

Background Note
Linking Environmental Monitoring with Compliance and Enforcement Expert Meeting
15 June 2017

会议背景说明
从生态环境监测到监管与执法专家研讨会
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Introduction and Context:

背景介绍

This note is prepared in advance of the one-day international expert meeting on environmental monitoring, compliance and enforcement. It summarizes China's ecological progress; the role and the function of ecological and environmental monitoring; the status, recent commitment and objectives, progress and deficiencies of China's ecological and environmental monitoring; and raises aims of this international expert meeting.

在为期一天的生态环境监测、监管与执法国际专家研讨会召开之前，已准备此份会议背景说明，用以总结中国的生态进程；生态环境监测的作用和功能；中国生态环境监测的现状、近期承诺与目标、进展与不足，并提出本次国际专家研讨会的目标。

Part One: Ecological Progress

第一部分：生态进程

Since the 18th National Congress of the Communist Party of China (CPC Congress), the Central Committee has placed ecological progress at an even more important strategic position by incorporating it into the overall Five-in-one socialist construction pattern with Chinese characteristics. Guided in the last five years by the concept that "clear water and blue mountains are mountains of gold and silver" proposed by President Xi Jinping, the CPC Central Committee and the State Council has conducted a series of major deployment regarding the top-level design, institutional building and policy framework of ecological progress. A series of major policy documents including *Opinions on Accelerating Ecological Progress*, *Overall Plan on Institutional Reform in Ecological Progress* have been promulgated at the national level and the new *Law on Environmental Protection* and the action plans on air, water and soil pollution prevention implemented.

十八大以来，党中央将生态文明建设摆在更加重要的战略位置，纳入中国特色社会主义“五位一体”的总体布局。五年来，在习近平总书记提出的“绿水青山就是金山银山”的理念引领下，党中央、国务院对生态文明建设的顶层设计、制度构建和政策体系进行了一系列重大决策部署，国家层面出台了《关于加快推进生态文明建设的意见》、《生态文明体制改革总体方案》等重大文件，开始实施新《环保法》以及大气、水、土壤污染防治行动计划。

After relentless efforts by different departments, great achievements have been made in China's ecological progress. Quality of ecological environment has been gradually improved with the coordinated development of ecological protection and social and economical progress. Energy structure and efficiency has been optimized and green production level has risen constantly. Steady results in ecological protection have been made. Ecological civilization policy framework has been perfected. Public feeling over ecological quality improvement has increased obviously.

通过多部门、全方位的不懈努力，中国生态文明建设取得了突出进展，生态环境质量整体逐步改善，生态环境保护和经济社会协调发展的局面开始在局部出现；能源资源结构和效率不断优化，绿色生产水平持续上升；生态保护与建设取得明显成效；生态文明制度体系不断完善，公众对生态环境状况改善的主观感受也有所提升。

The 13th Five-year Plan period is key to China's efforts in accelerating ecological progress. Ecological and environment monitoring is the foundation environment protection and an important support for ecological progress. High quality ecological environment information provides significant basis for environmental protection decision-making and environmental compliance and enforcement.

“十三五”阶段是我国加快推进生态文明建设的关键时期。生态环境监测是生态环境保护的基础，是生态文明建设的重要支撑。高质量的生态环境信息是环境保护决策和环境监管执法的重要依据。

