

Symposium: China and the International Legal Order

Accountability-Based, Data-Driven Governance through the Lens of Chinese Environmental Reform

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“SCORING SYSTEM BEGUN ON CREDIT.” It’s July 1961 and the *New York Times* has announced the advent of algorithm-driven credit scores.¹ “Scientifically determined series of weights” will now be applied to personal data to create “total credit scores,” in a swift thirty seconds.² In describing how one’s personal and financial characteristics will have a bearing on one’s credit-worthiness, the article raises some difficult questions: what characteristics should factor into a credit score?; how should factors be weighted?; and what is an acceptable minimum score? The relevance of these dilemmas to the quest of refining credit scores today suggests that these questions involve compromise and that there may exist no “right” formula to evaluate socio-economic, behavioral risk.

Or is there? This ambiguity, where data-driven governance meets ethics, is where our story begins. It leads us to ask why *The New York Times* did not question the practice of assigning credit scores to individuals in the first place. The article is notable precisely because it didn’t. The article strikes a very different, much more nonchalant tone about computerized credit scores than our media has afforded to recent and innovative developments in a different country: China’s social credit mega-project.³

In a stark contrast to 1961, the *New York Times* has characterized China’s social credit initiatives using more sensationalist terms since 2017: “China Names and Shames Tech Tycoon with Debt Blacklist.”⁴ “China to Debtors:

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1. Albert L. Kraus, *Scoring System Begun on Credit*, N.Y. TIMES (July 9, 1961), <https://timesmachine.nytimes.com/timesmachine/1961/07/09/118044097.pdf>.

2. *Id.*

3. See Jamie Horsley, *China’s Orwellian Social Credit Score Isn’t Real*, FOREIGN POL’Y (Nov. 16, 2018), <https://foreignpolicy.com/2018/11/16/chinas-orwellian-social-credit-score-isnt-real/>.

4. Raymond Zhong & Carolyn Zhang, *China Names and Shames Tech Tycoon with Debt Blacklist*, N.Y. TIMES (Dec. 3, 2017), <https://www.nytimes.com/2017/12/13/business/china-blacklist-jia-yueting-leeco.html>.

Pay Up or Be Shamed.”⁵ The Trump administration also compared China’s new credit initiative to “an Orwellian system premised on controlling virtually every facet of human life.”⁶ But aren’t debt blacklists and poor credit scores—two socially branding and opportunity-defeating “punishments”—very much alike?

This paper explores the political, legal, and ethical implications of the social credit system (SCS) in China against a larger backdrop of “accountability-based, data-driven governance” initiatives, like credit scores, that have anchored themselves in our lives as routine governance and that continue to propagate around the globe today.⁷ Studying SCS offers an opportunity to reflect on social credit as a logical progression of both Chinese political norms and global surveillance trends. To shed light on the governance trade-offs and the political logic underlying data-driven, accountability-based governance, the paper studies the scheme through its operationalization of China’s green agenda.

Why the environmental focus? There are many parallels that can be drawn between the protection of privacy from surveillance and the environment from pollution, stemming from the irreversible nature of damage that can be done to both.⁸ These days, scholars speak of surveillance pollution.⁹ But the intersection of privacy and environmental protection is a thorny one: environmental protection is rooted in data harvesting and monitoring—that is, surveillance—and relies on incentive schemes to encourage compliance with environmental regulations. Environmental protection is by nature a fragile balancing act between competing economic and environmental interests.¹⁰ Add in privacy and this balancing act becomes even more complicated, thus affording an important lens through which to study the goals, development, and tensions inherent in SCS and accountability-based, data-driven governance more generally.

In Part I, this paper overviews Chinese governance reforms in the field of environmental protection since the 1970s to provide context and points of comparison for the development of accountability-oriented governance in China today. In Part II, the paper more formally introduces the principle of

5. Keith Bradsher & Ailin Tang, *China to Debtors: Pay Up or Be Shamed*, N.Y. TIMES (Oct. 11, 2017), <https://www.nytimes.com/2017/10/11/business/china-shame-deadbeats.html>.

6. Horsley, *supra* note 3.

7. Larry Cata Backer, *Next Generation Law: Data-Driven Governance and Accountability-Based Regulatory Systems in the West, and Social Credit Regimes in China*, 28 S. CAL. INTERDISC. L.J. 123 (2018).

8. See Antonella Galetta & Paul De Heurt, *Complementing the Surveillance Law Principles of the ECtHR with its Environmental Law Principles: An Integrated Technology Approach to a Human Rights Framework for Surveillance*, 10 UTRECHT L. REV. 55, 55 (2014).

9. See *id.*

10. Heather Tallis & Stephen Polasky, *Here’s How We Can Balance Conservation and Development*, WORLD ECON. F. (Oct. 16, 2018), <https://www.weforum.org/agenda/2018/10/can-we-balance-conservation-and-development-science-says-yes/>.

“accountability-based, data-drive, governance” through the description of China’s social credit system (more literally translated as a system of social “trust”¹¹) as it applies to citizens. This section also discusses the roll-out of a social credit system in the environmental field via the enterprise environmental credit and a system of cadre evaluation. In Part III, the paper explores the criticism raised against the social credit system; among others, the prospect that it will increase the central Chinese government’s top-down control. Then, in Part IV, considering the high levels of approval for social credit in China,¹² the scheme’s effectiveness at curbing environmental degradation,¹³ its power-checking potential,¹⁴ and the convergence towards more accountability-based, data-driven governance across the world,¹⁵ the paper concludes by briefly reflecting on how much *trust* should be afforded to SCS initiatives generally. Are the fears that data-driven, accountability-based governance in China gives the Communist Party (CPC) a tightening and centralizing grip overblown? In this part, the paper distills the dilemmas SCS poses to all societies, China included, as we navigate the “promise and peril”¹⁶ of governance through transparency and incentive: a rule by algorithm.

I. CHINA’S ENVIRONMENTAL CHALLENGES AND REFORMS

A. Industrialization, Protectionism, and Growing Unrest

China faces some of the heaviest air, soil, and water pollution levels in the world.¹⁷ In the early 2000s, the severity of environmental degradation became particularly acute after decades of unchecked industrialization supported by a coal-dominated energy sector.¹⁸ In its transition to a market-oriented economy, China’s priority was first and foremost economic growth.¹⁹ Modus operandi: “Pollution first, treatment afterwards.”²⁰

In 1979, the Environmental Protection Law (EPL) established the first environmental protection bureaus (EPBs) across China.²¹ The EPL, however,

11. MARTIN CHORZEMPA ET AL., CHINA’S SOCIAL CREDIT SYSTEM: A MARK OF PROGRESS OR A THREAT TO PRIVACY? 11 (2018), <https://www.piie.com/system/files/documents/pb18-14.pdf>.

