



中外对话

chinadialogue

聚焦十三五

13th Five-Year Plan in Focus





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关于“中外对话”

“中外对话”是一个独立的非营利性组织，以伦敦、北京、德里和圣保罗为中心开展工作。

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“中外对话”网站以中国前沿环境记者撰写的文章、对国际知名人士的访谈以及对全球重大问题的深入报道为主要内容，通过网站，您可参阅每日全球环境新闻、赏析高质量的文章和参与“零语言障碍”的讨论（双语发布）。

另外，通过全球双语志愿者的帮助，您还可以在线与英文读者顺畅进行跨文化交流。在那里，您可以提出疑问、挑战专家观点、贡献您的知识和了解他人独到的见解。

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chinadialogue's primary vehicle is our website (http://www.chinadialogue.org.cn), a unique bilingual platform which promotes a global understanding of the environmental impact of China's rise by publishing informed articles, commentaries and analysis by writers from inside and outside of China. We aim to inform, educate, and contribute to building a global consensus on fair and workable solutions.

chinadialogue is now read in 208 countries and regions and in all regions of China.

About our journal

Produced on a bi-monthly basis, our journal brings you the best articles and reports from *chinadialogue*. If you want to contribute to the discussion you can visit our website (http://www.chinadialogue.org.cn) to add your comments and thoughts. Join the debate and be part of the solution.



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(2016年1月1日—2016年2月29日)

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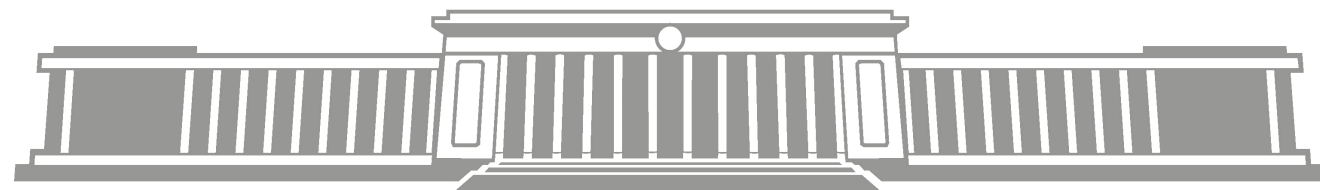
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PM2.5有望首次写入“十三五”规划

继2014年第一次提出“向雾霾等污染宣战”口号后，“第十三个五年规划纲要草案”也将首次把PM2.5指标写入规划。

刘琴



大气污染防治为重中之重

2016年3月5日，国务院总理李克强在向十二届全国人大四次会议陈述《政府工作报告》时提出“重拳治理大气雾霾和水污染”。今后五年具体目标是：生态环境质量总体改善。特别是治理大气雾霾取得明显进展，地级及以上城市空气质量优良天数比率超过80%。

李克强提出的这些目标，作为

《十三五规划纲要草案》的一部分，已经于本届人大开幕当天提交大会审议，草案全文目前暂未公布。纲要明确提出，实施大气污染防治重点地区气化工程，细颗粒物浓度下降25%。这将是PM2.5具体指标首次被写入中国政府五年规划。

李克强在报告中提出将采取的具体措施包括：减少燃煤排放和机动车排放；加强煤炭清洁高效利用；推进以电代煤、以气代煤；增加天

然气供应，完善风能、太阳能、生物质能等发展扶持政策；提高清洁能源比重；鼓励秸秆资源化利用，减少直接焚烧；在重点区域实行大气污染联防联控等。报告还提到，要大力发展节能环保产业，将其打造成中国发展的一大支柱产业。

清华大学公共管理学院的胡鞍钢教授认为，十三五规划将会是具体践行绿色发展理念的纲要。而中国政府一系列政策措施的核心目的就是实现中国经济增长方式的转变，使之向更可持续发展的路径靠拢。“要实现绿色发展，我们要降低资源能源消耗强度，使得主要污染物排放总量彻底与经济增长脱钩，彻底与城镇化发展脱钩，从全要素的角度来看，就是提高TFP。”胡鞍钢指出。（TFP即Total Factor Productivity，全要素生产率，即总产量与全部要素投入量之比）

淘汰落后产能是必由之路

李克强在政府工作报告中总结，在十二五规划实施期间，中国经济结构调整取得标志性进展，服务业



3月5日，第十二届全国人民代表大会第四次会议在北京人民大会堂开幕。国务院总理李克强作政府工作报告

成为第一大产业，单位国内生产总值能耗累计下降 18.2%，主要污染物排放量减少 12% 以上。到 2020 年，单位国内生产总值用水量、能耗、二氧化碳排放量将进一步分别下降 23%、15%、18%。

生态环境质量将总体改善

高耗能产业是雾霾等环境污染的重要来源。李克强说，通过推进企业兼并重组，中国正在化解过剩产能。近 3 年淘汰落后炼钢炼铁产能 9,000 多万吨、水泥 2.3 亿吨、平板玻璃 7,600 多万重量箱、电解铝 100 多万吨。

胡鞍钢指出，十三五规划有助于促进各级地方政府进行政府职能的转变。根据党的十八届三中全会《决定》，以往地方政府有三项主要职能，也就是公共服务、社会管理、市场监管。现在需要专门加上第四项最核心的职能就是环境保护。

“从十三五规划制定和设计角度来看，过去各县都说工业强县，各市都说工业强市，各省都说工业强省的方向将会转变为绿色发展。事实上中国已经进入绿色发展的时代，也是淘汰黑猫的时代。通过去产能，将那些耗能高、污染严重的企业淘汰出局。”胡鞍钢强调。

国际社会对中国十三五规划中昭示的新型发展道路也充满期待。世界资源研究所常务副总裁 Manish

Bapna 认为，有质量的经济增长方式意味着绿色发展之路。他本人当然想在十三五规划中看到有关清洁能源利用，空气污染治理，植树造林以及水土污染治理方面大胆的行动目标，也更愿意看到中国经济增长方式的切实转变。

“我希望看到中国政府更加致力于扭转传统上依赖于提高供给来满足需求的发展之路。通常人们认为要增加水资源供给就要多修坝，要解决能源问题就要多建发电厂。事实上眼下应该探索的是如何减少需求，并使经济增长与资源消耗脱钩。”Manish Bapna 说。

代表委员热议雾霾治理

在两会开幕前一天，北京市发布空气重污染黄色预警，要求中小学、幼儿园等单位停止户外活动。政协委员、中国著名歌唱家宋祖英调侃说：适逢两会开幕，雾霾严重，外地来的委员需要适应，常住北京的委员应该已经习以为常。

雾霾连续几年成为两会关注热点，今年也不例外。在政协开幕前夕的预热发布会上，有记者问到：“官方数据显示 2015 年我国空气质量好于往年，但很多人没有很明显感受。”对此，政协新闻发言人王国庆以北京为例说明“治理雾霾是一场持久战”。

他说，2015 年北京空气质量达

标天数比 2014 年增加了 14 天，重污染天数减少了 1 天。“但污染不是一天形成的，治理也不可能一下子见成效”，需要在 3 个层面共同努力。政府层面，需要倡导转变发展方式；企业层面，需要转变生产方式；而公众层面，则需要积极转变生活方式。

据媒体报道，雾霾也成为 2016 年很多地方两会的热词。多地在政府工作报告中设定具体的防治目标。北京市提出，将 PM2.5 浓度下降 5% 左右作为 2016 年的工作目标之一。吉林省将启动清洁空气行动计划。

代表委员所提治霾举措五花八门。有人建议采用经济手段。政协委员许健康建议征收“雾霾税”和“拥堵费”，以治理机动车尾气所产生的污染物排放。全国人大代表李生建议，强制要求住宅小区和其他建筑物在竣工验收前，规划建设建筑物内部的绿化带，以此来净化空气，降低雾霾。

全国政协委员、中国科学院专家易建强说，雾霾的成因还不是很清楚，有待进一步确定。老百姓对“汽车尾气是造成雾霾的主要原因”这个说法并不是特别认可。对于雾霾的变化趋势，“气象部门可以用更形象的方式将它表述出来，让老百姓接受和理解。”他建议发布雾霾动态迁移图。

刘琴，中外对话北京办公室编辑

13th Five-Year Plan is the first to include PM2.5 targets

China's draft economic plan for the next five years contains new targets that will need to be met if the country is to solve its environmental crises

Liu Qin

In his address to China's National People's Congress on March 5, Premier Li Keqiang called for "heavy blows" to be struck against air and water pollution that have exacted a heavy toll on large swaths of the world's most populous country.