Part Two: Targets for Ecological and Environmental Monitoring

第二部分：生态环境监测目标

At present, the CPC Central Committee and the State Council put forward new requirements for the reform of the ecological environment monitoring network and the system of environmental monitoring and management in China with the aim of accelerating ecological progress and promoting the green development strategy. The Third Plenary Session of the 18th Central Committee proposed "Establishment of an Early Warning Mechanism for Monitoring the Carrying Capacity of Resources and Environment" and clarified the sentinel role of ecological environment monitoring in constructing a new pattern of harmonious development of man and nature. *Opinions on Accelerating Ecological Progress* clearly stated "a sound monitoring network covering all resources and environmental elements should be set up. *Plan on Ecological Environment monitoring Network Construction* proposed the establishment of a new monitoring pattern featuring an inter-connected, national-wide, automatic early warning system holding violators accountable according to the law. The Fifth Plenary Session of the 18th Central Committee put forward the implementation of the "most stringent environmental protection system", requiring the setup of an environmental protection monitoring and supervision mode integrating corporate responsibilities, local government supervision and superior department inspection featuring a vertical management system of law enforcement by environmental protection agencies at and below the provincial level to avoid local intervention in monitoring data and strengthen the local accountability in environmental protection. The newly amended *Environmental Protection Law* clearly stipulates the people's governments at all levels should carry out environmental quality monitoring, pollution sources monitoring, emergency response monitoring, evaluation and assessment of monitoring, monitoring forecast and information release. *Program on Development of National Environmental Protection Standard in the 13th Five-year Plan* proposed to establish a technical standard and quality control system on ecological monitoring to meet the needs in ecological progress.

当前，党中央、国务院从加快推进生态文明建设和推进绿色发展的战略全局出发，对中国生态环境监测网络建设和环境监测管理体制机制改革提出了新要求。十八届三中全会提出“建立资源环境承载能力监测预警机制”，明确了生态环境监测在构建人与自然和谐发展新格局中的哨兵作用。《关于加快推进生态文明建设的意见》，明确提出“健全覆盖所有资源环境要素的监测网络体系”。《生态环境监测网络建设方案》提出通过“全面设点、全国联网、自动预警、依法追责”，形成生态环境监测新格局。十八届五中全会提出，实行“最严格的环境保护制度”，要求实行省以下环保机构监测监察执法垂直管理制度，避免地方干预监测数据，并加强对地方的环保责任追究，促进形成企业主体责任、地方政府监管、上级部门监察相结合的环境保护监管监察模式。新修订的《环保法》对各级人民政府在组织开展环境质量监测、污染源监督性监测、应急监测、监测评估与考核、监测预报预警、监测信息发布等方面做出了明确规

定。《国家环境保护标准“十三五”发展规划》提出建立和完善能满足生态文明建设需求的生态环境监测技术体系和质量控制体系。

The 13th Five-Year Plan (FYP) (2016–2020)¹ sets green growth as one of the seven key priorities for China. The Plan is comprehensive and ambitious, covering issues around standards and thresholds, national environmental monitoring objectives for air, water and soil quality, and a commitment to strict environmental regulatory enforcement. Summarized below are recent commitment and objectives of China, through its 13th Five-Year Plan, related to these topics.

“十三五”计划（2016 - 2020）将绿色增长作为中国七大重点之一。“十三五”计划内容全面、目标宏大，涵盖了关于标准与阈值、空气与土壤质量的国家环境监测目标，以及对环境监管严格执法的承诺等内容。以下总结了中国通过“十三五”计划对相关话题的最新承诺和目标。

A) Environmental Monitoring

环境监测

(i) Air Quality:

空气质量

The current Five-year plan builds upon work done in air quality monitoring in the previous plan. By early 2015, China had in place approximately 1,400 air monitoring stations nationwide that provided timely and publicly available data for six criteria pollutants:

- PM10,*
- PM2.5,†
- sulfur dioxide
- nitrogen dioxide
- ozone
- carbon monoxide

在空气质量监测方面，当前的“五年计划”以上一个计划为基础。到 2015 年初，中国已在全国范围内建立了约 1400 个空气监测站，提供以下 6 个标准污染物的及时公开数据：

- PM10,*
- PM2.5,†
- 二氧化硫
- 二氧化氮
- 臭氧
- 一氧化碳

The current Plan commits to conducting a second national survey of all pollution sources, and undertake the modernization of emissions control system whereby more pollutants are covered.