12. Genia Kostka, *China’s Social Credit Systems and Public Opinion: Explaining High Levels of Approval*, 21 NEW MEDIA & SOC’Y 1565, 1573 (2018).

13. See *infra* Part.II.C.

14. Alex L. Wang, *Explaining Environmental Information Disclosure in China*, 44 ECOLOGY L.Q. 865, 872 (2017).

15. See Karen Li Xan Wong & Amy Shields Dobson, *We’re Just Data: Exploring China’s Social Credit System in Relation to Digital Platform Ratings Cultures in Westernised Democracies*, 4 GLOB. MEDIA & CHINA 220, 225 (2019).

16. See Wang, *supra* note 14, at 874.

17. Jianguo Liu & Jared Diamond, *China’s Environment in a Globalizing World*, 435 NATURE 1179, 1179 (2005).

18. *Id.* at 1184; Joseph Kahn & Jim Yardley, *As China Roars, Pollution Reaches Deadly Extremes*, N.Y. TIMES (Aug. 26, 2007), <https://www.nytimes.com/2007/08/26/world/asia/26china.html>.

19. Bo Zhang et al., *A New Environmental Protection Law, Many Old Problems? Challenges to Environmental Governance in China*, 28 J. ENV’T. L. 325, 326 (2016).

20. *Id.*

21. *Id.*

was rudimentary and ill-enforced; in practice, many EPBs lacked any real enforcement power, and local administrators failed to hold polluters accountable, preferring to protect developing industries instead.²² With promotion prospects tied to local economic performance, local officials often intervened to block growth-jeopardizing regulations.²³ Weak courts systems often allowed business interests to override the enforcement of national environmental policies.²⁴

Revisions to EPL in 1989 introduced environmental impact assessment (EIA) requirements and new liability schemes that imposed discharge fees on polluters.²⁵ The law was an upgrade for the environment, but it precluded citizen participation in environmental assessments and conflicted with earlier laws on the books including the Water Pollution Prevention and Control Law which had previously instituted more protective discharge standards.²⁶ These conflicts suggest that national and local regulations alike were fragmented and cast doubt on the implementation gap theory, as advanced by Central authorities, to explain away local environmental scandals.²⁷

By the first decade of the 21st century, environmental problems gave rise to protests.²⁸ The number of environmental protests rose to 712 in 2013, a 31 percent increase from the previous year.²⁹ Around the same time, the World Bank and the Chinese Academy of Sciences estimated the costs of environmental degradation to hover around 3-8 percent and 15 percent of the country's annual GDP, respectively.³⁰ The internet was also increasingly used to facilitate the quick dissemination of data relating to environmental conditions. While *Under the Dome*,³¹ a documentary about air pollution, reached hundreds of thousands of viewers online, environmental scandals like dead pigs in the Huangpu River rattled the country.³²

22. *Id.*; Abigail R. Jahiel, *The Organization of Environmental Protection in China*, 156 CHINA Q. (Special Issue) 757, 767–68 (1998).

23. *Id.*; Wang, *supra* note 14, at 874 (noting nonetheless that local protectionism was not the only reason economic growth was prioritized over environmental regulation).

24. *See* Wang, *supra* note 14, at 875; Alex Wang, *The Role of Law in Environmental Protection in China: Recent Developments*, 8 VT. J. ENV'T L. 195, 202 (2007).

25. Zhang et al., *supra* note 19, at 326.

26. *See id.* at 327.

27. *See* Alex L. Wang, *The Search for Sustainable Legitimacy: Environmental Law and Bureaucracy in China*, 37 HARV. ENV'T L. REV. 365, 388 (2013).

28. Wang, *supra* note 14, at 885.

29. Eleanor Albert & Beina Xu, *China's Environmental Crisis*, COUNCIL FOREIGN RELS. (Jan. 18, 2016), <https://www.cfr.org/backgrounder/chinas-environmental-crisis>.

30. Wang, *supra* note 27, at 396.

31. Chai Jing, *Under the Dome—Investigating China's Smog*, YOUTUBE (Mar. 1, 2015), <https://www.youtube.com/watch?v=T6X2uwlQGQM>.

32. Nicola Davidson, *Rivers of Blood: the Dead Pigs Rotting in China's Water Supply*, GUARDIAN, (Mar. 29, 2013), <https://www.theguardian.com/world/2013/mar/29/dead-pigs-china-water-supply>.

B. “Green is Gold”³³: Environmental Data Mining

With mounting social pressure for reform, the environment became a decisive challenge for Party leadership.³⁴ The central government turned to new bureaucratic and administrative initiatives to spur greater public supervision and participation in environmental protection. Over the last fifteen years, the Party has adopted a range of increasingly stringent pollution reduction and energy efficiency targets in its five-year plans and spurred the development of information technology to manage China’s new “ecocivilization.”³⁵ In 2005, China’s state Council promulgated a Decision on Implementing Scientific Development and Strengthening Environmental Protection in an effort to operationalize these goals through the “perfection of a social supervision mechanism,” for public participation.³⁶ The Open Government Information Regulations followed in 2007 creating new obligations for the environmental protection bureaus to disclose environmental information to the public, including relevant local legislation, pollution levels, management controls, and response plans.³⁷ In line with this vision, EPBs then rolled out a “double sunshine program” in 2014 which required more than 7,600 facilities to disclose hourly data on air and water discharges—an unprecedented initiative in environmental surveillance.³⁸ The sunshine program also broadened public access to discharge pipes, encouraging nonprofit surveillance and “naming and shaming” to serve as a “backstop” to government monitoring.³⁹ In this way, the Central Party reinforced “hierarchical governmental trust,” a spin perhaps on the aforementioned implementation gap theory, shifting blame for environmental problems on local leadership by asking citizens to keep tabs on local officials for them.⁴⁰

More recently, informatization was championed by the central government through the Environmental Supervision System and Vertical Management Reform of Environmental Monitoring, Inspection and Law

33. See Xi Jinping’s Opinions on Ecological Civilization since 18th National Congress of CCP, PEOPLE DAILY (2015), <http://cpc.people.com.cn/n/2014/0826/c164113-25542941.html>; President Xi Voices Confirmation in Implementing Paris Agreement, Improving Global Climate Governance, State Council People’s Republic of China (Dec. 13, 2020), http://english.www.gov.cn/news/topnews/202012/13/content_WS5fd56f5dc6d0f72576941cbb.html; Green is Gold: China’s Remarkable Revival Project, UN Env’t Programme (Sept. 26, 2018), <https://www.unep.org/news-and-stories/story/green-gold-chinas-remarkable-revival-project>.

