion invested in 2013), and Bloomberg's estimate of renewable energy investment (RMB 420 billion invested in 2012). People's Bank of China and U.N. Environment Program, *Establishing China's Green Financial System: Report of the Green Finance Task Force*, April 2015, 5. <https://www.cbd.int/financial/privatesector/china-Green%20Task%20Force%20Report.pdf>.

Environmental Policy and Planning at Tufts University, testified to the Commission that private domestic and international investors remain unwilling to invest in China's public-private partnerships due to China's opaque and fragmented legal and regulatory frameworks and the lack of an enforceable dispute resolution system.²⁴³ Addressing these concerns would mean the Chinese government and CCP would have to stop interfering in the financial, regulatory, and judicial systems—a political trade-off that the government has, thus far, been unwilling to make.

Table 4: Expected Total Costs of Select Initiatives under the 13th FYP

Initiatives	Estimated Public and Private Sector Costs (2020)
Urbanization	\$6.3 trillion (RMB 42 trillion)
Healthcare	\$298.9 billion (RMB 2 trillion)
Green Energy and Environmental Priorities	\$1.5 trillion (RMB 10 trillion)
TOTAL	\$8.1 trillion (RMB 54 trillion)

Note: Urbanization cost estimates are from 2014 to 2020. Healthcare expenditures are based on a study by the World Bank, Chinese government agencies, and Chinese researchers that calculated a 9.4 percent annual increase in real healthcare costs from 2015 to 2020 under a business-as-usual scenario.

Source: Amy He, "The World's Biggest Uprooting," *China Daily*, April 11, 2014. http://usa.chinadaily.com.cn/epaper/2014-04/11/content_17427250.htm; World Bank Group, et al., "Deepening Health Reform in China: Building High-Quality and Value-Based Service Delivery," July 22, 2016, 14–15. <https://openknowledge.worldbank.org/bitstream/handle/10986/24720/HealthReformInChina.pdf>; People's Bank of China and UN Environment Program, *Establishing China's Green Financial System: Report of the Green Finance Task Force*, April 2015, 5. <https://www.cbd.int/financial/privatesector/china-Green%20Task%20Force%20Report.pdf>.

Conclusions

With the 13th FYP, the Chinese government lays out an ambitious agenda to rebalance China's economy and improve the quality of life for its citizens. If implemented, China's transition toward greater domestic consumption and more market-led economic growth would rebalance its economy and promote a more sustainable growth model. This transition could open up enormous opportunities for U.S. businesses—contingent upon China granting foreign firms greater market access—and new avenues for U.S.-China bilateral cooperation. But major obstacles to the plan's successful implementation lie in the CCP's reluctance to reduce its involvement in all aspects of society and the economy, difficult policy tradeoffs, strong resistance from vested interests, and enormous funding demands. Similar to the 11th and 12th FYPs, the 13th FYP may be successful at meeting its targets but fail to address the key underlying issues these targets are intended to address, such as increasing efficiency by letting market forces dictate outcomes.²⁴⁴ How the CCP and the Chinese government address these challenges will determine the success of the 13th FYP's goal of ensuring China's long-term economic growth and prosperity.

The 13th FYP represents a step back from China's Third Plenum pledge to allow the market to play a "decisive role" by reiterating the CCP's central role in China's economic and social development.²⁴⁵ The Chinese government's intervention in the economy, particularly its ham-fisted response to the stock market collapse in the summer of 2015 and early 2016,^{*} counteracts the very market drivers it is hoping to unleash in order to more efficiently allocate capital and create more globally competitive firms. Continued CCP interference in the regulatory

^{*} For additional information on China's stock market collapse, see Nargiza Salidjanova, "China's Stock Market Collapse and Government's Response," *U.S.-China Economic and Security Review Commission*, July 13, 2015. <http://origin.www.uscc.gov/sites/default/files/Research/China%E2%80%99s%20Stock%20Market%20Collapse%20and%20Government%E2%80%99s%20Response.pdf>; Nargiza Salidjanova, "China's Stock Market Meltdown Shakes the World, Again," *U.S.-China Economic and Security Review Commission*, January 15, 2016. <http://origin.www.uscc.gov/sites/default/files/Research/Issue%20brief%20-%20China%27s%20Stocks%20Fall%20Again.pdf>.

and judicial systems hinders accountability and good governance as party politics trumps the law. For U.S. and other foreign firms, the Chinese government's persistent intervention in society, the economy, and the legal system continues to challenge their ability to compete fairly both in China and abroad. For example, global investors remain unwilling to invest in China's public-private partnerships due to a number of government-related risks, including a preference for state-owned enterprises over independent firms, opaque legal and regulatory frameworks, and lack of an enforceable dispute resolution system.²⁴⁶

In addition, the Chinese government's continued interference in the domestic economy and legal system reinforces its objective to open the world to China, not China to the world. The Chinese government continues to use preferential support for domestic firms, localization targets, and high market access barriers to build domestic capacity and eventually replace foreign technology and products with domestic technology and production first at home then abroad.²⁴⁷ These policies are slowly closing market opportunities for U.S. and other foreign firms in China, and creating new Chinese competitors that will be able to challenge U.S. companies in the United States and in third country markets, with potential negative impacts on U.S. employment, productivity, and innovation.

High market access barriers for foreign firms remain and are only loosened in sectors where China is seeking to meet demand and build domestic capacity. For example, the Chinese government has permitted foreign investment in the automobile and aviation* sectors—industries the Chinese government has long sought to develop—but this access has come at a cost. Foreign automotive and aviation firms must form joint ventures with Chinese SOEs and integrate Chinese firms into their production and supply chains as the price of entry.[†]

In line with its objectives to move up the value-added chain and meet its growing domestic consumption needs, the Chinese government uses the 13th FYP to encourage advanced technology and high-quality consumer product imports and inbound foreign investment in select industries.²⁴⁸ This lowering of market barriers on previously restricted sectors creates new markets for foreign firms. However, this expanded access is unlikely to last. The Chinese government has a history of gradually pushing out foreign firms by reinstituting investment restrictions once domestic firms become competitive.²⁴⁹

Difficult policy tradeoffs between long-term and short-term economic growth hampered meaningful reform under the 12th FYP. The Chinese government risks an economic slowdown and instability if it implements reforms too quickly, but risks falling into the middle-income trap if reforms are implemented too slowly or not at all.²⁵⁰ The unsuccessful efforts of the Chinese government over the last decade to shutter excess capacity[‡] in the steel sector due to employment and social stability concerns exemplify this dilemma.²⁵¹ Globally, China's continued support for its steel industry has created a worldwide glut in production, weakening international prices and forcing U.S. and other foreign firms to curtail production, shed capacity, cut employment, and reduce capital expenditures.²⁵²

Vested interests have also resisted needed reforms. For example, last's year push back from entrenched SOE and ministerial interests resulted in SOE reforms so watered down that Andrew Batson, China research director at the economics and market research firm Gavekal Dragonomics, described them as “an ungainly mishmash of

* For in-depth analysis of China's commercial aerospace industry, see Keith Crane et al., “The Effectiveness of China's Industrial Policies in Commercial Aviation Manufacturing,” *RAND Corporation*, April 2014.

http://www.rand.org/content/dam/rand/pubs/research_reports/RR200/RR245/RAND_RR245.pdf; Roger Cliff, Chad J.R. Ohlandt, and David Yang, “Ready for Takeoff: China's Advancing Aerospace Industry (prepared for the U.S.-China Economic and Security Review Commission), March 1, 2011. <http://www.uscc.gov/Research/ready-takeoff-china%E2%80%99s-advancing-aerospace-industry>.