Li cited targets to improve environmental standards across the board, but focused in particular on measures to tackle urban smog that would deliver "good air quality" day readings for 80% of the year.

The targets are part of the forthcoming 13th Five-Year Plan (FYP), a policy blueprint that will shape China's economic development over the next five years up to 2021.

The premier's speech was delivered on the opening day of the session and set the tone for discussions that will continue until March 16.

The full list of proposals will not be published until the close of the twin legislative sessions. However, Li's speech has already indicated that the government will limit factory emissions of tiny harmful particulate matter (PM2.5) - a major cause of air pollution - down by 25%.

This is the first time in the China's history that a specific PM2.5 target has been included in a FYP.

The other main targets revealed in the government's work report include: to reduce of emissions from coal burning industries and vehicles; to bolster cleaner and more efficient use of coal; to promote the use of electricity and natural gas in place of coal; support for wind, solar and bio power sectors; an increase in the proportion of clean energy; encourage the use of waste straw as a resource; a reduction in-field burning; and implementation of control measures to

deal with air pollution.

Professor Hu Angang of Tsinghua University's School of Public Policy and Management said that the 13th Five-Year Plan will provide a guide for how 'green development' will be implemented, and how it will align with economic growth.

"Achieving green growth means reducing energy and resource intensity and decoupling the emissions of key pollutants from economic growth and urbanisation," he said.

Inefficiency snuffed out

Li spoke of recent efforts to restructure China's economy. Since the implementation of the Five-Year Plan, the service industry has grown considerably, energy intensity per unit of GDP has fallen by 18.2%; and emissions of key pollutants have dropped by over 12%.

By 2020, he said, the intensity of water use per unit of GDP will fall by 23%, energy intensity by a further 15%, and carbon intensity by 18%.

The premier also said that China is addressing over-production in its energy intensive industries, such as

“China has already entered the era of green development, which will reduce industrial capacity by shutting down energy-intensive and polluting firms.”

construction and manufacturing, through corporate restructuring (the details of which remain undisclosed).

In the last three years, the closure of inefficient firms has removed 90 million tonnes of steel production, 230 million tonnes of concrete production, over 76 million tonnes of plate glass, and 1 million tonnes of aluminium from China's bloated manufacturing sector.

In China, local governments have traditionally had three functions: to manage public services; social welfare; and market regulations. A fourth important function is being added to that list, that of environmental protection.

Local governments

Hu Angang told chinadialogue that the 13th FYP is proving the local governments with the tools and targets to switch orientation.

"In the design of the 13th FYP, we've seen a shift from talking about industrial counties, industrial cities and industrial provinces, to talking about green development. China has already entered the era of green development... [which will] reduce [industrial] capacity by shutting down energy-intensive and polluting firms."

Manish Bapna, executive vice president of the World Resources Institute, hopes to see the 13th FYP include ambitious targets for action on the use of clean energy, the tackling of air pollution, forest-creation and dealing with soil and water pollution – and more importantly, a real shift in how the Chinese economy grows.

"I hope to see the Chinese government do more to change the traditional method of development, which is reliant on increasing supply. Often people think increasing the water supply means building more dams, increasing the energy supply means building more power stations. But actually we should look at how to reduce demand and decouple resource consumption from economic growth."

Something in the air

Smog appeared to be the focus of discussion both inside

and outside of Beijing's assembly halls. On the first day of the Lianghai Assembly, the city issued an amber pollution alert, meaning that schools and kindergartens were advised to keep children inside.

Song Zuying, a member of the CPPCC and famous singer, joked that while members from Beijing might be used to the foul air, those from other parts of the country would have to acclimatise.

While official figures showed air quality in China had improved in 2015, many people did not feel this was the case. One journalist pointed out at a CPPCC press conference. Wang Guoqing, a CPPCC spokesperson, responded that ending smog will require a sustained effort.

"Pollution does not form overnight, nor can our efforts to end it see immediate effect," said Wang.

According to media reports, air pollution was one of the main topics at local-level Lianghai meetings, with local government work reports citing specific smog targets for the first time.

Green belts

In Beijing, the city government intends to reduce PM2.5 levels by 5% in 2016. In northeastern Jilin, officials will launch a clean air action plan.

At the national policy level, CPPCC member Xu Jiankang proposed a smog tax and a congestion charge in order to reduce vehicle emissions. People's Representative Li Sheng said that residential and other buildings should be required to include internal green belts to help clean the air and reduce smog.

Meanwhile, Yi Jianqiang, a Chinese Academy of Sciences expert added that the precise causes of smog are still unclear and need to be further investigated.

The view that smog is caused by vehicle exhaust fumes is more popular with the public than with scientists, he said. ☺

Liu Qin is an editor in chinadialogue's Beijing office.

中国在“十三五”开局年 强调“环保短板”

扶贫、城镇化、公共服务水平等都会在2020年得到较大的提升，不存在瓶颈，只有环境问题，很难在短短几年内取得重大突破，与全面小康目标差距最大。

谭畅

中国一年一度的“两会”召开在即。近日，官方媒体新华网《习近平眼中的环保短板》备受关注，似为即将出台的“十三五”规划预热。

每年年初，环保部部长在全国环境保护工作会议上的讲话即为全年工作定调。而今年的主题正是“以改善环境质量为核心，全力打好补齐环保短板攻坚战”。

“环保短板”一词是何时开始被中央领导人提及？此时频提“环保短板”，意味着什么？

谁曾提“环保短板”

早在4年前，2012年底的中国环境与发展国际合作委员会2012年年会上，时任国务院副总理李克强在会见加拿大环境部部长肯特就提到了“环保短板”：“中国面临的资源相对不足，环境容量有限，已经成为发展的短板。”

不过，在2015年之前，“环保短板”在领导人的讲话中并不多见。而在2015年下半年至今，却频频出现在国家及环保部领导的公开讲话中。

2015年6月18日，国家主席习



山东省某集团的7台总装机容量68万千瓦的燃煤机组集中爆破（2015年8月11日摄）

近平在《在部分省区市扶贫攻坚与“十三五”时期经济社会发展座谈会上的讲话》中，提到“十三五”时期经济社会发展，关键在于补齐“短板”，其中就包括生态环境的短板。

随后，环保部部长陈吉宁两度提及“环保短板”。在一个会议上，陈吉宁说，全面建成小康社会，农村是重中之重，环境是突出短板，农村

环境既是最薄弱的难点，也是最有力度的突破点和创新点。

为何突出“环保短板”

明确视环保为亟待弥补的短板，离不开“十三五”规划开局。

2015年10月，十八届五中全会通过“十三五”规划建议。该规划

建议提出，必须在“补齐短板上取得突破性进展”，所谓短板，包括“资源约束趋紧，生态环境恶化趋势尚未得到根本扭转”。

当时已有专家预测，环境质量问题或将成为到2020年实现全面小康的最大短板。国务院发展研究中心社会发展研究部室主任周宏春对媒体表示，扶贫、城镇化、公共服务水平等都会在2020年得到较大的提升，不存在瓶颈；只有环境问题，是一个需要长期下大功夫去恢复和治理的问题，很难在短短几年内取得重大突破，与全面小康目标差距最大。