34. Albert & Xu, *supra* note 29.

35. Zhang et al., *supra* note 19, at 329; Wang, *supra* note 14, at 876.

36. Wang, *supra* note 14, at 879.

37. The law, for example, mandates EPBs respond to civil society requests for environmental information within 15 working days. Lei Zhang et al., *An Implementation Assessment of China’s Environmental Information Disclosure Decree*, 22 J. ENV’T SCIS. 1649, 1651 (2010).

38. Wang, *supra* note 14, at 894.

39. *Id.* at 894–95.

40. At the time, an estimated 64.4 percent of Chinese people believed the central government had tended to environmental protection and 60.6 percent were not satisfied with local government efforts. Ran Ran, *Understanding Blame Politics in China’s Decentralized System of Environmental Governance: Actors, Strategies and Context*, 231 CHINA Q. 634, 653 (2017).

Enforcement at the Provincial Level (VM).⁴¹ The Supervision System established a Central Group of Environmental Protection Supervision (CGEPS), a parallel apparatus for environmental surveillance that complements provincial monitoring efforts.⁴² The CGEPS set out in 2016 to supervise enterprises and cadres of local governments across sixteen of China's twenty-three provinces.⁴³ Called "imperial envoys," CGEPS ordered 10,512 enterprises to remedy environmental violations, issued 5,779 administrative penalties, collected 243 million RMB in fines, and subjected 2,682 individuals to CPC discipline and civil sanctions—in the space of a few months.⁴⁴ VM ultimately restructured sectorial allegiances by placing personnel appointments, monitoring and inspection, and budgetary and material resources of EPBs under the supervision of superior bureaus (vertical *tiao*-based management) instead of regional offices (horizontal, *kuai*-based management), as had been routine.⁴⁵

These developments have signaled China's move towards informatization—transparency via information technology—that has simultaneously enabled greater citizen oversight and centralized environmental governance. It is on this foundation that environmentally focused SCS or "accountability-based, data-driven governance" in China has taken root.

II. ACCOUNTABILITY-BASED DATA-DRIVEN GOVERNANCE AND THE PROMISE OF ENVIRONMENTAL REFORM

A. *The Development of Social Credit in China*

China's social credit mega-project corresponds to a ratings and rewards system that integrates data from various monitoring and transparency mechanisms within a traditional administrative state.⁴⁶ In principle, any data-driven and accountability-based mechanism assesses the object of its regulation by acquiring and then processing data with an interpretive algorithm. The algorithm typically produces a simplified measure used to trigger punishment or reward.⁴⁷

Data-driven and accountability-based mechanisms for governance are widespread, but China's initiative has received significant media attention for the intention to construct an all-encompassing and centralized data repository

41. Ma Yun, *Vertical Environmental Management: A Panacea to the Environmental Enforcement Gap in China?*, 1 CHINESE J. ENV'T L. 37, 43, 51 (2017).

42. *Id.* at 51.

43. *Id.*

44. *Id.*

45. *Id.* at 43–44; Genia Kostka & Chunman Zhang, *Tightening the Grip: Environmental Governance under Xi Jinping*, 27 ENV'T POLS. 769, 773 (2017).

46. Backer, *supra* note 7, at 127.

47. *Id.*

supported by digital technology.⁴⁸ While the project has been compared unfavorably to “Big Brother,” China’s new credit-based system is perhaps just as much about “top-down surveillance” as it is about “social supervision” destined to regulate government and market actors, too.⁴⁹

“Social credit” aspirations first appeared in 2002 in the Report of the Third Plenum of the 16th Central Committee, which announced the Party’s interest in creating “a social credit system with morality as its support, property rights as its foundation, and law as its guarantor.”⁵⁰ In China’s 11th Five-year Plan for National Economic and Social Development in 2006, the goal of social credit, however, seemed overwhelmingly corporate; SCS would improve record-keeping for “loans, tax payments, contract fulfillment and product quality.”⁵¹ In 2014, the scheme picked up momentum under the State Council’s SCS Plan which announced the development of a more comprehensive “online credit infrastructure,” for “government matters, business, society and the judiciary.”⁵² The regulatory network of the SCS has rapidly expanded since 2014, and exponentially so with the surge of data-rich internet companies.⁵³ The National Reform and Development Commission (NDRC) has now taken the lead on devising and piloting corporate social credit schemes across the country.⁵⁴

B. SCS Pilots in the Socio-Political Sphere

As the social credit mega-project relates to individuals, SCS in China is still a fledgling, with many different mechanisms at developmental stages.⁵⁵ Across provinces, pilots have varied drastically in how schemes balance data harvesting with individual privacy interests. The city of Qingzhen in Guizhou has experimented with a scheme of 1,000 indicators with most data reported to be collected via peer evaluations.⁵⁶ In contrast, Shanghai’s experiment has afforded citizens more protections such as the right to be forgotten and access to remedial measures to restore credit.⁵⁷

48. See Gwen Ottinger, *Constructing Empowerment Through Interpretations of Environmental Surveillance Data*, 8 SURVEILLANCE & SOC’Y 221 (2010); Fan Liang et al., *Constructing a Data-Driven Society: China’s Social Credit System as a State Surveillance Infrastructure*, 10 POL’Y & INTERNET 415, 416 (2018).

49. *Id.* at 415; See CHORZEMPA ET AL., *supra* note 11, at 2.

50. CHORZEMPA ET AL., *supra* note 11, at 3.

51. See *id.*; Yu-Jie Chen et al., *Rule of Trust: The Power and Perils of China’s Social Credit Megaproject*, 32 COLUM. J. ASIAN L. 1, 8 (2018).