† For more information on China's policies and their impact on U.S. firms in automotive, commercial aviation, and semiconductors, see U.S.-China Economic and Security Review Commission, Chapter 1, Section 3, “China's 13th Five-Year Plan,” in *2016 Annual Report to Congress*, November 2016, 151–161. http://origin.www.uscc.gov/sites/default/files/Annual_Report/Chapters/Chapter%201%2C%20Section%203%20-%2013th%20Five-Year%20Plan.pdf.

‡ For additional analysis on China's overcapacity, see U.S.-China Economic and Security Review Commission, Chapter 1, Section 2, “State-Owned Enterprises, Overcapacity, and China's Market Economy Status,” in *2016 Annual Report to Congress*, November 2016, 103–114. http://origin.www.uscc.gov/sites/default/files/Annual_Report/Chapters/Chapter%201%2C%20Section%202%20-%20State-Owned%20Enterprises%2C%20Overcapacity%2C%20and%20China%27s%20Market%20Economy%20Status.pdf.

bureaucratic compromises that sets no clear goals and is riven by internal contradictions.”²⁵³ Similarly, resistance from municipal governments that object to the increased financial burdens from reforming the hukou system without fiscal reform and pushback from urban Chinese families unwilling to change their privileged status within the existing education system have hindered meaningful progress.²⁵⁴

Finally, the 13th FYP’s agenda will require significant private capital to adequately fund its mandates. Urban infrastructure projects, healthcare and pension spending, and environmental remediation efforts alone will cost trillions of dollars.²⁵⁵ The Chinese government has already acknowledged it will only be able to fund a portion of these needed efforts and is seeking foreign and domestic private investment to make up the difference.²⁵⁶ But to attract this investment, the Chinese government will need to further loosen capital controls, limit intervention in the market, and lower existing market access barriers for U.S. and other foreign financial service firms.²⁵⁷ The Chinese government has thus far not implemented such reforms because they weaken the role of the state and increase market volatility.

Appendix I: Formulation of the 13th FYP

FYPs establish China's industrial policy by outlining the Chinese government's priorities and signaling to central and local officials and industries the areas for future government support. The NDRC, China's industrial policy-making agency, coordinates the drafting process with input from State Council ministries, oversight by the State Council and CCP Politburo, and final ratification by the NPC (see Figure 4 for a timeline).

In 2013, the NDRC, along with independent third-party evaluators* such as Tsinghua University and the China Research Foundation for Economic Reform, evaluated the 12th FYP against its targets and identified implementation challenges.²⁵⁸ This review was subsequently presented at the NPC and informed the 13th FYP drafting process by identifying key research areas and outstanding issues.²⁵⁹

In April 2014, the NDRC began soliciting applications from academia, industry, government agencies, and international organizations such as the Organization for Economic Cooperation and Development, Asian Development Bank, and McKinsey Global Institute for participation in its initial research for the 13th FYP.²⁶⁰ The public was also encouraged to provide suggestions and comments via WeChat, but the degree of influence these comments had on the final FYP remains unclear.²⁶¹ On May 20, 2014, the NDRC published a document listing 27 topics to be researched in preparation for drafting the 13th FYP; the document assigned an organization and "responsible person" to research each topic.²⁶² The responsible persons who proposed the 27 topics were chosen by the NDRC from 265 applications for their expertise and importance to the overall policy debate.²⁶³ The NDRC incorporated the findings of these organizations' extensive research and analysis into setting the targets of the FYP and framing the "general concepts" that broadly outlined the direction of China's economic and social development.

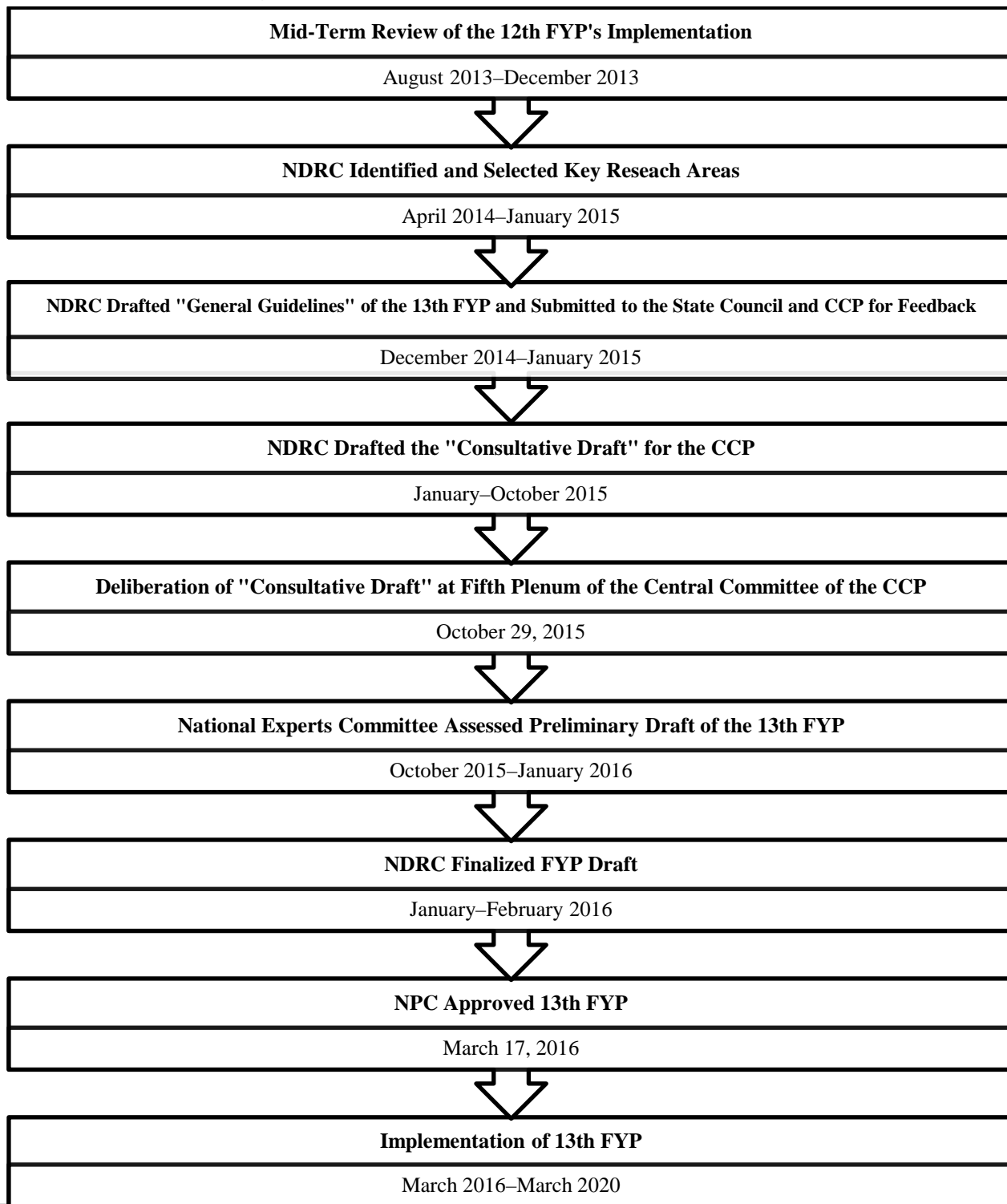
In March 2015, the NDRC submitted general concepts to the CCP Central Committee. Based on direction from the CCP Central Committee, the NDRC and CCP drafted parallel FYP documents.²⁶⁴ From March to October 2015, the Leading Small Group on Economics and Finance, one of the most important leading groups that reports directly to the CCP Politburo, drafted the CCP's proposed 13th FYP.²⁶⁵ On November 3, 2015, at the Fifth Plenum, the CCP Central Committee released the general "guidelines" (建议; *jiānyì*) that provided the basis for the forthcoming FYP.[†] Simultaneously, the NDRC drafted the full FYP and revised the draft FYP to incorporate the November 2015 guidelines.²⁶⁶ Over the next four months, the National Experts Committee, consisting of 55 experts chosen by the State Council, conducted an extensive review and assessment of the NDRC's draft 13th FYP.²⁶⁷