既是补短板、还旧账，可以想见，未来五年，政府层面的环保措施将进一步趋于严格。继最严格的耕地保护制度、最严格的水资源保护制度之后，中央已提出要实行最严

格的环境保护制度。“保护环境的治本之策是源头严防，关键所在是过程严管，根本保障是后果严惩。”

如何补齐“短板”

《习近平眼中的环保短板》一文，着重讲了一个故事。

2013年9月，习近平在河北参加省委常委班子会议并发表重要讲话。他说，要给你们去掉紧箍咒，GDP即便滑到第七、第八位了，但在绿色发展方面搞上去了，在治理大气污染、解决雾霾方面作出贡献了，那就可以当英雄。反过来，如果就是简单为了GDP，但生态环境问题越演越烈，或者说面貌依旧，即便搞上去了，那也是另一种评价了。

要求地方政府在绿色发展上做贡献，去掉经济发展“紧箍咒”。这

不仅迥异于地方政府长期形成的“唯GDP论”政绩观，甚至与“不再以牺牲环境换取经济高速增长”的观念相比也略有不同。

以生态政绩观弥补环境短板，是本届中央政府着力推行的环保方法论。

“投资没回报、产品没市场、环境没改善等项目不能再上了。”今年1月4日，《人民日报》邀请的“权威人士”在《七问供给侧结构性改革》一文中希望各地区各部门都以“十个更加注重”为标尺，对不上的事不能再干，对得上的事要加把劲干。☞

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谭畅，《南方周末》记者

China's 13th Five-Year Plan emphasises 'environmental shortcomings'

The government's latest rubric indicates an intent to atone for environmental sins of the past

Tan Chang

China's two annual high-level policy meetings, the People's Congress and the Chinese People's Political Consultative Conference, took place in March.

Recently, state-owned news agency Xinhua published an article outlining Xi Jinping's views on the country's environmental weaknesses. The article garnered a great deal of attention and was interpreted as a prelude to the forthcoming 13th Five-Year Plan (13FYP) which will be announced at the close of the conferences.

At the start of each year, China's minister of environmental protection delivers a speech at the National Environmental Protection Work Conference, which sets out the country's environmental priorities for the next twelve months.

The priority, translated from the Chinese, is expressed as follows: 'putting environmental restoration at the centre of policy and endeavouring to make up for China's environmental shortfall'.

'Environmental shortfall' is the latest rubric to emerge from central government, by which it will deliver an economic manifesto that places environmental action at the centre.

But when did the term environmental shortfall first enter central leadership parlance, and what can be inferred by its repeated usage?

New buzzword

Towards the end of 2012, Li Keqiang, the then vice premier, attended the annual meeting of China's Council for International Cooperation on Environment and Development.

At the meeting, Li first mentioned environmental shortfall to Canada's environment minister Peter Kent.

"China is facing a relative lack of resources and limited environmental capacity, which has already become a barrier to development," said Li.

Before 2015, the term was rarely heard in leadership speeches. Since the summer of last year, however, it has appeared regularly in public speeches made by Chinese leaders.

It caught on notably after Xi Jinping used it in a speech last June. The president told a forum on poverty and social development that the key to economic and social progress during the 13FYP (2016-2020) was making up for 'shortfalls', including environmental ones.

After this, China's minister of environmental protection, Chen Jining, used the term 'environmental shortfall' twice publicly – a sign that the new buzzword was gaining traction.

Rural areas, where environmental problems are felt most

The president told a forum on poverty and social development that the key to economic and social progress during the 13FYP.

acutely, must be a priority for a prosperous society to emerge across China, Chen told officials.

He added that these problems also present a great opportunity for breakthroughs and innovation.

A call to action

It is clear that urgent action is needed to make up for China's environmental shortfall, and this needs to be done early on in the next five years.

In October 2015, the 18th Session of the Fifth Plenary Session passed a draft proposal of the 13FYP.

"Making up the shortfalls to make progress," was one of the terms mentioned in the document. The indicated shortfall refers to "constrained resources and environmental deterioration".

In China, experts have forecast that the poor quality of the environment could become the greatest barrier to achieving prosperity for all.

Zhou Hongchun, director of the State Council Development Research Centre, has stated that poverty, rapid urbanisation and public services will all be improved in 2020, and that one of the greatest added pressures on society are environmental issues.

As well as dealing with the shortfall, the government will attempt to make amends for decades of growth that ignored the environmental consequences. The next five years will see environmental measures becoming stricter at government-level.

Following the introduction of stringent farmland and water protection systems, central government has said it wants to go further by implementing even stricter environmental protection.

"The fundamental strategy of environmental protection is to prevent pollution at the source. The key to achieving this

is strict management and meting our severe punishments as a deterrent," said an official statement.

The solution

In September 2013, Xi Jinping delivered a landmark speech at a provincial committee session in Hebei province. He told attendees that he was going to remove their proverbial 'straightjacket'.

Even though the province had slid down to seventh or eighth place nationally in terms of GDP, with respect to green development it had improved. Local governors and officials earned plaudits for taking measures that helped curb smog.

If success were judged simply on GDP growth while environmental problems deteriorated then this growth would be undermined, he said.

President Xi urged local governments to contribute to green development and free themselves of the economic 'straightjacket' – by which he meant the long-held view of local governments that defines achievements in terms of GDP only.

The assumption that fast economic growth involves environmental sacrifice has largely been abandoned by China's top officials.

By using this achievement-based approach the central government is explicitly advocating environmental protection.

"Projects without a return on investment, products with no market [value], and those that do not ameliorate environmental [damage] will no longer be viable," said an official statement. ☺

This an edited version of an article originally published by Southern Weekly. Tan Chang is a reporter at Southern Weekend.

聚焦两会：解读五大热词

中国最大规模政府会议期间涌现出一批政治热词，中外对话重点解读了这些热词的来源及其之间的相关性。

李颖

一年一度的全国人民代表大会和全国政协会议（“两会”）近日在北京召开，这是中国一年之中最重要的政治期。两会期间所涌现出的热词也将主导今后一年的舆论。

中外对话北京办公室副主编李颖选取了以下热词，并解释了它们的来历和含义。

1. 五大发展理念

2015年11月，中国共产党第十八届中央委员会第五次全体会议公报首次提出将“五大发展理念”作为今后五年中国经济发展和增长的指导思想。

李克强总理表示，创新、协调、绿色、开放、共享的发展理念将推动“全面建成小康社会”。简而言之，五大理念将引领中国经济转型，推动产业结构优化升级，改善环境和提升效率。

2. 工匠精神

“工匠精神”即指提高质量、精益求精。该词也是首次写进总理政



在全长不足100米的“部长通道”，记者们有时能获得一些出乎意料的官方消息。

府工作报告中。

李克强明确指出，提升产品质量，促进制造业升级，推动劳动力向服务业转移是中国经济稳定增长的关键。

3月5日（周六），李克强总理在发言中称：“我们将加快质量安全标准与国际标准接轨，建立商品质量惩罚性赔偿制度。”

3. 供给侧结构性改革

供给经济学属于宏观经济理论，认为资本投资、降低产品生产和服

务行业的壁垒是促进经济增长最为有效的方式。

供给经济学的精髓在于通过降低产品和服务的价格以及扩大供给规模来惠及消费者。同时，投资会扩大商业规模。供给经济学最提倡的政策是降低边际税率，减少政府监管。

基于目前的经济形势，中国政府已经意识到：旨在激发需求的大规模经济刺激计划无法有效克服经济下行趋势。最终，这些因循守旧的措施只会加剧制造业产能过剩，给环境带来更不利的影响。