52. Chen et al., *supra* note 51, at 9.

53. CHORZEMPA ET AL., *supra* note 11, at 3.

54. Frank Tang, *China pushing ahead with controversial corporate social credit rating system for 33 million firms*, S. CHINA MORNING POST, Sept. 17, 2019, <https://www.scmp.com/economy/china-economy/article/3027674/china-pushing-ahead-controversial-corporate-social-credit>.

55. See Horsley, *supra* note 3.

56. Sarah Cook, *Analysis: How the Chinese Communist Party Is Incentivizing Repression*, 133 FREEDOM HOUSE CHINA MEDIA BULL. (2019), <https://freedomhouse.org/report/china-media-bulletin/china-media-bulletin-social-credit-incentives-elite-jailings>.

57. CHORZEMPA ET AL., *supra* note 11, at 5.

The government has also encouraged financial institutions to experiment with multi-factorial credit systems of their own, creating the possibility of public-private partnerships and parallel but connected credit ecosystems.⁵⁸ Sesame Credit, a smartphone application developed by Alibaba, has started evaluating the “creditworthiness” of individuals by harvesting financial data from credit records and assets, and by mining behavioral data from commercial transactions and social relationships. The data is computed and analyzed by algorithms in real time to produce a fluctuating score.⁵⁹ A high score can waive rental deposits, while non-compliance may block individuals from performing financial transactions on Alipay.⁶⁰

But it is the Supreme People’s Court’s Defaulter List that has received the most attention to date, likely because of its steep sanctions.⁶¹ The Defaulters List is a judicial database that tracks individuals who do not comply with court judgments and syncs these records to financial and telecommunication platforms.⁶² Neglect comes at a high price when individuals lose access to securities and loans and are assigned to a blacklisted caller ID.⁶³

The overall effectiveness and political value of these initiatives, however, remains unclear. We can first wonder what the measure of effectiveness should be. Harkening back to our New York Times article of 1961:⁶⁴ what is being measured? For whom? And are the proxies accurate? If success is in the eye of the beholder, it remains at least significant that in 2017, 2.2 of the 9.59 million people originally “blacklisted” sought to remove themselves from the Defaulters List by following court orders.⁶⁵ And what we do know is that, in China, new mechanisms of governance are relying on public participation, supervision, and evaluation for behavior management.⁶⁶ A score processed from thousands of data points holds the promise of social standing and the lure of this social status is to compel compliance.⁶⁷ Achieved this way, compliance comes at a very low cost for the central government. But the term “credit” is also an awkward translation of *xin* (信) which means something closer to trust, faith, and sincerity reminiscent of age-old, Confucian ideals of governance.⁶⁸ “Social credit,” as it operates in the social sphere, aspires to governance driven by data and social accountability.⁶⁹ In China, as the model stands, access to

58. Liang et al., *supra* note 48, at 425-26.

59. Liang et al., *supra* note 48, at 425; Daithí Mac Síthigh & Mathias Siems, *The Chinese Social Credit System: A Model for Other Countries?* 15-16 (Eur. Univ. Inst., Working Paper, 2019), <https://cadmus.eui.eu/handle/1814/60424>.

60. Síthigh & Siems, *supra* note 59, at 15.

61. See Zhong & Zhang, *supra* note 4.

62. Chen et al., *supra* note 51, at 16.

63. *Id.* at 17.

64. Kraus, *supra* note 1.

65. Chen et al., *supra* note 51, at 17.

66. See Backer, *supra* note 7, at 135.

67. See *id.* at 141.

68. *Id.*; CHORZEMPA ET AL., *supra* note 11, at 11.

69. See Backer, *supra* note 7, at 138.

popular services is conditioned on individuals acting towards others with integrity first.

C. SCS Pilots in the Environmental Sphere

In debates over the uses and efficacy of SCS and its associated privacy concerns, the field of environmental reform offers a different lens through which to understand incentive-driven governance. The SCS megaproject has emerged most prominently in the environmental sector in two distinct forms: the enterprise environmental credit and cadre evaluation. While these initiatives target different actors, they are similar for being performance-oriented governance mechanisms, built on big data, that use monitoring against targets to implement self-enforcing mechanisms for environmental regulation.⁷⁰

i. The Environmental Enterprise Credit

To capture its scope as a regulatory mechanism, it is important to locate the environmental enterprise credit within a broader centralized scheme of corporate ratings.⁷¹ According to the NDRC, the goal is for corporate data from “court rulings, tax records, environmental and license compliance, product quality, labor safety, and administrative sanctions” to be factored into one aggregate social enterprise credit score for every corporation.⁷² The NDRC is working on a National Credit Information Sharing Platform (NCISP) whose goal is to centralize corporate data from 42 central agencies, 32 local governments, and 50 market actors, including Alibaba.⁷³

The environmental credit is, therefore, one score among many, but it is itself complex. Firms are scored on a scale of 100 for their performance in “pollution prevention, ecological protection, environmental management and social supervision.”⁷⁴ Each category itself includes several factors that are given different weights by political importance.⁷⁵ In total, the environmental credit comprises 21 factors on which firms are evaluated.⁷⁶ Environmental “transgressions” are publicly announced, inscribed in a “social integrity file,” and result in the deduction of points from a firm’s environmental credit.⁷⁷ The reward for a better environmental credit includes heightened corporate status and more favorable loan conditions.⁷⁸ The objective of the credit system is,

70. See Paul A. Davies & R. Andrew Westgate, *China’s Environmental Social Credit System Encourages Self-Regulation by 2020*, LATHAM & WATKINS (June 10, 2019), <https://www.globalelr.com/2019/06/chinas-environmental-social-credit-system-encourages-self-regulation-by-2020/>.

71. Tang, *supra* note 54.

72. *Id.*

73. See Liang et al., *supra* note 48, at 426.

74. *Id.* at 431.

75. *Id.*

76. *Id.*

77. Davies & Westgate, *supra* note 70.

78. See Liang et al., *supra* note 48, at 43–44.

therefore, to encourage enterprises to take “greener” initiatives, collect data, and prevent environmental harm before it happens, or in other words, self-regulate.