On March 17, 2016, the NPC ratified the "outline" (纲要; *gāngyào*), generally referred to as the FYP, which establishes the Chinese government's key objectives and broad policy strategies for the next five years.²⁶⁸ Based on this national outline, ministries and provincial governments draft subordinate plans—tailored to each province and for specific sectors of the economy—that explain in greater detail how the Chinese government will achieve these objectives (see Appendix IV for a list of select 13th FYP and related plans).²⁶⁹

* Since the 11th FYP, the NDRC has incorporated independent third-party evaluators—with varying degrees of success. U.S.-China Economic and Security Review Commission, *Hearing on China Ahead of the 13th Five-Year Plan: Competitiveness and Market Reform*, written testimony of Oliver Melton, April 22, 2015, 4. <http://www.uscc.gov/sites/default/files/Melton%20-%20Written%20Testimony.pdf>.

† For the full text of the CCP's draft 13th FYP, see *Communist Party News*, "CPC Central Committee on National Economic and Social Development 13th Five-Year Plan Guidelines," November 3, 2015. Staff translation. <http://cpc.people.com.cn/n/2015/1103/c399243-27772351.html>.

Figure 4: Timeline on the Formulation of China's 13th FYP



Source: Andrew Moffat, Peter Hirsch, and Anna Young, "China's Five-Year Plan." <http://visuals.datadriven.yale.edu/china-five-year-plan/>; Rebecca Nadin, Jessie Liu, and Koh Fui Pin, "Want to Know by Who and How China's 13th Five Year Plan Was Drafted?" March 4, 2016. <https://www.linkedin.com/pulse/want-know-who-how-chinas-13th-five-year-plan-drafted-rebecca-nadin>.

Appendix II: Key Targets in China's 11th, 12th, and 13th FYPs*

Economic Targets

Target	11th FYP (2010 Target)	11th FYP Category	2010 (Actual)	12th FYP (2015 Target)	12th FYP Category	2015 (Actual)	13th FYP (2020 Target) [Average Annual Rate]	13th FYP Category
GDP	—	—	—	—	—	67.7 billion RMB	>92.7 billion RMB (E)	<i>Economic Development</i>
Average GDP Growth	7.5% (E)	Economic Growth	11.2%	7% (E)	Economic Develop- ment	7.8%	>6.5% (E)	
Average GDP Growth Per Person	6.6% (E)	Economic Growth	10.6%	—	—	—	—	
Service Sector as % of GDP	43.3% (E)	Economic Structure	43%	47% (E)	Economic Develop- ment	50.5%	56% [5.5%] (E)	<i>Economic Development</i>
Service Sector as % of Total Employment	35.3% (E)	Economic Structure	34.8%	—	—	—	—	—
Overall Labor Productivity (RMB/person) +	—	—	—	—	—	87,000	>120,000 [>6.6%] (E)	<i>Economic Development</i>
Urbanization								
Urbanization Rate (%)	47% (E)	Economic Structure	47.5%	51.5% (E)	Economic Develop- ment	56.1%	60% [3.9%] (E)	<i>Economic Development</i>
Urban Hukou Household Registration Rate+	—	—	—	—	—	39.9%	45% [5.1%] (E)	

* In the charts, all targets highlighted in pink are binding targets, and targets with a + next to them are new in the 13th FYP. For comparison among the 11th, 12th, and 13th FYPs, all binding targets have a (B) next to them, and expected targets an (E). Binding targets are incorporated into the CCP's evaluation criteria at every level, while expected targets are either given less weight (such as GDP growth) or not included in the CCP evaluation criteria. U.S.-China Economic and Security Review Commission, *Hearing on China Ahead of the 13th Five-Year Plan: Competitiveness and Market Reform*, written testimony of Oliver Melton, April 22, 2015, 5. <http://www.uscc.gov/sites/default/files/Melton%20-%20Written%20Testimony.pdf>.