¹ THE 13TH FIVE-YEAR PLAN FOR ECONOMIC AND SOCIAL DEVELOPMENT OF THE PEOPLE'S REPUBLIC OF CHINA (2016–2020), Translated by Compilation and Translation Bureau, Central Committee of the Communist Party of China Beijing, China - <http://en.ndrc.gov.cn/newsrelease/201612/P020161207645765233498.pdf>

《中华人民共和国国民经济与社会发展第十三个五年规划纲要（2016-2020）》，由中华人民共和国中共中央编译局翻译 – <http://en.ndrc.gov.cn/newsrelease/201612/P020161207645765233498.pdf>

当前“计划”承诺对所有污染源进行第二次全国性调查，并展开排放控制体系现代化建设，覆盖更多污染物。

The current Five-Year Plan commits to ensuring air quality standards in cities are met through strict enforcement in order to achieve a 25 percent reduction in the number of days with heavy air pollution. The plan also commits to reduce fine particulate matter emissions. To support these goals, China commits to establishing a comprehensive air quality monitoring system to measure performance against standards set for vehicles, marine craft, and fuel-oil combustion, as well as to monitor windblown dust from unpaved roads and construction, and emissions from open straw burning. (The plan also calls for an increase use of natural gas in key cities.)

当前的“五年计划”旨在通过严格执法，确保城市空气质量达标，使严重空气污染天数减少 25%。该计划还致力于减少细颗粒物排放。为实现这些目标，中国承诺建立综合空气质量监测系统，以评估车辆、船舶和燃油燃烧标准的性能，并监测未铺设道路与施工中的风尘以及露天秸秆焚烧的污染物排放。（该计划还要求在重点城市增加天然气的使用）

(ii) Freshwater:

淡水

The Five-Year Plan commits to a comprehensive strengthening of environmental governance efforts in key river basins and sea areas, including strict measures to protect freshwater quality that provide sources of potable water, as well as to focus protection efforts on water bodies with poor water quality, and within designated water zones; ensure that over 8 percent of China's major rivers and lakes designated as water functional areas meet water quality standards. Aggregate emissions of total nitrogen will be controlled in all cities at and above prefectural level that are situated along the coastline or along rivers that flow into lakes with high levels of eutrophication.

“五年计划”全面加强重点流域和海域的环境治理工作，其中包括采取严格措施保护饮用水源的淡水质量，重点保护水质差和指定的水域内的水体；确保中国 8%以上指定为水功能区的主要江湖水质符合标准；将在沿海及所沿河流流入高富营养化湖泊的地级及以上城市，控制氮的排放总量。

In July 2016, the Ministry of Environmental Protection announced it will set up river and lake water quality monitoring stations in 338 prefecture-level cities in 31 provinces; the stations will use 21 metrics to determine water quality. It is noted that establishing a national environmental monitoring and evaluation system for water quality and quantity will be a “herculean task” due to the number of monitors required, and various spatial, quality control and quality assurance related to interpreting data in ways that improve the focus and effectiveness of environmental management actions, including compliance assurance and regulatory enforcement.

2016 年 7 月，环保部宣布将在 31 个省的 338 个地级市建立河流和湖泊的水质监测站；站点将使用 21 个指标来确定水质。值得注意的是，建立水质和水量的国家环境监测与评估体系将是一项“艰巨任务”，这是由于所需监测器的数量，以及为了加强环境管理行动的针对性和有效性，进行的数据解析相关的各种空间、质量控制和质量保证问题，包括合规性保证和监管执法。

Groundwater surveys will be conducted, and from these surveys, implement comprehensive pollution prevention and water treatment measures.

将进行地下水水质调查，在此基础上，实施全面的污染防治和水处理措施。

(iii) Soil Quality:

土壤质量

China commits to preventing further soil contamination, as well as increasing soil remediation, giving priority to land areas used for agricultural production. The plan calls for the strengthening of both soil quality monitoring and regulation in areas designated for construction.