Similar to how pilot testing is playing out in the social sphere of SCS, the central government has given wide latitude to local provinces to experiment with their own environmental credit schemes as well. One notable example is the 2015 pilot undertaken in the Province of Jiangsu, for which companies are assigned colors to reflect their environmental performance.⁷⁹ Whereas a compliant enterprise is coded green for a credit score in the high 11-12s, a poorly performing enterprise is listed red for a rating of 1-2, or black for a null score.⁸⁰ Each firm starts off with a score of 9, and the rating is then increased or decreased over time according to the type and severity of environmental violation.⁸¹ While transparent scoring is to promote accountability, Jiangsu has operationalized these scores financially as well. Utilities now charge higher electricity rates to red and black coded enterprises than to green listed firms.⁸² The experiment is proving popular: several cities in the province are applying this scheme to pricing wastewater treatment as well.⁸³

Other provincial administrations have been afforded discretion in designing their own pilots in environmental SCS, but the Party’s goal remains first and foremost to create a robust centralized scheme. In 2016, the Ministry of Ecology and Environment (MEE) announced its plan to develop a central ecological big data platform (an “environmental cloud”) to connect disparate monitoring networks and offer the public better data management tools.⁸⁴

In the language of governance, how does this all work? Part I highlighted the mounting social unrest in the early 2000s due to environmental degradation and the difficulties the party faced, in a decentralized country, with breaking protectionist cycles at the local level. Part I also described the push for the verticalization and informatization of governance. These trends have laid the groundwork for a corporate credit system that can collect data and incentivize greener behavior and compliance.

The disclosure and operationalization of environmental data through ratings should also allow the government to better predict and manage corporate environmental risk.⁸⁵ The ability to predict translates into the ability to better negotiate the administrative risks inherent in the central government’s interventions. By incentivizing corporate self-regulation, promoting citizen

79. Davies & Westgate, *supra* note 70.

80. *Id.*

81. *Id.*

82. *Id.*

83. *Id.*

84. Kostka & Zhang, *supra* note 45, at 776.

85. See Backer, *supra* note 7, at 129, 151.

supervision, and aggregating data collected by multiple levels and parallel mechanisms of government oversight, SCS might just mitigate the principal-agent problem that has plagued the central government's relations with its provinces, for centuries. By reducing the transaction costs of environmental management and eliciting popular participation, data-driven, accountability-based governance could hold the promise of Party stability as the government takes on the multi-stake issue that is environmental reform.⁸⁶

ii. *The Environmental Targets of Cadre Evaluation*

China's Cadre evaluation, for the priority this personnel assessment and management system places today on environmental goals, can be understood as an environmental credit mechanism. Under the scheme, officials are evaluated on an annual basis relative to their colleagues against strict performance targets extracted from the Party's five-year plans.⁸⁷ Cadre performance on these national priorities affects material rewards, promotion prospects, and penalties.⁸⁸ Targets can be soft or binding and involve a range of governance objectives including economic growth, social stability, agricultural production, population control, and education.⁸⁹

The mantra "pollution first, treatment after" captures the high priority that, historically, has been placed on economic growth within evaluation.⁹⁰ High performance on economic targets often secured officials the greatest promotions but compromised performance on softer targets, especially those believed to conflict with economic growth like environmental protection.⁹¹ By fostering the protectionist dynamics discussed in Part I, cadre evaluation may have exacerbated environmental degradation and social unrest by the turn of the century.⁹²

To track and better counter the effects of environmental degradation, a "Green GDP" metric was designed in 2004 to estimate China's economic growth discounted by environmental costs.⁹³ "Green GDP" never became the metric for the development of cadre targets but the figures radically shifted the central government's priorities by 2006.⁹⁴ In an effort to align economic growth with sustainability, environmental protection targets became "binding" and were raised to the same level of priority as economic growth.⁹⁵ By the

86. Wang, *supra* note 27, at 390.

87. *Id.* at 379.

88. Susan H. Whiting, *The Cadre Evaluation System at the Grass Roots: The Paradox of Party Rule*, in *HOLDING CHINA TOGETHER: DIVERSITY AND NATIONAL INTEGRATION IN THE POST-DENG ERA*, 101, 103 (2004).

89. *Id.* at 105; Wang, *supra* note 27, at 380.

90. Zhang et al., *supra* note 37.

91. Wang, *supra* note 27, at 387–88.

92. *Id.*

93. *Id.* at 391.

94. *See id.* at 391–92.

95. *Id.* at 398–99.

eleventh five-year plan, four of eight binding cadre targets involved environmental protection. The most pressing goals for a cadre became increasing energy efficiency, reducing sulfur dioxide and decreasing chemical oxygen demand.⁹⁶

Today, China has made significant energy efficiency gains, as mandated by cadre targets, and has managed to decouple traditional air pollutants from economic growth at an earlier stage of economic development than other countries.⁹⁷ As a snapshot: from 2015 to 2018, the concentration of PM2.5 in Beijing dropped by 35 percent; in Shijiazhuang, by 39 percent; and in Baoding, by 38 percent.⁹⁸ As a result, residents are now expected to live 3.3 years longer in Beijing; an additional 5.3 years in Shijiazhuang; and 4.5 more years in Baoding.⁹⁹ Scholars have recognized the role of cadre evaluation in accelerating China's green transformation and securing the "durability of Central Party rule."¹⁰⁰ A report published by the OECD in 2018 highlights the success of cadre evaluation in providing "a basis for strengthening the oversight of sub-national governments' progress towards green growth, while enhancing accountability through 'race to the top' competition."¹⁰¹

Cadre evaluation is a subgenre of SCS for the way in which data, generated through performance, is aggregated, assessed against targets, and scored to effect punishment or reward. The incentive scheme embedded in cadre evaluation allows for competing priorities to be outlined and hierarchized, without reverting to the potentially slow-turning wheels of environmental legal reform.¹⁰² Cadre evaluation also resolves, in favor of uniformity and the cohesive structure of the five-year plan, conflicting patchwork of environmental law, as noted between the EPL and Water Pollution Prevention and Control Law.¹⁰³

If the implementation gap in environmental compliance ever existed, "privatizing" the value of environmental protection through cadre evaluation appears to have breathed new life into environmental protection at the local level and chipped away at the structures of economic protectionism.¹⁰⁴ In

96. *Id.*

97. OECD, CHINA'S PROGRESS TOWARDS GREEN GROWTH 24 (2018), <https://www.oecd.org/env/country-reviews/PR-China-Green-Growth-Progress-Report-2018.pdf>.

98. Michael Greenstone, *Four Years After Declaring War on Pollution, China Is Winning*, N.Y. TIMES (Mar. 12, 2018), <https://www.nytimes.com/2018/03/12/upshot/china-pollution-environment-longer-lives.html>.