政协委员、华夏新供给经济学

研究院经济学家贾康认为，中国的供给侧改革应该避免简单搬用美国供给学派减税为主的思路。他强调，供给侧改革应该以创新以及提升生产线效率和产品质量为中心。

分析家们倾向于支持这样的说法：为确保改革，中国需要化解过剩产能，降低生产成本，化解房地产库存，防控金融风险。

中国希望通过供给侧改革或者结构性改革，实现到2020年国内生产总值比2010年翻一番的目标。而为实现这一目标，中国经济年均增长必须保持在6.5%以上。

4. 简除烦苛，禁查非法

李克强总理喜欢通过引经据典来阐释其政治思想的微妙。尽管有些拗口难懂，但这八个字却已经成为今年政府工作报告中最常被人提及的词。

在去年的政府工作报告中，与之类似（却比较通俗）的一句话是：“有权不可任性。”

今年，总理用下面这句话来对

上述八个字进行了注解：“实现部门间数据共享，让居民和企业少跑腿、好办事、不添堵”。

这八个字出自公元5世纪南朝宋时期的历史学家范晔编撰的《后汉书》，主要记载了公元6年到189年间的汉朝史事。

这句话最早出现于王室后代东汉大臣刘宠的传记。他因政绩卓著，施惠于民而广受爱戴。他担任会稽郡（时处长江下游流域）太守时，实行以“简除烦苛，禁查非法”为中心的执政方针。

通俗地说，这句话强调了推行更加高效便民的政治服务的重要性。

5. 部长通道

指两会期间为方便媒体采访中国政府官员而开放的通道。

会议期间，从人民大会堂北门到万人大会堂之间，全长不足100米的“部长通道”两侧站满了试图“逮住”高官进行临时采访的中国记者。

今年两会前，李克强总理反复

发话要求各部委主要负责人“积极回应舆论关切”，强调政府部门应该主动发布信息。

总理在两会前的指示似乎已经使得部长们更愿意在这条略为随意和开放的通道上分享他们对于重大问题的看法。而且记者们也能获得一些出乎意料的官方消息。一些资深记者曾自夸在半个小时内“堵”住了5位部长。

正是在这条“部长通道”上，中国农业部部长韩长赋对未来做出了大胆的预测。他说，将来农村的地要靠“新型职业农民”来种。

他表示，农民工进城务工是必然趋势。而另一方面，空出来的大片土地对国家粮食安全仍然十分重要。怎么才能提高土地使用效率呢？韩部长表示，政府应该思考怎么培养新型职业化农民，综合应用科技、机械和其他生产要素，发展现代化农业。他还表示，非常欢迎大学生到广大的农村投资、经营现代农业。

李颖，中外对话北京办公室副主编

Five catchphrases from China's 'Twin Sessions'

Buzzwords and maxims are a hallmark of China's annual political gatherings. Li Ying explains the terms emerging from the current twin sessions that emerged

Li Ying

The annual NPC and CPPCC sessions (or 'Lianghai' – two meetings) currently underway in Beijing make up China's most important political season. The buzzwords that emerged from the two-week session will shape the language of public discourse over the next 12 months.

In this explainer below, our Beijing deputy editor Li Ying examines the catchphrases that have cropped up during the two-week discussions, and what insight they can provide on policies related to China's future growth.

1. The Five Development Concepts

The Five Development Concepts made their debut in a communique issued at the end of the 5th Plenary Session of the 18th Party CPC Congress held in late November, 2015. They refer to new set of guiding principles that will steer the country's economic growth and development over the next five years

The five concepts are innovation, coordination, green development, opening up and sharing – and will pave the way for a “moderately prosperous society in all respects” – according to premier Li Keqiang. In simple terms, they are values to guide China's economic transition that involves restructuring the industrial sector, improving the environment and enhancing efficiency.

2. Craftsmanship Spirit

'Craftsmanship spirit' can best be summed up as the quest for quality and constant improvement in one's endeavours.

It may well be the first time that its mention has been written into a premier's government work report.

Li Keqiang has made it clear that the improvement of product quality, manufacturing upgrades and a labour shift towards service industries are the key to sustainable growth in China.

“We will move faster to bring domestic quality and safety standards in line with international standards, and establish a system to make products pay punitive compensation for failing to meet product quality standards,” said premier Li on March 5.

3. Supply-side Reform

Supply-side economic theory, which was elaborated in the 1970s and implemented by many western governments in the 1980s, contends that growth can be most effectively created through capital investment and removing disincentives such as high taxes and protection for particular industries.

The idea is that consumers benefit from a greater supply of goods and services at lower prices. While businesses expand as a result of the investment. Typical policy recommendations from supply-side economists are lower marginal tax rates and less government regulation.

With China's current economic conditions in mind, the central government has come to the conclusion that demand side measures might be undesirable or unachievable in terms of stimulating economic growth. That would mean that the type of economic stimulus deployed at the start

of this decade has been ruled out, mainly because it could exacerbate overcapacity in manufacturing and worsen environmental impacts.

Jia Kang, a CPPCC member and an economist from China Academy of New Supply-side Economics, argues that China's supply-side reforms should refrain from simply applying what's in the textbooks, such as the use of tax cuts, for example. He stresses that China's supply-side reforms should focus on innovation to improve quality and efficiency on the production line.

Analysts tend to agree that China needs to curb overcapacity, cut down production costs, reduce real estate inventories and prevent financial risks to achieve reform.

Through supply-side reform – or structural reform – China aims to double its GDP by 2020 from the 2010 level. An annual growth rate of 6.5% or more is necessary to reach that goal.

4. Remove complicated procedures and cruel measures; stop officials from disturbing the public and doing unlawful deeds

The Chinese Premier likes to extract aphorisms from ancient Chinese texts to illustrate the finer points of his political thinking. Arcane-sounding as it is, the eight-character couplet has emerged as one of the most talked-about expressions from the Premier's work report amid the central government's continued anti-corruption drive.

Last year, the (not so snappy either) catchphrase was: "Those in high places should abstain from executing power at will"

This year, the premier used it with reference to: "Inter-departmental data sharing, in order to ease troubles for the general public and enterprises, and make it more convenient for them to enlist the service of the government."

The couplet was extracted from Houhanshu, or History

of the Latter Han, which was written in the 5th century and appeared in the biography of Liu Chong, a royal descendant and high-ranking government official in the East Han Dynasty who was widely respected for his wisdom and benign use of power.

In layman's terms, it stresses the importance of more efficient and people-oriented government service.

5. The Ministers' Passage

This refers to an area where hordes of media gather to put questions to Chinese officials at the twin sessions.

The passage is a hallway that runs less than 100-metres inside the North Gate of the Great Hall of the People to the main auditorium. It is lined with Chinese reporters who bombard senior officials with questions, hoping for impromptu remarks from China's rulers.

Prior to this year's two sessions, Premier Li Keqiang reiterated that cabinet ministers and heads of central government departments should "actively respond to media and public enquiries" and share more of their thoughts on key issues.

This year, China's minister of agriculture Han Changfu made a bold projection about the country's future while addressing reporters in the passage. He said the cultivation of farm lands in China should rely on what he called a "new type of professional farmer."

He noted that the ongoing movement of rural migrant workers seeking employment in cities is unstoppable. At the same time, the vast stretches of farmland left behind are crucial to the country's food security. Who will tend to them? The minister said the government should think more about how to train a new type of 'professional farmer' to develop modern agriculture.

Li Ying is Beijing Senior Editor at chinadialogue.