中国承诺，防止土壤进一步污染，并加大土地整治力度，优先保护用于农业生产的土地。该计划要求加强指定施工区域的土壤质量监测和监管。

(iv) Forestry:

林业

The Plan commits to scale-up major afforestation efforts, coupled with improving virgin forest protection system, stopping all commercial logging in all virgin forests, ensuring that state forests and forestry farms lead the country's afforestation efforts, prohibiting the transplantation of large naturally grown trees into cities, turning marginal farmland into forest or grassland, as well as protecting and improving grassland ecosystems, ensuring that grassland vegetation coverage reaches 56 percent in key areas. (A number of supporting measures are identified, including targets for biodiversity protection, ecosystem services, measures to address desertification, and creating new property rights models to encourage nongovernmental investment in afforestation).

“五年计划”承诺，加大重大造林工作力度，同时加强原始森林保护制度，停止所有原始森林的商业采伐，确保由国有林和林场引导国家造林工作，禁止将大型自然树木移植至城市，将边远农田转化为森林或草原，保护并改善草原生态系统，确保重点地区的草原植被覆盖率达到 56%。确定了若干支持措施，包括生物多样性保护目标、生态系统服务、防治荒漠化措施以及创造新的产权模式以鼓励民间投资造林。

(v) Big Data:

大数据

One May 2017, President Xi, in his address to the Belt and Road Initiative Forum, noted that big data is important for ecological protection. One of the areas to explore in this June workshop will be both more traditional environmental monitoring systems at the local and national levels for air, water and forestry, as well as the emerging role of remote sensing, and big data to augment on-the-ground pollution monitoring stations.

2017 年 5 月，习主席在“一带一路高峰论坛”中的讲话指出，大数据对于生态保护至关重要。今年 6 月的研讨会上将探讨的内容之一是地方和国家层面的空气、水和林业的传统环境监测系统，以及加强地面污染监测站能力的遥感与大数据的新兴作用。

B) Enforcement

执法

The Five Year plan commits to ensuring that “all industrial polluters” meet emissions standards. This objective will be pursued on multiple levels, including improving pollution emissions standards, strengthening supervisory monitoring of industrial pollution sources, publishing a blacklist of those enterprises that fail to meet emissions standards, and requiring through administrative actions that those enterprises out of compliance make corrections to their operations within a stipulated time frame. The Plan notes that “all” heavily polluting

enterprises located within urban districts will be either relocated, upgraded, or, in accordance with the law, shut down. Additional measures will be taken to regulate emissions of volatile organic compounds in key regions and industries, with a target of reducing total VOCs by more than 10 percent².

“五年计划”承诺，确保所有“工业污染制造者”符合排放标准。该目标将在多个层面上进行，包括改进污染物排放标准，加强对工业污染源的监督监测，公开不符合排放标准的企业黑名单，并通过行政措施，使不符合规定的企业在规定的时间内改正运行问题。“计划”指出，将对所有位于城区的重点污染企业进行迁址、升级或依法关闭。还将采取额外措施，规范重点地区和行业挥发性有机化合物的排放量，总量减少 10% 以上。

In December 2016, the China Council for International Cooperation on Environment and Development (CCICED) released a report – Study on Rule of Law and Ecological Civilization – that studied different aspects of China’s compliance promotion and enforcement. The study includes several recommendations to change domestic environmental and sustainable development legislation, including updating domestic laws relating to hazardous wastes, toxic chemicals, environmental impact assessments including permitting, chemicals management, provisions to periodically review and update as needed environmental legislation.

2016 年 12 月，中国环境与发展国际合作委员会（CCICED）发布了《法治与生态文明建设研究》报告。报告研究了中国遵纪守法、促进执法的各个方面，并提出了若干建议，完善国内环境和可持续发展立法，包括更新国内有关危险废物、有毒化学品的法律；加强环境影响评估，包括许可证、化学品管理，并根据环境立法需要定期审查、更新相关规定。

One study noted that fines were set too low, and hence it was more cost effective to pay fines than change. Another study by China’s Ministry of Environmental Protection and Nanjing University noted that the costs of regulatory compliance in some cases could only be achieved by shutting down outdated factories in the Beijing-Tianjin-Hebei megaregion. Air pollution would improve by such blunt action, but the study noted that the economic cost would be a US\$41.8 billion (RMB 280 billion) drop in GDP, and the loss of almost 190,000 jobs.