99. *Id.*

100. See Whiting, *supra* note 88, at 116–17; Wang, *supra* note 27, at 405–06; Genia Kostka, *China's Local Environmental Politics*, in ROUTLEDGE HANDBOOK OF ENVIRONMENTAL POLICY IN CHINA 34 (2017).

101. OECD, *supra* note 97, at 16.

102. See Wang, *supra* note 27, at 382.

103. *See id.*

104. See L. Zhang et al., *Environmental Information Disclosure in China: in the Era of Informatization and Big Data*, 12 FRONTIERS L. CHINA 57, 67 (2017).

contrast to criminal prosecution for environmental violations, the scheme's predictable, annual reward mechanism increases the probability of sanction, the costs of cadre defection, and the compliance of local officials.¹⁰⁵ Similar to how citizen-oriented SCS can shape "pro-social" behavior *en masse* and at low cost, cadre evaluation presents itself as a cost-effective means for the central government to push for environmental reform.¹⁰⁶ But here lies the tension embedded in data-driven, accountability-based governance: there is little time to waste in environmental protection and new regulatory tools like SCS could be more broadly leveraged to tackle urgent crises like climate change but at what costs? And are the costs worth it?

III. RESISTANCE TO ACCOUNTABILITY-BASED, DATA-DRIVEN GOVERNANCE?

In theorizing the emergence of accountability-based, data-driven governance, scholars have pointed to a zone of compatibility where interests in transparency of both the governed and the Party-state meet. Greater data disclosure in China has been described as an opportunity for both top-down party control and the strengthening of bottom-up organizing. If that's the case, how do both forces coexist in environmental reform and governance more generally? What is the scope of this compatibility? And where lies the friction? Alex Wang has vividly theorized this zone:

Central to what has made environmental disclosure possible is a zone of compatibility where disclosure simultaneously enhances environmental performance, facilitates citizen autonomy, and enhances state control and legitimacy. Outside of this zone, the harder, control-oriented edges of the state emerge, information disclosure is reduced, and citizen freedom to move is constrained. In practice, state and society actors engage in an ongoing battle over the contours of this space.¹⁰⁷

The "ongoing battle" over the contours of this zone signals the emergence of resistance both in China and across the globe to the perils of accountability-based, data-driven governance. This battle can take the shape of anti-surveillance and *sousveillance*, "watching from below."¹⁰⁸ The following section summarizes these narratives in an effort to capture the trade-offs inherent to this increasingly popular regulatory practice.

A first narrative of resistance is grounded in the fear that SCS in China lacks genuine party commitment to transparency and solely expresses the party's search for greater symbolic legitimacy; a political cover for establishing

105. Whiting, *supra* note 88, at 118; see Michael G. Faure & Hao Zhang, *Environmental Criminal Law in China: A Critical Analysis*, 41 ENV'T L. REP. NEWS & ANALYSIS 10024, 10025–26 (2011).

106. See Faure & Zhang, *supra* note 105, at 10026 (noting the cost-effectiveness of administrative sanctions compared to criminal prosecutions more generally).

107. Wang, *supra* note 14, at 883.

108. *Id.*; see Maša Galič et al., *Bentham, Deleuze and Beyond: An Overview of Surveillance Theories from the Panopticon to Participation*, 30 PHIL. & TECH. 9, 31 (2017); Jan Fernbach, *Sousveillance: Communities of Resistance to the Surveillance Environment*, 30 TEL. & INFORMATICS 11, 11–12 (2013).

greater social control and party stability.¹⁰⁹ In the environmental context, cadre evaluation and the environmental enterprise credit have been criticized for facilitating “greenwashing”¹¹⁰ and for buying the party time before its hands are forced to invest in more meaningful and opportunity-costing environmental action. In that vein, some scholars presage that a governance mechanism like cadre evaluation that uses sustainability goals as a proxy for nonenvironmental aims can only be environmentally protective for so long.¹¹¹ The same tension arises in the assessment of SCS as applied to individual citizens: if social credit is a tool for party rule, transparency may only facilitate participatory monitoring and surveillance on uncontroversial topics at the expense of greater top-down surveillance in more contested spheres. In the environmental sector, however, the governance-value of SCS in achieving regulatory goals is relative. If judicial channels for contestation are weak, as discussed in Part I, and incentives can foment at least some participatory and green reform, is SCS not valuable?

A second narrative of resistance expresses skepticism over the kind of empowerment that public participation through data-driven governance can foster. The question is about who has the capacity to score and utilize the data that is being produced. Pollution-tracking apps have allowed citizens to identify polluting facilities in their communities even when citizens may not understand the scientific and ecological conditions at play in contamination.¹¹² Some apps even allow citizens to message with local regulators directly about their findings.¹¹³ These instances of *sousveillance* effectively “turn the camera back on surveying entities,”¹¹⁴ but scholars worry that community groups may lack the scientific tools and statistical expertise to make sense of the datasets they generate.¹¹⁵ The monitoring tools citizens have at hand are mirrors of information asymmetry; they are accessible only because the data they generate is uncontroversial and fulfills Party goals.¹¹⁶

A third narrative of resistance against accountability-based, data-driven governance is the bias inherent in goal specification.¹¹⁷ How desirable are the goals that are incentivized through SCS? For cadre evaluation and the environmental enterprise credit, most can perhaps agree that tackling climate change and environmental degradation is a worthy and urgent goal. In this context, the Party’s five-year plans operationalized through cadre evaluation offer a clear framework for target-setting and also provide local officials with

109. Wang, *supra* note 14, at 871, 883.

110. Wang, *supra* note 27, at 393.

111. *Id.* at 412.

112. Wang, *supra* note 14, at 894–96.

113. *Id.*

114. Ottinger, *supra* note 48, at 223.

115. *See id.* at 233; *see* Galič et al., *supra* note 108.

116. *See* Ottinger, *supra* note 48, at 233.

117. Wang, *supra* note 27, at 417.

some discretion regarding roll-out. As pertains to citizen SCS, however, who dictates the normative goals and ideals of socio-economic behavior? The Party? Local officials? Alibaba? A neighbor? AI? Moreover, what proxies should be used to measure progress against those benchmarks? We are back to our New York Times article of 1961.¹¹⁸ The scored outcome may be rational and cost-effective but any heuristic entails subjective values.