Science and Technology-Related Targets

Target	11th FYP (2010 Target)	11th FYP Category	2010 (Actual)	12th FYP (2015 Target)	12th FYP Category	2015 (Actual)	13th FYP (2020 Target) [Average Annual Rate]	13th FYP Category
R&D as % of GDP	2% (E)	Economic Structure	1.75%	2.2% (E)	Scientific Education	2.1%	2.5% [0.4%] (E)	<i>Innovation- Driven</i>
Patents per 10,000 People	—	—	1.7	3.3 (E)	Scientific Education	6.3	12 [5.7%] (E)	<i>Innovation- Driven</i>
Contribution of Science and Technological Advances to Economic Growth+	—	—	—	—	—	55.3% (E)	60% [4.7%] (E)	<i>Innovation- Driven</i>
Internet Penetration Ratio+								
<i>Fixed Broadband Household Penetration Ratio+</i>	—	—	—	—	—	40%	70% [30%] (E)	<i>Innovation- Driven</i>
<i>Mobile Broadband Subscriber Penetration Ratio+</i>	—	—	—	—	—	57%	85% [28%] (E)	

Population-Related Targets

Target	11th FYP (2010 Target)	11th FYP Category	2010 (Actual)	12th FYP (2015 Target)	12th FYP Category	2015 (Actual)	13th FYP (2020 Target) [Average Annual Rate]	13th FYP Category
Population Cap	1.36 billion (B)	Population, Resources, and the Environment (PRE)	1.341 billion	1.39 billion (B)	People's Life	1.375 billion	—	—
Average Life Expectancy	—	—	73.5	74.5 (E)	People's Life	76.34	[1 year] (E)	<i>People's Livelihood and Well-being</i>
Average Educational Attainment	9 Years (+0.5 Years) (E)	Public Services and People's Life (PSPL)	9 Years	—	—	—	—	—
Rate of Nine-Year Compulsory Education Enrollment	—	—	89.7%	93% (B)	Scientific Education	93%	—	—
Rate of High School Enrollment	—	—	82.5%	87% (E)	Scientific Education	87%	—	—

Target	11th FYP (2010 Target)	11th FYP Category	2010 (Actual)	12th FYP (2015 Target)	12th FYP Category	2015 (Actual)	13th FYP (2020 Target) [Average Annual Rate]	13th FYP Category
Average Years of Education of the Working-Age Population+	—	—	—	—	—	10.23 years	10.8 years [0.57%] (B)	People's Livelihood and Well-being
New Urban Jobs Created (5-year total)	45 million (E)	PSPL	57.71 million	45 million (E)	People's Life	64.31 million	>50 million (E)	People's Livelihood and Well-being
Transfer of Rural Labor (5-year total)	45 million (E)	PSPL	45 million	—	—	—	—	—
Urban Registered Unemployment Rate	5% (E)	PSPL	4.10%	Under 5%	People's Life	4.05%	—	—
Average Growth of Per Capita Disposable Income+	—	—	—	—	—	—	>6.5% (E)	People's Livelihood and Well-being
Urban Annual Per Capita Disposable Income (RMB)	13,390 (+5%) (E)	PSPL	19,109 (+9.7%)	>26,810 (>7%) (E)	People's Life	7.7%	—	—
Rural Annual Per Capita Disposable Income (RMB)	4,150 (+5%) (E)	PSPL	5,919 (+8.9%)	>8,310 (>7%) (E)	People's Life	9.6%	—	—
Reduce the Number of Rural Residents Living in Poverty+	—	—	—	—	—	—	55.75 million (B)	People's Livelihood and Well-being
Basic Retirement Insurance Coverage Rate+	—	—	—	—	—	82%	90% [8%] (E)	People's Livelihood and Well-being
Urban Population with Basic Retirement Insurance	223 million (+5.1%) (B)	PSPL	257 million	357 million (B)	People's Life	377 million	—	—
New Rural Cooperative Health Care Coverage	>80% (>56.5%) (B)	PSPL	96.3%	—	—	—	—	—
Working and Nonworking Urban and Rural Cooperative Health Care Coverage	—	—	—	>3% (B)	People's Life	>3%	—	—

Target	11th FYP (2010 Target)	11th FYP Category	2010 (Actual)	12th FYP (2015 Target)	12th FYP Category	2015 (Actual)	13th FYP (2020 Target) [Average Annual Rate]	13th FYP Category
Construction of Affordable Urban Housing (5-year total)	—	—	—	36 million housing units (B)	People's Life	40.13 million housing units	—	—
Reconstruction of Urban Shantytowns+	—	—	—	—	—	—	20 million housing units (B)	People's Livelihood and Well-being

Resource and Environment (R&E) Targets

Target	11th FYP (2010 Target)	11th FYP Category	2010 (Actual)	12th FYP (2015 Target)	12th FYP Category	2015 (Actual)	13th FYP (2020 Target) [Average Annual Rate]	13th FYP Category
Reduction in Energy Intensity per Unit of GDP	20% (B)	PRE	19.10%	16% (B)	R&E	18.2%	15% (B)	R&E
Air Quality								
<i>Ratio of Good Air Quality Days in Cities at the Prefecture Level* or Above+</i>	—	—	—	—	—	76.7%	>80% (B)	
<i>Reduction in the PM 2.5 Concentration that Exceeds 35 Micrograms per Cubic Meter in Cities at the Prefecture Level or Above+</i>	—	—	—	—	—	—	18% (B)	R&E
Surface Water Quality[†]								
<i>Percent of Water Meeting or Exceeding Class III Level+</i>	—	—	—	—	—	66%	>70% (B)	R&E

* Prefecture-level cities are a government administrative classification that ranks below a province but above a county.

[†] The Ministry of Environmental Protection classifies surface water into five categories based on toxicological indicators such as chemical oxygen demand, ammonia, mercury, and lead. Class I or II can be used as drinking water. Liu Hongqiao, "Who Is Responsible for China's Water?" *China Dialogue*, October 4, 2015. <https://www.chinadialogue.net/article/show/single/en/7839-Who-is-responsible-for-China-s-water->. For a complete list of these categories, see Ministry of Environmental Protection, *National Standards of the People's Republic of China*, GB3838-2002. http://english.mep.gov.cn/standards_reports/standards/water_environment/quality_standard/200710/W020061027509896672057.pdf.

Target	11th FYP (2010 Target)	11th FYP Category	2010 (Actual)	12th FYP (2015 Target)	12th FYP Category	2015 (Actual)	13th FYP (2020 Target) [Average Annual Rate]	13th FYP Category
<i>Percent of Water Exceeding the Class V Level+</i>	—	—	—	—	—	9.7%	<5% (B)	
Comprehensive Utilization Rate of Industrial Solid Wastes	60% (E) (+4.2%)	PRE	69%	—	—	—	—	—
Increase of Water Efficiency Coefficient in Agricultural Irrigation	0.5 (E) (+0.05)	PRE	0.5	0.53 (E)	R&E	0.532	—	—
Reduction of Water Consumption per Unit of Industrial Value Added	30% (B)	PRE	36.70%	30% (B)	R&E	35%	—	—
Reduction in the Water Consumption per 10,000 RMB of GDP+	—	—	—	—	—	—	23% (B)	R&E
Farmland Reserves	120 million hectare (B)	PRE	121.2 million hectare	121.2 million hectare (B)	R&E	124.3 million hectare	124.3 million hectare [0%] (B)	R&E
Land Use for New Construction* +	—	—	—	—	—	—	<2.14 million hectares (B)	R&E
Forest Development								
<i>Forest Coverage</i>	20% (B) (+1.8%)	PRE	20.36%	21.66% (B)		21.66%	23.04% [1.38%] (B)	
<i>Forest Stock</i>	—	—	13.7 trillion cubic meters	14.3 trillion cubic meters	R&E	15.1 trillion cubic meters	16.5 trillion cubic meters [14%] (B)	R&E
Reduction in Carbon Emissions per Unit of GDP	—	—	N/A	17% (B)	R&E	20%	18% (B)	R&E
Nonfossil fuel as a Percent of Primary Energy Consumption	—	—	8.30%	11.4% (B)	R&E	12%	15% [3%] (B)	R&E