一项研究指出，由于罚款设定太低，罚款费用比改变运作模式更具成本效益。中国环保部和南京大学的另一项研究指出，某些案例中，遵守法规的成本只能通过关闭京津冀的落后工厂得以实现。这一行动可以改善空气污染的情况，但研究指出，经济成本将会使 GDP 下降 418 亿美元（2800 亿人民币），损失将近 190,000 个就业岗位。

The current plan notes that there have been examples of more stringent regulatory enforcement: for example, 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, five individuals were handed to judicial organs, nearly 500 officials were admonished, and the rest received demerits and other forms of punishment.

² There are various measures to reduce total air quality emissions, including targets for alternative clean energy in urban “villages” and urban-rural fringes, as well as phasing-out small and medium coal-fired facilities.

有各种措施减少空气质量排放总量，包括在城市中的“乡村”地区和城乡结合区域采用替代清洁能源，以及逐步淘汰中小型燃煤设施。

当前“计划”中，也指出了某些更加严格的监管执法案例：例如，2016年11月，中国官方消息人士透露，对于北京污染问题的主要贡献者、污染问题严重的河北省，中央政府对其进行了检查，关闭了200个污染性工厂，并处罚了1000多名政府官员和公司领导。环保部称，有10人被解职或转到其他职位，5人被交由司法机关处理，近500名官员受到警告，其余人员受到记过和其它形式的惩罚。

C) Enforcement and Local Governments:

执法与地方政府

The Plan calls for stricter enforcement below the provincial level under the supervision of environmental protection bodies, as well as exploring the creation of trans-regional environmental protection bodies that cross different jurisdictions. One priority for a new type of regional-environmental monitoring and enforcement governance approach is entire river basins.

“计划”要求在环境保护机构的监督下，省级以下进行更严格的执法工作，并探索建立跨越不同管辖区域的环境保护机构。在整个流域建立新型区域环境监测和执法治理是工作重点。

The Plan also calls for creating an integrated environmental monitoring system capable of tracking multiple pollutants, as well as backstopping strict, trans-regional joint enforcement of environmental protection legislation with strengthened legal enforcement oversight. A record will be kept of environmental performance, or credibility, at the enterprise-level, and create and update a blacklist of enterprises that are out of regulatory compliance for designated pollutants.

该“计划”还要求建立一个能够跟踪多种污染物的综合环境监测系统，并加强执法监督，支持环境保护立法的严格跨区域联合执法。在企业层面保持环境绩效或信誉记录，并制定、更新违规指定污染物的企业黑名单。

D) Public Participation:

公众参与

To support more effective environmental monitoring and enforcement, the Plan calls additional self-monitoring by enterprises as well as stronger mechanisms for public disclosure of environmental information coupled with improved channels for public participation in pollution control efforts, and improve the environmental public-interest litigation system.

为了支持更有效的环境监测和执法，“计划”要求企业进一步加强自我监测，加强环境信息公开披露机制，拓宽公众参与污染治理工作的渠道，完善环境公益诉讼制度。

The Plan notes that measures will be taken to ensure local governments meet environmental targets, including through more on-site environmental protection inspection visits, and establishing clear responsibility systems and performance evaluation systems in order to audit cadres against their adherence to environmental targets. There have also been examples in China of citizens raising issues of environmental infractions and local pollution incidents, which has led to coverage by the local media and actions by the companies directly to reduce their pollution.