新环保法推动中国治污进程

被称为“史上最严”的新环保法实施一年，正在逐步发挥积极效应。这部法律也成为今年两会环保部长陈吉宁在专场新闻发布会上谈论的重点。

刘琴

环保部长陈吉宁履新一年，中国公众对环保工作关注度空前高涨。新环保法的实施，为陈吉宁打开局面创造了良好的外部环境。多位环保专家告诉中外对话，中国治污局面正在发生好的转变。

空气污染治理初见成效

在去年3月份的两会发布会上，上任不久的陈吉宁表示，新环保法不是纸老虎，要长出钢牙利齿。

一年以后，陈吉宁在今年“两会”新闻发布会上说，中国雾霾治理已经取得阶段性成果。

“优良天数，重污染天数，以及全年的PM2.5浓度这三项基本指标都在发生积极的变化。比如去年首批实施新环境空气质量标准的74个城市PM2.5年均浓度为55微克/立方米，同比下降14.1%。美国NASA卫星也观测到中国的东部和中部地区出现了颗粒物的降低。去年珠三角整个区域全年的PM2.5浓度达标，这个重点地区终于达标，增加了我们治污的信心。”

多家国际环保机构也认为，中

国空气治理取得阶段性成果。例如，亚洲清洁空气中心报告《大气中国2015：中国大气污染防治进程》说，通过对比74个城市2013年和2014年的数据发现，中国大气污染防治效果已经初步显现。绿色和平2016年1月发布《中国366座城市PM2.5浓度排名》报告说，与2014年相比，2015年中国主要城市PM2.5年平均浓度降低10.3%。

治霾三阶段理论

尽管数字表明，中国空气质量确实在好转，但中国公众感觉却不明显，甚至怀疑环保部所采取的措施是否有效。去年冬季取暖季节，多个地区遭

“陈吉宁说，环保法实施一年，取得明显阶段性成果的一个重要原因是“牵住牛鼻子”，落实地方政府的环境保护责任。”

遇严重雾霾天气。北京因为雾霾严重而首次发布红色预警，采取车辆限行、学校停课等极端措施。

在评价中国目前空气污染治理现状时，陈吉宁给出了雾霾治理三阶段理论，并解释了去年冬季为什么会连续发生严重空气污染天气。

第一个阶段，污染的排放量超过环境的容量，这个阶段付出再大的努力也只能见到很小的效果。

第二个阶段，持续地治理，但受到很多自然条件的影响，比如风速、湿度、降雨等，治理效果会出现波动。比如去年年底受极端不利的气象条件影响，华北地区出现了严重的雾霾。

第三个阶段，进一步治理污染排放，不再受这些气象条件影响，环境问题得到解决。

“中国大气环境治理正处在第二个阶段，走向第三个阶段。”陈吉宁判断。

对地方政府的监督加强

绿色和平东亚项目副总监李雁告诉中外对话，中国有句老话，叫

“上有政策下有对策”，再好的政策，到了下面实行起来往往打折扣。“但从环保部一年来的工作，以及陈吉宁的发布会来看，他们找到了治污的源头。现在的环境治理不再是头痛医头脚痛医脚，抓住地方政府和地方保护主义，环保部找到了中国环境问题的‘痛点’。”李雁说。

环保组织公众与环境研究中心主任马军告诉中外对话，污染企业难以治理，背后往往是地方政府出于发展经济的考虑，充当他们的保护伞。去年环保部不仅把目光对准了污染企业，还盯上了地方政府，约谈多位地方官员，并且向媒体公开曝光，给官员施加治污压力。

山东临沂市去年成为新环保法实施后首个被约谈城市。在约谈后第5天，临沂突击对全市57家污染大户紧急停产整顿，成为在约谈后停产整顿的标杆城市。《南方周末》报道说，停产导致企业资金链断裂，工人失业，区域性金融危机风险加大。

临沂事件见诸全国媒体之后，“环保阻碍经济发展和就业”的评论盛嚣尘上。有舆论认为在经济下行的时候，环保应该放松。“但环保部顶住压力，及时介入，反驳了这种观点，使得主流的认识凸显：不能再回到经济一下滑，就放松环保，给污染企业开绿灯的老路上去了。”马军说。

马军认为，从临沂事件的处理，可以看到环保部面对压力，积极进取、希望有所作为的态度。

谈到在过去一年执法过程中面临的挑战时，陈吉宁说，还有相当一部分地方政府环境保护意识淡薄，越到基层责任越不清楚、越不落实。另外，基层执法能力过弱，不论是人



3月11日，十二届全国人大四次会议新闻中心举行记者会，邀请环境保护部部长陈吉宁就“加强生态环境保护”相关问题回答中外记者的提问

员配备上还是装备配备上，“有些执法部门连车都没有”。

陈吉宁在发布会上批评了将环境保护和发展对立起来的观点。他认为，过去中国经济一枝独秀，其他发展滞后，存在突出短板。“现在需要用环保这个抓手，推动经济转型升级。”

新环保法的实施也赋予了立法部门更大的监督地方政府的权力。全国人大环境与资源保护委员会委员蒲长城在回答记者提问时说，为保障环境保护法的落实，人大或者人大常委会以后要听取同级政府关于环境状况 and 环境保护目标完成的报告，今年是首次开展。

中国政法大学教授、政法大学污染受害者法律帮助中心主任王灿发也认为，环保法实施一年，成绩超过以往任何一部环境法律的贯彻实施。

除环保部门在宣传新环保法外，一些地方党委也将环保法作为他们学习的重要内容，“这是过去所没有

的，说明新环保法的实施已经触动了一些党政领导。”王灿发告诉中外对话。

陈吉宁说，环保法实施一年，取得明显阶段性成果的一个重要原因是“牵住牛鼻子”，落实地方政府的环境保护责任。“只有落实地方政府的环境保护责任，地方政府守法了，企业才能更好地守法。”

去年环保部加大了督政和公开约谈的力度，问责地方党政领导。“这有力推动了地方政府环保责任的落实，也解决了一批突出的环境问题，使区域环境质量得到了提升。”陈吉宁说。

为解决地方保护主义对环境监测监察执法的干预等问题，中国将实行“省以下环保垂直管理”（即将监测和监察等职能集中到上级环保部门管理，不再隶属地方政府）。目前已经有17个省（区、市）提出试点意向，大概用一年左右的时间完成试点工作，力争在2018年本届政府换届之前完成这项改革。

强化环保法威慑力

新环保法中有一项惩罚对企业的威慑力特别大，就是按日计罚（即按照企业连续违法的天数累计罚款），这大大加大了企业违法成本。之前对污染企业罚款有个上限，致使企业宁愿罚款也不减排。

据陈吉宁介绍，去年全国实施按日连续处罚715件，罚款数额是5.69亿元。

马军认为处罚力度还可以更大。“从这一年实施的情况来看，真正做到按日计罚的并不多，很多企业没

有按日计罚来处理。”另外，马军也认为，环境信息公开程度不够，包括政府信息公开和企业信息公开。

新环保法的一个亮点是首次将公益诉讼列入其中。据陈吉宁介绍，去年全国各级法院受理环境公益诉讼案件53件。

王灿发说，这和2014年比起来，有了很大进步。“令人印象深刻的是，2015年1月1日环保法实施后，马上就有环保组织提起南平毁林案诉讼并且被法院受理，现在已经结案，环保组织胜诉。”这说明，环境公益诉讼已经在中国开展起来了。

“但是，53起并不多，如果放在全国来看，一个省还不到2起。而且提起诉讼的公益组织还不到10家”。

王灿发认为，除环保组织可以对污染者提起诉讼外，还应当扩大范围，对执法者提起行政公益诉讼。

“这些案件都是在监督环境破坏者，对行政机关起不到监督作用。公益诉讼最大的作用应该是监督执法者，再让执法者去监督污染者，这样效果会更好。”

刘琴，中外对话北京办公室编辑

Will China's environmental law help to win 'war on pollution'?

China's government claims that its environmental law, now in its second year, is delivering results. But more progress will be needed to convince a sceptical public

Liu Qin

Since China's minister for environmental protection, Chen Jining, took office a year ago, public interest in – and scrutiny of – environmental issues has intensified.

The Environmental Protection Law, which came into effect at the start of 2015, gave Chen an opportunity to make real changes, and according to official data and other sources, is already delivering results in China's "war on pollution".

At the annual gathering of the NPC and the CPPCC in March 2015, Chen said that the new law would be no "paper tiger" and would have "real teeth".

A year later, and the law appears to be making major advances – and the most obvious impact has been in tackling smog.



Galaxy Soho, Beijing. The Government's updated environment law aims to make blue skies more commonplace

© Jens Schott Knudsen

"There have been improvements in the number of good air quality days, the number of poor air quality days, and year-round PM2.5 levels," Chen said at political meetings in Beijing earlier this month.