* This binding target is seeking to increase the efficiency of new urban construction by raising population and economic density. Ministry of Land and Resources, *NPC and CPPCC Delegates Passionately Discuss the 13th Five-Year Plan Draft*, March 13, 2016. Translation. http://www.ml原因.gov.cn/xwdt/jrxw/201603/t20160313_1398875.htm.

Reduction of Emission of Major Pollutants						
<i>Reduction in Chemical Oxygen Demand (COD)</i>	—	—	—	8% (B)	12.9%	10% (B)
<i>Reduction in Sulphur Dioxide (SO₂)</i>	—	—	—	8% (B)	18.0%	10% (B)
<i>Reduction in Ammonia Nitrogen</i>	—	—	—	10% (B)	13.0%	15% (B)
<i>Reduction in Nitrous Oxides</i>	—	—	—	10% (B)	18.6%	15% (B)

Source: People's Republic of China, *12th Five Year Plan on National Economic and Social Development*, March 16, 2011. Translation. http://www.gov.cn/2011lh/content_1825838.htm; People's Republic of China, *13th Five-Year Plan on National Economic and Social Development*, March 17, 2016. Translation. http://www.gov.cn/xinwen/2016-03/17/content_5054992.htm.

Appendix III: Key Phrases and Policies in the 13th FYP

<p>Two Centenary Goals (两个百年奋斗目标 / 第二个百年奋斗目标) are two goals set by the CCP in 2012. The first goal is to “build a moderately prosperous society” by 2021 through doubling (1) China’s 2010 GDP and (2) average disposable income level.²⁷⁰ The 18th National Congress of the CCP established these two targets for the first centennial goal in 2012 and set the timeline for achieving these goals by 2021—the 100th anniversary of the founding of the CCP.²⁷¹ President Xi outlined that to achieve these centennial goals, during the 13th FYP China must maintain a 6.5 percent average annual growth rate and a 5.8 percent annual increase of the average disposable incomes.²⁷² The second centenary goal is to transform China into a modern socialist country that is prosperous, strong, democratic, culturally advanced, and harmonious country by 2049—the 100th anniversary of the founding of the People’s Republic of China.²⁷³</p>
<p>Building a Moderately Prosperous Society (建成小康社会) was first introduced by Deng Xiaoping (1978–1989) in 1979 with a focus on raising per capita GDP. In 2002, Jiang Zemin put forward this objective in the 16th National Congress of the CCP. Hu Jintao later widened the definition to include social concepts at the 17th National Congress in 2007.²⁷⁴ At the 18th National Congress in 2012, President Xi further expanded the definition to address economic, political, cultural, social, and ecological aspects, and this overarching goal forms the basis for the 13th FYP. Key aspects of this goal include: (1) achieve the two centenary goals, (2) expand Chinese citizens’ participation and enhance law-based governance, (3) strengthen China’s cultural soft power, (4) reduce poverty and income disparity and expand access to basic public services, and (5) improve the living environment for all Chinese citizens and shift toward more environmentally friendly development.²⁷⁵</p>
<p>New Normal Principle (经济发展新常态) has three core tenets: (1) transition from high-speed growth to medium-high-speed growth, (2) optimize and upgrade the economic structure, and (3) transition from a factor- and investment-driven economy to an innovation-driven economy.²⁷⁶ Senior leadership of the CCP and Chinese government began promoting this principle in 2014 as China registered its slowest economic growth in 24 years.²⁷⁷</p>
<p>Supply-Side Reforms (供给侧结构性改革) are aimed at boosting productivity and the effective use of production factors, including resources, skilled workers, and technology.²⁷⁸ Key objectives include: reducing overcapacity, reducing real estate inventory, deleveraging and otherwise strengthening balance sheets, and lowering corporate costs directly and by reducing government bureaucracy.²⁷⁹</p>
<p>Innovation-Driven Development (实施创新驱动发展战略) is seeking to increase Chinese entrepreneurship and strengthen China’s scientific and technological innovation capabilities.</p>
<p>Mass Entrepreneurship and Innovation (大众创业、万众创新 commonly referred to as 双创) seeks to leverage China’s over 900 million workers and 70 million small and medium-sized firms to create new sources of economic growth.²⁸⁰</p>
<p>Made in China 2025 (中国制造 2025) is a ten-year strategy to build intelligent manufacturing capabilities, enhance innovation, and upgrade ten key sectors. These sectors are: (1) new energy vehicles, (2) next-generation information technology, (3) biotechnology, (4) new materials, (5) aerospace, (6) ocean engineering and high-tech ships, (7) railway, (8) robotics, (9) power equipment, and (10) agricultural machinery.²⁸¹</p>
<p>Internet Plus (互联网+) seeks to build up China’s domestic mobile Internet, cloud computing, big data, and the Internet of Things sectors and create global competitors by assisting domestic firms’ expansion abroad.²⁸² The 13th FYP focuses on leveraging the interconnectivity and data from the Internet to optimize manufacturing, finance, healthcare, and government.²⁸³</p>
<p>One Belt, One Road (一带一路) initiative is aimed at facilitating access to natural resources and encouraging economic development in China’s poorer western provinces. This initiative is composed of a land-based economic corridor road through Central Asia and a maritime counterpart that will run through Southeast Asia and the Indian Ocean to Africa and the Mediterranean Sea.</p>

Four-Pronged Comprehensive Strategy (四个中心) refers to a holistic response to: (1) finishing building a moderately prosperous society in all respects, (2) deepening reform, (3) advancing the law-based governance of China, and (4) strengthening CCP self-conduct.²⁸⁴

Three Stricts, Three Honests (三严三实) is a slogan that refers to the need for CCP members to be strict in morals, power, and self-discipline, and honest in decisions, business, and behavior.²⁸⁵ It originated from President Xi's speech to Anhui Province's NPC in March 2014 and became a party-wide slogan in April 2015.²⁸⁶

Four Modernizations (四个现代化) represents China's push to modernize agriculture, industry, national defense, and science and technology.