A fourth narrative of resistance points to the development of surveillance infrastructure that feeds accountability-based, data-driven governance.¹¹⁹ With respect to environmental controls, data gathered through satellite technology has accelerated the pace of scientific research and allowed the Party to make independent findings that circumvent data collection by more economically protectionist levels of government.¹²⁰ The ethics of environmental surveillance may not alarm, but the same tools applied to the collection of data for citizen SCS raise concerns regarding privacy, the harvesting of sensitive information, and the misappropriation of data.¹²¹ How will recent discussions over privacy rights in China, but also globally, affect the contours of this “zone of compatibility”? For now, Chinese citizens are taking to the courts to bend this zone and demand more data security.¹²² The draft of the Personal Information Protection Law released in December 2020, which provides for notice-and-consent, privacy rights, and governance duties for information handlers, attests to the early success of this citizen mobilization in pressing for more individual data rights.¹²³

A fifth narrative of resistance focuses on the falsification and manipulation of data.¹²⁴ Scholars have suggested that information disclosure has become a new tool of governance only because it is “controllable”: officials can release information that serves them, and restrict the spread of data that harms their reputation, as necessary.¹²⁵ While disclosure is malleable and selectively incomplete, bottom-up forces sometimes have enough information of their own to correct these errors. In 2015, 78 cases were filed in 17 provinces to sue environmental bureaus for the fabrication of data in violation of EPL’s provision for the truth and accuracy of monitoring.¹²⁶

A sixth narrative of resistance to SCS involves the violation of “due

118. Kraus, *supra* note 1.

119. See Lina Dencik et al., *Towards Data Justice? The Ambiguity of Anti-surveillance Resistance in Political Activism*, *BIG DATA & SOC’Y*, July-Dec. 2016, at 1, 1.

120. Wang, *supra* note 27, at 433.

121. CHORZEMPA ET AL., *supra* note 11, at 7.

122. *Id.*

123. Jamie P. Horsley, *How Will China’s Privacy Law Apply to the Chinese State?*, *BROOKINGS* (Jan. 29, 2021), <https://www.brookings.edu/articles/how-will-chinas-privacy-law-apply-to-the-chinese-state/>.

124. Wang, *supra* note 27, at 417–18.

125. *Id.*

126. See Ma, *supra* note 41, at 54.

process,” relating to fair notice and propensity. While cadre evaluation and enterprise credit assessments are grounded in clear targets for performance, citizen social credit schemes, as a socio-cultural, multi-factorial endeavor, are more vulnerable to blackbox analytics.¹²⁷ Under the mandates of an SCS algorithm, individuals may bear the weight of compliance with a “law” they know little about if the “zone of compatibility” morphs into a zone of uncertainty that compels compliance through fear. In writing about SCS in China, Yu-Jie Chen vividly raises this point with respect to Uyghurs in Xinjiang who are under magnified scrutiny and for whom the black box problem is no hypothetical concern.¹²⁸

Moreover, the regulatory logic of citizen SCS relies on an ability to predict behavior by aggregating seemingly unrelated data in an effort to uncover correlations.¹²⁹ In due process jurisprudence in the United States, character traits are deemed insufficiently stable to permit the inference that one conformed their behavior to such traits.¹³⁰ Yet this behavioral conformity is, in many ways, the premise of a social credit scheme. SCS relies on punishing individuals reputationally based on track records, or a predisposition for “untrustworthiness.” The principle of procedural justice has been referred to in some recent Chinese cases.¹³¹ Whether or not this principle captures due process as understood in the United States,¹³² the rise of accountability-based, data-driven governance in China and across the globe calls for a broader reflection on how the logic of SCS could harden mental shortcuts and erode judicial doctrines more generally.

A seventh narrative of resistance is the danger that incentive schemes will break resistance. Our story begins where governance meets ethics, but it could end when governance meets data-driven psychology. The act of citizen surveillance enables those with data to learn how to intervene on the basis of such data and undermine collective action when deemed necessary.¹³³ For example, while the environmental enterprise credit may encourage public participation in pollution supervision, if such supervision is not rewarded by SCS at the individual level, the scheme as a whole may dissuade individuals from environmental activism. Similarly, regulation through administrative incentivization, that is, through complex schemes with multi-variate computations, instead of criminal or civil law, may complexify and confuse the

127. See Chen et al., *supra* note 51, at 31.

128. *Id.*

129. See Pauline T. Kim, *Data-Driven Discrimination at Work*, 58 WM. & MARY L. REV. 857, 864–65 (2017).

130. Louis M. Natali Jr., & R. S. Stigall, “Are You Going to Arraign His Whole Life?”: How Sexual Propensity Evidence Violates the Due Process Clause, 28 LOY. U. CHI. L. J. 1, 12 (1996).

131. See Haibo He, *The Dawn of the Due Process Principle in China*, 22 COLUM. J. ASIAN L. 57, 61 (2008).

132. *Id.*

133. Ottinger, *supra* note 48, at 223.

road to individual redress.¹³⁴

An eighth and final narrative of resistance is about the ethics of assigning social credit scores in the first place. In environmental reform, SCS may appear less problematic because the values quantified relate to fictitious persons like corporations and “traditional subjects” of science like nature. In cadre evaluation, there is some comfort in knowing that officials have consented to evaluation through their professional career choices. With respect to citizen SCS, individuals may have little choice but to subject themselves to ratings in order to exist in society and access services. Even if ratings are conditioned on informed consent, we can still wonder whether citizens should be allowed to consent to such practices in the first place.

Despite these fears, many societies have been using one form of credit or another since at least 1961, as the *New York Times* attests.¹³⁵ In other countries, non-financial conduct may not necessarily factor into credit scores and credit scores may not affect the provision of non-financial services, but data is often collected and reported, and sometimes it is even sold.¹³⁶ In the United States, disclosure of criminal record data is routine in hiring.¹³⁷ In the health insurance sector, rewards, such as low premiums, often depend on health behaviors. And the environmental enterprise credit is not too dissimilar to the CSR Performance Index, which, as an international scoring standard, rates corporations on their social responsibility practices as well.¹³⁸

Then why such skepticism in the press about China’s data-driven, accountability-based mode of governance? Is it the centralized government model of data collection? The potential surveillance apparatus in the making? Or the uncertainty of reform more generally and the inevitable shifts of power reform brings? All of it? None of it?

Is the resistance overblown?