In 2015, 74 cities (the first wave to implement new air quality standards) saw average PM2.5 levels drop by 14.1% year-on-year, according to government data.

"NASA satellites recorded falling levels of particulate matter in China's east and central regions. The entire Pearl River Delta met annual PM2.5 standards last year, and to achieve that in such an important region has increased our confidence," Chen said at this year's conference.

International environmental organisations also believe that China has achieved meaningful improvements in curbing its air pollution last year, from extremely high levels recorded in 2014.

A recent study from Greenpeace found that from 2014 to 2015, PM2.5 levels (the dangerous fine particles that cause pollution) fell by 10.3%. However, the same report pointed out that 80% of cities still have poor quality air.

In addition, China's economic slowdown has prompted shutdowns of factories that are major causes of smog.

Three stages

Public sentiment has reacted cautiously to claims of clear improvements in air quality. In the winter of 2015-2016 (when pollution is typically worse because of the greater demand for heating), many parts of the country have suffered severe fog and haze.

In Beijing, the first ever red smog alert was issued, cars were banned and schools closed.

When discussing China's efforts to deal with air pollution, Chen explained that the curbs on smog will be delivered in three stages. In the first, emissions far exceed the ability of the authorities to deal with them effectively and efforts made during this stage only manage to yield small improvements.

In the second stage, government effort and regulations are ramped up, but outcomes fluctuate hugely, and are vulnerable to environmental factors such as, wind speed, humidity and rainfall.

In the third stage, pollution is reduced to the point where outcomes aren't so dependent on weather conditions, and eventually, smog is reduced to manageable or 'safe' levels.

According to Chen, "China is currently in the second of those three stages, and moving towards the third."

Stronger oversight of local government

Li Yan, deputy programme director at Greenpeace East Asia, told chinadialogue that the implementation of the central government policies at a local level can be challenging.

Last year, the Ministry of Environmental Protection (MEP) shone light on polluting enterprises and targeted local governments. The leaders of the steel-producing city of Linyi in Shandong were the first to be summoned by the ministry under the new law's powers.

In the following five days, the city shut down production at 57 plants while action to improve air quality was taken.

The crackdown was so drastic, and swift, that it disrupted cash flows between firms, led to mass job losses, and increased the risk of a local financial crisis.

At that time, the environment ministry was castigated on social media networks for hampering economic growth and employment through draconian and arbitrary measures. Some commentators said that environmental protection rules should be relaxed during times of economic uncertainty.

"The Ministry withstood that pressure and gave prompt rebuttals, shifting mainstream opinion to the view that China should not give the green light to polluting firms during tough economic times," explained Ma Jun, head of green NGO the Institute for Environmental and Public Affairs.

The handling of Linyi's pollution problems has

underlined how the MEP has taken decisive action in response to shortcomings at a local level, where there is often a shortage of manpower and resources, and a weak grasp of environmental issues.

At a press conference at this month's Lianghui, Chen was critical of the view that protecting environment was incompatible with economic growth.

"We need to use environmental protection to encourage economic transformation and upgrading," he said.

As ever, enforcement at a local level will be crucial. The updated environmental law has given legislators more powers to oversee local government and delivery will be monitored closely by the National People's Congress, China's main legislative body

"Those responsibilities need to be enforced, local governments need to abide by the law if the companies are going to abide by the law themselves," said Chen.

Sharper teeth

One sanction included in the new law should, in theory at least, focus minds among companies about the consequences of pollution. These include daily accumulative fines which are imposed when the law is breached. The law hugely increases the cost of those breaches, by removing the previous cap on fines.

Daily fines were imposed in 715 cases in 2015, with a total of 569 million yuan (£57 million) collected. But application of fines has been patchy and, a case covered in Chinese media last week has garnered much attention.

In mid-March, the MEP ordered an investigation after a provincial environmental protection body fined a factory in Jiangsu province just US\$90 for dumping waste water.

Ma Jun says fines need to be much tougher. "It seems that not many firms were actually given daily fines in this past year." He added that there still is not enough disclosure of environmental information, either by government or businesses.

A notable achievement of the Environmental Protection Law has been its support of public litigation. Last year national courts accepted 53 environmental public interest litigation cases, which is major progress, said Wang Canfa, professor at the China University of Political Science and Law, and the founder and director of the Beijing-based Center for Legal Assistance to Pollution Victims. ☞

Liu Qin is an editor in chinadialogue's Beijing office.

去产能：中国产业结构升级关键词

去产能是中国十三五规划中的重要改革。因为叠加了中国经济和产业升级转型，将会导致一定规模的职工岗位转移和结构性失业。人社部已制定计划，通过四种渠道安置转岗职工。

张春

中国十三五规划浮出水面，补短板、去产能成为重头戏。补短板，即解决“资源约束趋紧，生态环境恶化”的问题。去产能，则是化解过剩产能、减少那些连年亏损资不抵债的僵尸企业。

去产能绝非简单做减法

去产能的对象，主要是产能过剩行业。十三五期间需要消除多少过剩产能？转岗多少工人？这些问题目前尚无确定答案。

人社部初步统计，十三五期间煤炭和钢铁行业将下岗或转岗180万人，其中煤炭130万，钢铁50万。高盛公司对七大产能严重过剩行业（包括煤炭，钢铁，水泥，平板玻璃等）进行评估，以减少30%产能为基准，预计岗位转移人员将在270—450万人之间。民主党派民革中央则在今年两会提案中提到，十三五期间的供给侧改革可能涉及到1000万劳动力转移。

民生证券研究院在报告《中国式去产能全景图》中提到，中国粗钢产能利用率接近68%，2015全国

“姜克隽说，去产能和去产量不是一回事。产能下降30%是可能的，但是工人下岗人数主要看产量的变化。”

水泥熟料产能利用率也不足七成。粗钢和水泥的过剩产能均超过30%。但按照目前规划，去产能幅度应该不会这么大。

国务院二月初出台《国务院关于钢铁行业化解过剩产能实现脱困发展的意见》，计划“在近年来淘汰落后钢铁产能的基础上，从2016年开始，用5年时间再压减粗钢产能1亿—1.5亿吨。”这个量约为2014年粗钢产量的13%到17%。

相应的劳动力转移力度会涉及多少职工？专家意见不一。

发改委能源所主任姜克隽对中外对话说，转岗规模他们还没有评估，不过他提醒人们不要被字面上30%的降幅吓到。他说“去产能和去产量不是一回事。产能下降30%

是可能的，但是工人下岗人数主要看产量的变化。”产能是生产能力不是实际的产量。姜克隽举例分析，一个具有1000万吨生产能力的企业，可能只配备了500万吨的产业工人，只生产500万吨产品。过剩的产能以及死的产能，通常并没有配备相应的工人。“如果产量变化不大，工人转岗数量就不会太大。”姜克隽指出。

去产能离不开市场调节

现在包括河北在内的一些地方政府已经提出了产能退出的方案，姜克隽认为市场调节是关键：“未来政府的角色不大，都是市场决定的。市场有多大，就会生产多少钢。”

根据国家统计局数据，目前煤炭产量下降趋势明显，连续两年降幅超过2.5%。钢铁产量2015年出现首次下滑，比2014年下降2.3%，预期2016年将会再次下降。不过，伴随需求旺季的到来，2月钢铁需求有望回升。

厦门大学能源经济所教授林伯强认为市场波动对煤炭产量的影响不可忽视。他指出在煤炭占比一

次能源比重仍高达64%，新能源占比和增长速度都有限。如果随着经济回暖，能源需求上升，煤炭产量因为其性价比优势也必然会回弹。“当前谈去产能没有考虑需求的变化，这个是不对的。”他说。