New Era of Mass Tourism (大众旅游时代) refers to the expansion of paid vacations both at home and abroad, and the development of China's tourist industry.²⁸⁷

Appendix IV: List of Select 13th FYP and Related Plans*

National Plan and Strategy

Name (English)	Name (Chinese)	Issue date	Sector/area	Time span	Responsible agencies
<i>13th Five-Year National Economic and Social Development Plan (2016–2020)</i>	国民经济和社会发展第十三个五年规划纲要	March 2016	Comprehensive	2016–2020	State Council

Science and Technology Plans and Strategies

Name (English)	Name (Chinese)	Issue date	Sector/area	Time span	Responsible agencies
<i>863 High-Technology Research and Development Plan (863 Plan) Civilian Component</i>	国家高技术研究发展计划(863 计划)	March 1986	Strategic technologies	1986–present	Ministry of Science and Technology (MOST), Commission for Science, Technology and Industry for National Defense (COSTIND)/ State Administration for Science, Technology and Industry for National Defense (SASTIND), People's Liberation Army (PLA) General Armament Department (GAD)

* This list is not an exhaustive compilation of all China's state-directed plans and does not include municipal or provincial FYPs. It is based on Appendix A in Tai Ming Cheung et al., "Planning for Innovation: Understanding China's Plans for Technological, Energy, Industrial, and Defense Development," *University of California Institute on Global Conflict and Cooperation* (prepared for the U.S.-China Economic and Security Review Commission), July 28, 2016.

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[Understanding%20China%27s%20Plans%20for%20Tech%20Energy%20Industrial%20and%20Defense%20Development072816.pdf](http://origin.www.uscc.gov/sites/default/files/Research/Planning%20for%20Innovation-Understanding%20China%27s%20Plans%20for%20Tech%20Energy%20Industrial%20and%20Defense%20Development072816.pdf).

Additional 13th FYP-related plans were included based on a review of the State Council and ministerial websites.

National Basic Research Plan (973 Plan)	国家重点基础研究发展计划(973 计划)	1997	Comprehensive	1997–present	MOST, State Science, Technology, Education Leading Small Group
<i>Medium- and Long-Term Science and Technology Development Plan (2006–2020)</i>	国家中长期科学和技术发展规划纲要 (2006–2020)	February 2006	Comprehensive	2006–2020	State Council
<i>Notice to Implement Complementary Policies for National Medium- and Long-Term Science and Technology Development Plan (2006–2020)</i>	实施《国家中长期科学和技术发展规划纲要 (2006–2020 年)》若干配套政策的通知	March 2008	Comprehensive	2006–2020	State Council
<i>Guiding Opinions of the State Council on Deepening System and Organizational Reform and Accelerating the Implementation of an Innovation-Driven Development Strategy</i>	中共中央国务院关于深化体制机制改革加快创新驱动发展战略的若干意见	March 2015	Comprehensive	2015–2020	State Council
<i>13th Five-Year Science and Technology Innovation Plan</i>	“十三五”科技创新规划	August 2016	Comprehensive	2016–2020	MOST
<i>National Intellectual Property Strategy</i>	国家知识产权战略	June 2008	Intellectual property rights (IPR)	2008–2020	State Council
<i>Action Plan to Implement the National Intellectual Property Strategy (2014–2020)</i>	深入实施国家知识产权战略行动计划 (2014–2020 年)	January 2015	IPR	2014–2020	State Council
<i>13th Five-Year Intellectual Property Protection and Application Plan</i>	“十三五”国家知识产权保护和运用规划	January 2017	IPR	2016–2020	State Council
<i>National Medium- and Long-Term Major Scientific and Technological Infrastructure Construction Plan (2012–2030)</i>	国家重大科技基础设施建设中长期规划 (2012–2030 年)	March 2013	Infrastructure construction	2012–2030	State Council

<i>13th Five-Year Major Scientific and Technological Infrastructure Construction Plan</i>	重大科技基础设施建设“十三五”规划	December 2016	Infrastructure construction	2016–2020	NDRC, Ministry of Education, MOST, Ministry of Finance, Chinese Academy of Sciences, Chinese Academy of Engineering, National Natural Science Foundation, SASTIND, Equipment Development Department of the People's Liberation Army's Central Military Commission (formerly PLA GAD)
<i>Deepening Reform of the Central Government Science and Technology Plan (Projects, Funds, etc.) Management Plan</i>	关于深化中央财政科技计划（专项、基金等）管理改革的方案	January 2015	Science and Technology Funding	2014–2017	State Council
<i>Guiding Opinions of the State Council on Policies to Promote Mass Innovation and Entrepreneurship</i>	国务院关于大力推进大众创业万众创新若干政策措施的意见	June 2015	Innovation and entrepreneurship	2015	State Council

Defense and Dual-Use Plans and Strategies

Name (English)	Name (Chinese)	Issue date	Sector/area	Time span	Responsible agencies
863 High-Technology Research and Development Plan (863 Plan) Military Component	国家高技术研究发展计划(863 计划)-军口	March 1986	Strategic technologies	1986–present	MOST, COSTIND/ SASTIND, PLA GAD
New High-Technology Weapons Plan (995 Plan)	新型高科技武器计划 (995 计划)	1999	Defense technology	1999–present	Central Military Commission, PLA GAD
2006–2020 Medium- and Long-Term Defense Science and Technology Development Plan (MLDP)	国防科技工业中长期科学和技术发展规划纲要 (2006–2020)	May 2006	Defense R&D	2006–2020	COSTIND/ SASTIND

<i>Civilian Explosives Industry Development Plan (2016–2020)</i>	民用爆炸物品行业发展规划（2016—2020 年）	October 2016	Explosives	2016–2020	Ministry of Industry and Information Technology (MIIT)
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Industrial Economy Plans and Strategies

Name (English)	Name (Chinese)	Issue date	Sector/area	Time span	Responsible agencies
<i>13th Five-Year Market Supervision Plan</i>	“十三五”市场监管规划	January 2017	Government role in the market	2016–2020	State Council
<i>13th Five-Year Development of Strategic Emerging Industries Plan</i>	“十三五”国家战略性新兴产业发展规划	December 2016	Comprehensive	2016–2020	State Council
<i>Central Committee of the Chinese Communist Party and the State Council Guiding Opinion on Deepening the Reform of State-Owned Enterprise</i>	中共中央、国务院关于深化国有企业改革的指导意见	September 2015	State-owned enterprises	2015	Central Committee of the Chinese Communist Party and the State Council
<i>Promotion of Small and Medium-Sized Businesses Development Plan (2016–2020)</i>	促进中小企业发展规划（2016—2020 年）	July 2016	Small and medium-sized businesses	2016–2020	MIIT
<i>Promotion of Small and Medium-Sized Businesses Internationalization Five-Year Action Plan (2016–2020)</i>	促进中小企业国际化发展五年行动计划（2016—2020 年）	August 2016	Small and medium-sized businesses	2016–2020	MIIT
<i>Made in China 2025</i>	中国制造 2025	May 2015	Manufacturing	2015–2025	MIIT, Chinese Academy of Engineering
<i>Made in China 2025 Key Area Technology Roadmap</i>	《中国制造 2025》重点领域技术路线图（2015 版）	October 2015	Manufacturing	2015–2025	MIIT
<i>Made in China 2025 – Energy Equipment Implementation Plan</i>	中国制造 2025—能源装备实施方案》的通知	June 2016	Manufacturing, Energy	2016–2025	MIIT, NDRC, National Energy Administration (NEA)