“计划”指出，将采取措施确保地方政府实施环境保护目标，包括通过更多的现场环保措施检查和建立明确的责任制和绩效考核制度，对干部进行环境保护目标的审核。中国也有公民举报环境违法和地方污染事件，通过地方媒体的报道和公司的直接行动，减少了污染。

Part Three: Progress and Challenges for Ecological and Environmental Monitoring

第三部分：生态与环境监测的进展与挑战

After more than 40 years of development, China's ecological environment monitoring capability has been significantly enhanced. Until 2015, China's environmental protection system has formed an environmental monitoring network of 4 levels at national, provincial, city and county levels with more than 2,700 environmental monitoring institutions and more than 60,000 people, and an ecological environment monitoring network based on manual monitoring, automatic monitoring and remote sensing monitoring has been preliminarily established covering air, water and soil pollution and many other ecological environment elements. In line with their management needs, China's Ministry of Land and Resources, Ministry of Water Resources, Ministry of Agriculture, Ministry of Forestry, Meteorological Administration, State Oceanic Administration and other departments also established ecological environment monitoring networks covering surface water, groundwater, sea water, soil, ecology and others.

中国生态环境监测体系经过 40 多年的发展，生态环境监测能力显著提高。截至 2015 年，中国环保系统已形成国家、省、市、县的 4 级环境监测网络，包括 2700 多个各级环境监测机构、6 万多人的环境监测队伍。初步形成了以地面手工监测、自动监测为主，以遥感监测为辅的“天地一体化”生态环境监测网络，涵盖了空气、水、土壤、污染源、生态等诸多生态环境要素。中国的国土资源部、水利部、农业部、林业部、气象局、海洋局等部门也根据本部门管理需求，建立了包括地表水、地下水、海水、土壤、生态等生态环境监测网络。

At present, China is effectively advancing its ecological monitoring system by perfecting technical standards, accelerating application of relevant technologies and expanding the monitoring grids. The role of governments at central and local levels are being clarified and inter-department cooperation has been enhanced. The market-oriented process of monitoring is being accelerated. Deregulation and control measures are being taken. Monitoring data quality is being improved. Government information is becoming more reliable. The people's right to know has been protected and the ability to fight pollution has also been enhanced.

在各项政策措施的推动下，中国生态环境监测体系建设有效推进，监测技术标准体系不断健全，生态环境监测技术应用加速，监测网络范围扩大；中央和地方在生态环境监测中的职责不断明确，国家和省级环境质量监测事权上收有序推进；部门间生态环境监测网络协作逐渐增强，部门间生态环境监测职责调整出现积极迹象；环境监测市场化过程持续推进，环境监测简政放权和“放管结合”进程不断加快；环境监测数据质量稳步提高，政府信息的权威性有所增强；公众的环境知情状况得到改善，防护污染的能力也有所增强。

However, there are still deficiencies of management mechanisms in China's ecological environment monitoring. For example, it is difficult to coordinately develop ecological environment monitoring network within each department under the current system. Data sharing among departments is not effectively advanced. Self-monitoring by enterprises lacks sufficient supervision. Effective supervision methods are deficient when developing environmental monitoring market. Application of automatic continuous monitoring technology is not sufficient.

然而，与当前生态文明建设的新形势和新要求相比，中国生态环境监测工作仍存在一些管理体制机制短板，比如在现有体制下统筹发展各部门的生态环境监测网络面临障碍，部门间信息共享难以有效推进、企业自行监测缺乏有效监管、在发展环境监测市场时缺乏有效的监管手段、自动连续监测技术应用不足等。

In order to better promote China's ecological environment monitoring system, construct big-data service platform for ecological environment protection, improving effectiveness of environmental supervision, introduce China's best practices in ecological environment monitoring and study international experiences from developed countries, Institute for Resources and Environmental Policy Studies, Development Research

Center of the State Council of China (DRC) and International Institute for Sustainable Development (IISD) co-host this symposium. This symposium will focus on the latest monitoring technical improvement, environmental supervision management system, data sharing and compliance and enforcement for environmental monitoring.

为更好地推动中国生态环境监测体系建设，构建生态环保大数据服务平台、提高环境监管有效性，介绍中国在生态环境监测领域的优良实践，并学习借鉴发达国家在生态环境监测领域的经验，中国国务院发展研究中心和加拿大可持续发展研究所联合召开本次会议。研讨会着重从环境监测的最新技术进展，环境监测管理体制，数据共享机制，以及环境监测支撑环境监管与执法等角度开诊交流讨论。