134. Chen et al., *supra* note 51, at 33.

135. See Nicolas Kayser-Bril, *Identity-Management and Citizen Scoring in Ghana, Rwanda, Tunisia, Uganda, Zimbabwe and China*, ALGORITHM WATCH (Oct. 21, 2019), <https://algorithmwatch.org/en/identity-management-and-citizen-scoring-in-ghana-rwanda-tunisia-uganda-zimbabwe-and-china/>; Alice Payne, *Credit Score Systems Across the World*, GRAYDON (Sept. 2, 2015) <https://www.graydon.co.uk/resources/blog/credit-management/credit-score-systems-across-world>.

136. Sarah Jeong, *Selling Your Private Information Is a Terrible Idea*, N.Y. TIMES (July 5, 2019), <https://www.nytimes.com/2019/07/05/opinion/health-data-property-privacy.html>.

137. See BAN THE BOX, NAACP, <https://www.naacp.org/campaigns/ban-the-box/> (last visited March 15, 2021); Backer, *supra* note 7, at 149.

138. See Maria Gjøllberg, *Measuring the Immeasurable? Constructing an Index of CSR Practices and CSR Performance in 20 Countries*, 25 SCANDINAVIAN J. MGMT. 10, 10 (2009).

IV. LINGERING THOUGHTS AND CONCLUSIONS

Recent SCS developments have, overall, been well-received in China.¹³⁹ Public approval suggests that issues like privacy and data security are seen as solvable issues.¹⁴⁰ Citizens are taking the issues to court and, as Wang theorized, the contours of the “zone of compatibility” for transparency remain in flux.¹⁴¹ The party may retain a tight hold on domestic media, but the popularity of SCS may also be due to the scheme’s promise as a workable means to increase one’s social standing.¹⁴² There’s also maybe some security in knowing that most will live and transact in accordance with *xin*.

While social credit scores have the potential to harden social inequalities between citizens and perpetuate prejudice,¹⁴³ the comprehensiveness of the measure could also guard against the pitfalls of scoring individuals based solely on their financial capacities. For individuals in China with no access to formal banking, social credit can offer an equalizing alternative.

The paper’s focus on social credit as applied to environmental reform also sheds light on the quick results that accountability-based, data-driven mechanisms can provide in governance.¹⁴⁴ The environmental enterprise credit and cadre evaluation display the power of clear objectives, transparent data, and both material and reputational incentives to spur sustainable behavior from government and corporate officials alike.¹⁴⁵ SCS in environmental management also allows citizens to play a greater role in monitoring pollution and keeping a check on local governments themselves.¹⁴⁶

The success of SCS in environmental law could also be explained with recourse to theories of economic development that emphasize the role of incentives in explaining China’s economic growth. The theory, as formulated by Donald Clarke, posits that incentive mechanisms, specifically the disincentivization of expropriation in China, is more important to explaining China’s development than are traditional narratives about the protection of private rights.¹⁴⁷ In this line of thought, SCS can be understood as the expansion of a culturally relevant and historically rooted political phenomenon in China.

139. Kostka, *supra* note 12.

140. See Horsley, *supra* note 123.

141. Wang, *supra* note 14, at 883.

142. See Chen et al., *supra* note 51, at 28.

143. Mikella Hurley & Julius Adebayo, *Credit Scoring in the Era of Big Data*, 18 YALE J.L. & TECH. 148, 148–49 (2017).

144. See *supra* Part II.C.ii.

145. See *supra* Part II.C.

146. Wang, *supra* note 14, at 894–96.

147. Donald Clarke et al., *The Role of Law in China’s Economic Development*, in CHINA’S GREAT ECONOMIC TRANSFORMATION 375, 399–402 (2008).

The narratives of resistance have, nonetheless, also shown a more complex facet to the development of data-driven, accountability-based governance both in China and across the globe. Citizens in China have litigated in courts over privacy infringements and local governments, too, have pushed back against central supervision and a weakening hold on surveilling people.¹⁴⁸ This resistance could foreshadow the pluralizing force of SCS; its potential to push for a centralized but algorithmically majoritarian rule. The contours of the “zone of compatibility” are surprising, and the battle to shape the scope of transparency governance, ever-fluctuating.

Credit scores, health premiums, restaurant reviews, “like” buttons, and fitness-trackers have already started to rate and quantify our lives. The attention China’s SCS initiative has drawn may also present an opportunity to reflect on collective and self-governance ethics more generally as we move through (or confine ourselves in) an increasingly digitized world. Daniel Duane writing for the *New York Times* in 2016 about surveillance technology in wildlife management asks, “if technology helps us save the wilderness, will the wilderness still be wild?”¹⁴⁹ The question resonated with me: if I subject myself to surveillance chips and turn to AI and Fitbit tracking to see how much ice-cream I can maybe get away with, will I still be human? Or is the question alone enough to make me human?

In light of these ethical dilemmas, accountability-based, data-driven governance may work best for entities like corporations and officials that can consent, through their creation or career choices, to tracking, monitoring and transparency. The strides made in environmental protection in China as a result of SCS suggests that some sectors like sustainability may be better suited to a rule by algorithm. The jury is still out, I think, on the benefits of SCS at the citizen level. The benefits at this level will hinge on the scope of the privacy protections afforded by the Personal Information Protection Law and the zone of compatibility’s power to maintain algorithms that account for the equality of all people, not only those favored by majoritarian rule.

On a final note, analyzing SCS in China has placed a spotlight on new questions about the role of law in data-driven, accountability-based governance systems. Accountability-based governance is, after all, an administrative and algorithmic mechanism of rule. While SCS can legitimize itself with the backing of law, as we saw in the Chinese environmental context, SCS can be decoupled from law and operate effectively without it, if the incentives strike right. As such, at a global level, SCS may very well weaken the predictability and the role of law as that backbone of governance many have envisioned it to

148. See Ma, *supra* note 41, at 55.

149. Daniel Duane, *The Unnatural Kingdom*, N.Y. TIMES (Mar. 11, 2016), <https://www.nytimes.com/2016/03/13/sunday-review/the-unnatural-kingdom.html>.

be.¹⁵⁰ With a surveillance apparatus in place and SCS fully implemented, it's not hard to imagine lawyers abandoning the art of statutory interpretation and taking on new roles as whiz technicians, advocating for credit score corrections, pointing to video footage, and alleging, algorithmic glitch!¹⁵¹

150. See Backer, *supra* note 7, at 128, 170–71.

151. *See id.*