<i>Industrial Technology Innovation Capabilities Development Plan (2016-2020)</i>	产业技术创新能力发展规划（2016—2020年）	October 2016	Innovation	2016-2020	MIIT
<i>Intelligent Manufacturing Development Plan (2016-2020)</i>	智能制造发展规划（2016-2020年）	December 2016	Manufacturing	2016-2020	MIIT, Ministry of Finance
<i>Guidelines on Promoting the Development of Industrial Robots</i>	关于推进工业机器人产业发展的指导意见	January 2014	Robotics	2014	MIIT
<i>Robotics Industry Development Plan (2016-2020)</i>	机器人产业发展规划（2016-2020年）	April 2016	Robotics	2016-2020	MIIT, Ministry of Finance, NDRC
<i>National Informationization Development Strategy (2006-2020)</i>	2006-2020年国家信息化发展战略	May 2006	Information and communications technology (ICT)	2006-2020	State Council
<i>“Broadband China” Strategy and Implementation Plan</i>	“宽带中国”战略及实施方案	August 2013	ICT	2013-2020	State Council
<i>Guiding Opinions of the State Council on Promoting Innovative Development of Cloud Computing and Fostering the New Form of Information Industry</i>	国务院关于促进云计算创新发展培育信息产业新业态的意见	January 2015	ICT	2015-2020	State Council
<i>Opinions on Promoting the Development of the Satellite Application Industry</i>	关于促进卫星应用产业发展若干意见	November 2007	ICT	2007-2020	NDRC, COSTIND/SASTIND
<i>National Medium- and Long-Term Development Plan for Navigation Satellites</i>	国家卫星导航产业中长期发展规划	October 2013	ICT	2013-2020	State Council
<i>National Geographic Information Industry Development Plan (2014-2020)</i>	国家地理信息产业发展规划（2014-2020）	August 2014	ICT	2014-2020	NDRC, National Administration of Surveying, Mapping, and Geoinformation
<i>“Internet Plus” Action Plan Guidelines</i>	“互联网+”行动的指导意见	July 2015	ICT	2015-2025	State Council

<i>Action Plan for Implementing “Internet Plus” Plan Action (2015-2018)</i>	贯彻落实《国务院关于积极推进“互联网+”行动的指导意见》行动计划（2015-2018年）	December 2015	ICT	2015-2018	MIIT
<i>Guiding Opinions of the State Council on Accelerating the Implementation of “Internet Plus” and Government Services Work</i>	关于加快推进“互联网+政务服务”工作的指导意见	September 2016	ICT	2016	State Council
<i>13th Five-Year National Informationization Plan</i>	“十三五”国家信息化规划	December 2016	ICT	2016–2020	State Council
<i>Guidelines to Promote National Integrated Circuit Industry Development</i>	国家集成电路产业发展推进纲要	June 2014	ICT	2014–2030	MIIT
<i>New Energy Vehicles Industry Development Plan (2012–2020)</i>	节能与新能源汽车产业发展规划(2012–2020年)	July 2012	New Energy Vehicles	2012–2020	State Council
<i>Guiding Opinions of the State Council on Accelerating the Promotion of New Energy Vehicles</i>	国务院办公厅关于加快新能源汽车推广应用的指导意见	July 2014	New Energy Vehicles	2014	State Council
<i>13th Five-Year Bioindustry Development Plan</i>	“十三五”生物产业发展规划	December 2017	Biotechnology	2016–2020	NDRC
<i>Guiding Opinions of the State Council on Promoting the Sound Development of the Medical Industry</i>	国务院办公厅关于促进医药产业健康发展的指导意见	March 2016	Medical	2016	State Council
<i>13th Five-Year Deepening Medical Care Hygiene and Sanitation System Reform Plan</i>	“十三五”深化医药卫生体制改革规划	January 2017	Medical and Healthcare	2016–2020	State Council
<i>Consumer Products Standards and Quality Upgrading Plan (2016–2020)</i>	消费品标准和质量提升规划（2016—2020年）	September 2016	Consumer Goods	2016–2020	State Council
<i>13th Five-Year Tourism Industry Development Plan</i>	“十三五”旅游业发展规划	December 2016	Tourism	2016–2020	State Council
<i>Comprehensive Agriculture Modernization Plan (2016–2020)</i>	全国农业现代化规划（2016—2020年）	October 2016	Agriculture	2016–2020	State Council

<i>National Agricultural Product Processing Industry and Rural Primary, Secondary and Tertiary Industry Integrated Development Plan (2016–2020)</i>	全国农产品加工业与农村一二三产业融合发展规划（2016—2020年）	November 2016	Agriculture	2016–2020	Ministry of Agriculture
<i>Guiding Opinions of the State Council on Further Promoting the Development of the Agricultural Product Processing Industry</i>	进一步促进农产品加工业发展的意见	December 2016	Agriculture	2016	State Council
<i>13th Five-Year Agriculture Mechanization Development Plan</i>	全国农业机械化发展第十三个五年规划	January 2017	Agriculture	2016–2020	Ministry of Agriculture
<i>13th Five-Year Comprehensive Ocean Utilization Plan</i>	全国海水利用“十三五”规划	December 2016	Ocean utilization	2016–2020	NDRC, State Oceanic Administration
<i>13th Five-Year National Fishing Industry Development Plan</i>	国渔业发展第十三个五年规划（2016–2020年）	January 2017	Fishing	2016–2020	Ministry of Agriculture
<i>Non-Ferrous Metals Industry Development Plan (2016–2020)</i>	有色金属工业发展规划（2016–2020年）	October 2016	Non-ferrous metals	2016–2020	MIIT
<i>Rare Earth Industry Development Plan (2016–2020)</i>	稀土行业发展规划（2016–2020年）	October 2016	Rare earth minerals	2016–2020	MIIT
<i>Comprehensive Mineral Resources Plan (2016–2020)</i>	全国矿产资源规划（2016–2020年）	November 2016	Minerals	2016–2020	State Council
<i>Petrochemical and Chemical Industry Development Plan (2016–2020)</i>	石化和化学工业发展规划（2016–2020年）	October 2016	Petrochemical and chemicals	2016–2020	MIIT
<i>Building Materials Industry Development Plan (2016–2020)</i>	建材工业发展规划（2016–2020年）	October 2016	Construction	2016–2020	MIIT
<i>Textile Industry Development Plan (2016–2020)</i>	纺织工业发展规划（2016–2020年）	September 2016	Textile	2016–2020	MIIT