林伯强认为，去产能长期来看对煤炭产业是好事。“眼下这一两年之内是煤炭行业日子最难过的时候，需求弱，价格低。如果过两年产能去掉一些，价格有所回升，行业可能会有一定的反弹。”

参照已基本明确的煤炭和钢铁180万人转岗规模，林伯强认为严重过剩产能行业转岗几百万人是可能的，但他预期转移不会一蹴而就。去产能是个很花钱的过程，如何妥善安置职工，也需要周密的部署。

林伯强认为稳定是首要的考虑，不可重蹈上世纪90年代国企改革大片关停的覆辙。（在那场改制过程中，下岗人数总共超过2000万）另一方面，单凭1000亿元的中央专项资金，不足以解决职工安排问题，需要地方和企业配套资金。地方面临GDP下行压力，还要安置转岗人员，财政压力大，进度很难快起来。“国企调整应当会以并购为主，而非简单关停，所以国企职工的下岗不会太严重。”

发改委主任徐绍史在两会期间举行的专场发布会上指出，凭借中央财政支持和地方政府配套措施共同发力，大规模的下岗潮可以避免。他指出当前社会经济条件不同，而且国企改革的方式也不同。

徐绍史举例说河北化解过剩产能起步比较早，力度也比较大，但是企业兼并重组，债权债务的重组、

职工的安置，都没有出现大的问题。“另外现在经济增长一个点带动的就业比过去要多一倍多。所以经济不断增长，创造的就业岗位就更多。”

转岗职工安置是关键

根据中国清洁空气联盟报告《大气污染防治行动计划（2013—2017）实施的投融资需求及影响》，中国若顺利实施《大气污染防治行动计划》（简称《行动计划》），可由投资拉动增加380万就业岗位，淘汰落后产能减少岗位数略超过89万，净增长290多万。

《行动计划》限制高耗能高污染中小企业的发展，驱使对资本和能源高度依赖的劳动密集型产业转型为高附加值和新技术产业、环保产业，从而优化产业结构。

李克强在今年两会政府工作报告中指出，2015年中国服务业首次占据国内生产总值半壁江山。十三五期间将大力推进产业结构优化升级，到2020年，先进制造业、现代服务业、战略性新兴产业比重亦会大幅提升。

不过，由落后产能退出的职工很难直接进入新兴产业部门，结构性失业在所难免。例如，光伏、风电等新能源替代了煤炭以后，其岗位大多需要大专以上学历人才，下岗的矿工很难就地再就业。

民进中央在调研中发现，大量职工由于职业技能不足，再就业受到较多限制。职业教育体系往往只招收应届生，全日制的学制安排也无法让职工边学习边养家。

教育部副部长郝平表示，教育

部将进一步深化教育教学改革，有针对性地为企业化解过剩产能开展知识技能培训和创新创业教育，努力为他们创造转岗和再就业的条件。

人社部部长尹蔚民说，指导化解过剩产能中职工安置工作的文件即将出台。目前明确的四个渠道为：企业内部分流，即利用现有场地技术设备等开辟新的就业岗位；第二，促进转岗就业创业，通过转岗培训或职业培训的方式增强其职业转换能力；第三，大龄职工内部退养；针对就业困难的职工，将会提供公益性的岗位。

姜克隽说所谓公益行岗位，包括“道路清洁，公园清洁，公共厕所管理等，对技能要求不高的岗位。提供给落后行业转岗职工是可以的。但是这些岗位通常在城市，一般的矿工还是很难被吸纳进来。”

河北去产能的社会影响是北京师范大学副教授杨力超的研究课题。她在接受中外对话电邮采访时说：“过去依赖‘两高’产业的乡镇，就我去了解过的而言，都在积极寻找新的经济增长点，尝试转型，有的是引进轻工业投资，有的是依靠自身的旅游资源，积极开发旅游业。但是因为刚刚在开始转型，效果还不可知。”

据河北省政府统计数字，截止2014年底，去产能分流共涉及企业职工43.75万人，其中21万人在内部转岗留用，待岗辅助性岗位等有8.89万人（继续发放基本生活费），直接失业人员8.81万人。^⑤

张春，中外对话北京办公室编辑

China reaches for the safety net as heavy industry culls jobs

China's new Five-Year Plan intends to reduce chronic overcapacity in its heavy industries, but leaders face a difficult task in cushioning the blow

Zhang Chun

China's plans to close overcapacity in energy-intensive and environmentally-damaging industries, such as coal mining and steel, are central to its economic transition over the next five years, as set out in its latest Five-Year Plan (FYP).

But as the US and European countries can attest, curbing industrial overcapacity can involve job losses, mass migration, economic stagnation and social unrest in rust belt areas; scenarios that China's leadership is desperately trying to avoid.

Protecting workers who face unemployment has become a major concern at central and local government level, but the proposed remedies are unlikely to allay concerns among many of those who are most at risk.

The government has identified four ways that workers can be re-employed, although experts warn these options are unlikely to be attractive to those who enjoyed reasonably well-paid jobs in heavy industry.

These options include: moving to new jobs within the same company; using existing facilities and equipment; increasing the ability of workers to find new jobs or start their own companies; offering company pensions to older workers; and providing basic government jobs to those who were unable to find alternatives.

"Low-skilled work, such as cleaning roads and parks, or attending public toilets. These could be offered to laid-off workers - these are usually in urban areas and won't be attractive to most miners," said Jiang Kejuan, head of the National Development and Reform Commission's Energy Institute

The number of those expected to be affected by China's

move to an economic "new normal" is startling.

A heavy toll

China's Ministry of Human Resources and Social Security (MOHRSS) estimates that during the 2016-2020, 1.8 million workers in the coal and steel industries will have to change or lose their jobs.

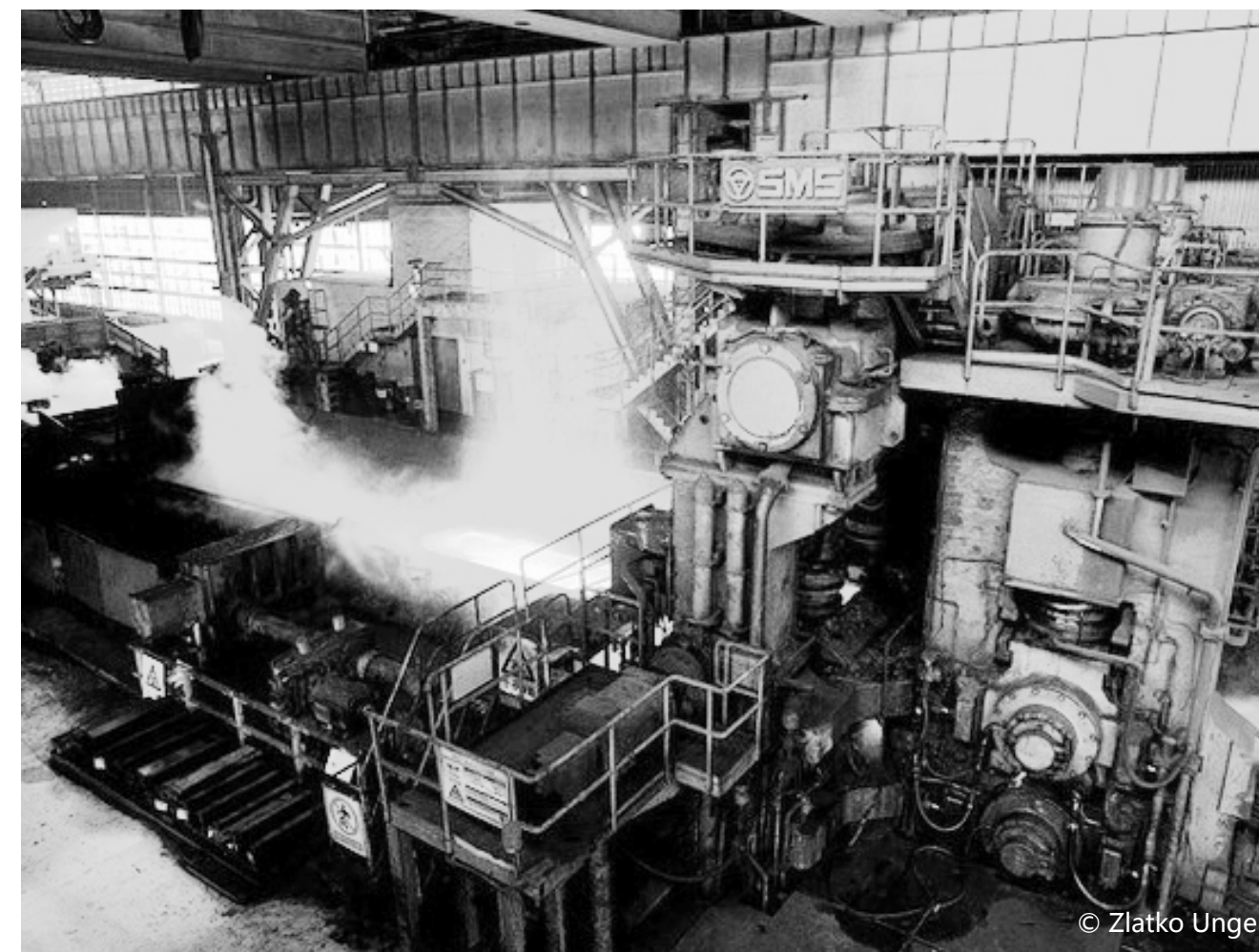
An evaluation by Goldman Sachs of the seven industries most affected by overcapacity (including coal, steel, cement and plate glass) found that a 30% cut in capacity would mean that new jobs would need to be found for between 2.7 and 4.5 million workers.