Energy Sector Plans and Strategies

Name (English)	Name (Chinese)	Issue date	Sector/area	Time span	Responsible agencies
<i>Energy Development Strategy Action Plan (2014–2020)</i>	能源发展战略行动计划 (2014–2020 年)	November 2014	Comprehensive	2014–2020	State Council
<i>13th Five-Year Energy Development Plan</i>	能源发展“十三五”规划	November 2016	Comprehensive	2016–2020	NDRC, NEA
<i>13th Five-Year Power Sector Development Plan</i>	电力发展“十三五”规划 (2016–2020 年)	December 2016	Comprehensive	2016–2020	NDRC, NEA
<i>13th Five-Year Plan for Energy Saving and Emissions Reductions Work Plan</i>	“十三五”节能减排综合工作方案	January 2017	Comprehensive	2016–2020	NEA
<i>13th Five-Year Coal Industry Development Plan</i>	煤炭工业发展“十三五”规划	December 2016	Coal	2016–2020	NDRC, NEA
<i>Medium- and Long-Term Development Plan for Renewable Energy in China (2007–2020)</i>	可再生能源中长期发展规划(2007–2020)	September 2007	Renewable energy	2007–2020	NDRC
<i>13th Five-Year Renewable Energy Development Plan</i>	可再生能源发展“十三五”规划	December 2016	Renewable energy	2016–2020	NDRC
<i>13th Five-Year Solar Energy Development Plan</i>	太阳能利用“十三五”规划	December 2016	Solar	2016–2020	NEA
<i>Nuclear Safety and Radioactive Pollution Prevention 12th Five-Year Plan and Vision of 2020</i>	核安全与放射性污染防治“十二五”规划及 2020 年远景目标	October 2012	Nuclear	2012–2020	Ministry of Environmental Protection, NDRC, Ministry of Finance, NEA, SASTIND
<i>Climate Change Action Plan for Industries (2012–2020)</i>	工业领域应对气候变化行动方案(2012–2020)	January 2013	Climate change	2012–2020	MIIT, NDRC, Ministry of Finance
<i>National Climate Change Plan (2014–2020)</i>	国家应对气候变化规划 (2014–2020 年)	September 2014	Climate change	2014–2020	NDRC
<i>13th Five-Year Work Plan for Controlling Greenhouse Gas Emissions</i>	“十三五”控制温室气体排放工作方案	November 2016	Climate change	2016–2020	State Council

<i>Action Plan for Air Pollution and Control</i>	大气污染防治行动计划	September 2013	Environmental protection	2013–2017	State Council
<i>Action Plan on Water Pollution Prevention and Control</i>	水污染防治行动计划	April 2015	Environmental protection	2015–2030	State Council
<i>Action Plan on Prevention and Control of Soil Pollution</i>	土壤污染防治行动计划	May 2016	Environmental protection	2016–2030	State Council
<i>Action Plan on the Reduction of Volatile Organic Compounds in Key Industries</i>	重点行业挥发性有机物削减行动计划	July 2016	Environmental protection	2016–2018	MIIT, Ministry of Finance
<i>13th Five-Year Environmental Protection and Ecology Plan</i>	“十三五”生态环境保护规划	December 2016	Environmental Protection	2016–2020	State Council
<i>13th Five-Year National City Sewage and Wastewater Treatment and Water Recycling Facilities Construction Plan</i>	“十三五”全国城镇污水处理及再生利用设施建设规划	January 2017	Water treatment	2016–2020	NDRC, Ministry of Housing and Urban-Rural Development

Urbanization and Social-Related Plans and Strategies

Name (English)	Name (Chinese)	Issue date	Sector/area	Time span	Responsible agencies
<i>National Plan on New Urbanization (2014–2020)</i>	国家新型城镇化规划（2014—2020年）	March 2014	Urbanization	2014–2020	State Council
<i>Central China Megaregions Development Plan</i>	中原城市群发展规划	December 2016	Urbanization (Henan Province, Shanxi Province, An’hui Province, Hebei Province, and Shandong Province)	2016–2020	NDRC
<i>13th Five-Year Rural Economic Development Plan</i>	全国农村经济发展“十三五”规划	October 2016	Rural development	2016–2020	NDRC
<i>Outline on the Implementation of Building a Law-Based Government (2015–2020)</i>	法治政府建设实施纲要（2015—2020年）	December 2015	Judiciary	2015–2020	CPC Central Committee, State Council

<i>National Comprehensive Disaster Prevention and Alleviation Plan (2016–2020)</i>	国家综合防灾减灾规划（2016—2020 年）	January 2017	Disaster Prevention	2016–2020	State Council
<i>China’s Food and Nutrition Development Outline (2014–2020)</i>	中国食物与营养发展纲要（2014—2020 年）	January 2014	Health, Nutrition	2014–2020	State Council
<i>National Fitness Plan (2016–2020)</i>	全民健身计划（2016–2020 年）	June 2016	Health	2016–2020	State Council
<i>13th Five-Year Public Health and Sanitation Plan</i>	“十三五”卫生与健康规划	January 2017	Health	2016–2020	State Council
<i>National Occupational Disease Prevention and Cure Plan (2016–2020)</i>	国家职业病防治规划（2016–2020 年）	January 2017	Health	2016–2020	State Council
<i>13th Five-Year Poverty Alleviation Plan</i>	“十三五”脱贫攻坚规划	December 2016	Poverty alleviation	2016–2020	State Council
<i>Chinese Women’s Development Outline (2011–2020)</i>	中国妇女发展纲要（2011–2020 年）	August 2011	Gender	2011–2020	State Council
<i>Chinese Children’s Development Outline (2011–2020)</i>	中国儿童发展纲要（2011–2020 年）	August 2011	Youth	2011–2020	State Council
<i>Outline of the 13th Five-Year Acceleration of Disabled Persons’ Good Living Standards Process Plan</i>	“十三五”加快残疾人小康进程规划纲要	August 2016	Society	2016–2020	State Council
<i>National Disabled Persons Advancement Action Plan (2016–2020)</i>	国家残疾预防行动计划（2016–2020 年）	September 2016	Society	2016–2020	State Council
<i>National Population Development Plan (2016–2030)</i>	国家人口发展规划（2016–2030 年）	January 2017	Population	2016–2030	State Council

Endnotes

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