The Revolutionary Committee of the Chinese Kuomintang, one of China's small political parties that are allowed to take seats in the Communist-dominated National Party Congress (NPC) estimates that an economic shift could impact 10 million workers by the end of the decade.

While huge job losses pose a major challenge for China's economic and social structures, there is little disagreement about whether drastic measures are required to address chronic overcapacity in China's heavy industries.

A report by the Minsheng Securities Institute on China's capacity reduction shows that only 68% of China's raw steel production capacity is used, while utilisation of cement clinker (unmilled cement) production capacity fails to reach 70%.

In both cases, more than 30% of capacity is unneeded – although job losses are unlikely to be proportionate to projected overcapacity.



A steelworks in Shanghai

© Zlatko Unger

In February, the State Council published its assessment of steel capacity cuts, saying that "continuing from recent reductions in inefficient production, a further 100 to 150 million tonnes of capacity will be removed in the five years from 2016."

This represents only 13%-17% of total steel output for 2014. "Reducing capacity and reduction output are different things. Capacity might be cut by 30%, but it is the changes in output which will determine job losses," said Jiang Kejuan.

In other words, capacity is how much could be produced – not how much is actually produced, pointing out that excess and unused capacity are often unstaffed.

"If changes in output aren't significant, changes in employment won't be either," he said.

Some local governments, including those Hebei Province, have already put forward plans for cutting overcapacity.

Capacity cuts

Market forces will be key in determining the size of cuts, said Jiang: "In the future the government will play a smaller role, with the market making the decisions. How much steel is made will depend on how much of a market there is for it."

The situation for coal, which accounts for almost two-thirds of China's primary energy demand, is more complex, however, points out professor Lin Boqiang of Xiamen University's China Center for Energy Economics Research.

Lin says stability is the main concern and that the government is keen to avoid the experience of the 1990s, when large numbers of state-owned firms were simply shut down without any redress (leaving 20 million people out of work) cannot be repeated.

However, 100 billion yuan of funding promised by the central government is likely to be far below what is needed

to find new jobs for those affected. Local governments and businesses will have to contribute, but as China's GDP growth slows, there may be less money around to fund redeployment of workers.

"For state-owned firms, the changes will mainly take the form of mergers, rather than just closure. So job losses at state-owned firms won't be too bad," said Lin.

Xu Shaoshi, head of the National Development and Reform Commission said at the this month's 'twin sessions' (also known as Lianghui) that he is confident that the current social and economic circumstances are suitably different from those of the 1990s, ensuring widespread job losses will be avoided.

Methods of reforming state enterprises have changed too. Xu gave Hebei as an example. He said the province had more of a problem with overcapacity than elsewhere, but also started dealing with it earlier. He claimed that no major problems have been encountered while merging and restructuring firms, restructuring debts, and finding new jobs for workers.

"And nowadays one percentage point in economic growth means twice as many jobs as it did in the past. So sustained economic growth means even more jobs created," said Xu.

According to a China Clean Air Alliance report on funding needs for China's 2013-2017 air pollution action plan, the smooth implementation of that plan could create 3.8 million new jobs, while 890,000 would be lost from elimination of inefficient facilities, delivering a net gain of 2.9 million jobs.

The action plan limits the development of small and medium-sized energy-intensive and polluting firms. It also encourages a shift away from labour-intensive industries, which rely heavily on capital and energy, while emphasising environmental protection, thus optimising the

industrial structure. China's service sector accounts for at least than 50% of GDP, according to official data and is likely to increase as overcapacity in heavy industry is reined in.

The 13th FYP will see a big push to improve China's economic structure, and by 2020 high-tech manufacturing, modern services, and strategic emerging sectors will become important job creators.

However, it will be difficult for some to find jobs in emerging sectors. For example, when coal is replaced by solar and wind power, specially-trained workers will be needed – not unemployed coal miners.

Skills gap

Research by the China Association for Promoting Democracy found that many workers would struggle to find new jobs due to a lack of skills. Vocational training is often only open to those who have recently left education, and full-time study would not allow for part-time work to provide for families.

Hao Ping, Deputy Minister for Education, said the ministry will further reform schools, universities and training in order to provide more retraining and entrepreneurial skills, so workers can find new jobs. But figures from the Hebei provincial government show the scale of that task. At the end of 2014, 437,500 workers had been affected by reductions in capacity. Of these, 210,000 had found new jobs within their companies, while 88,900 were being retained on basic wages while awaiting work. Almost 900,000 had been laid off.

Zhang Chun is an editor in chinadialogue's Beijing office.

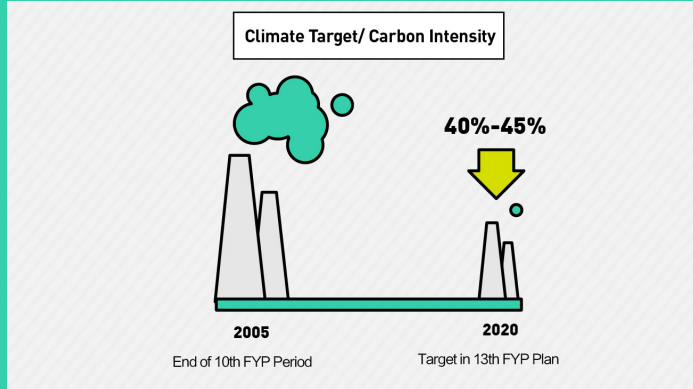
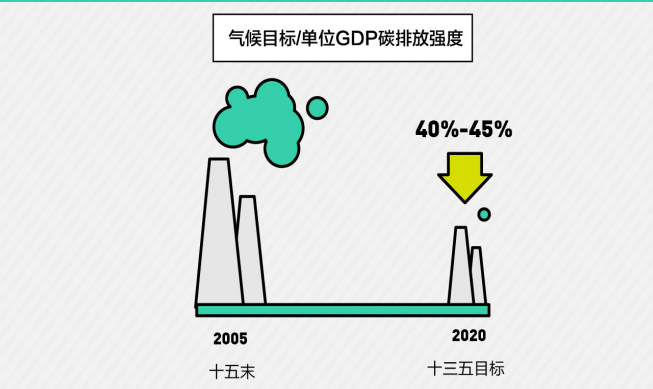
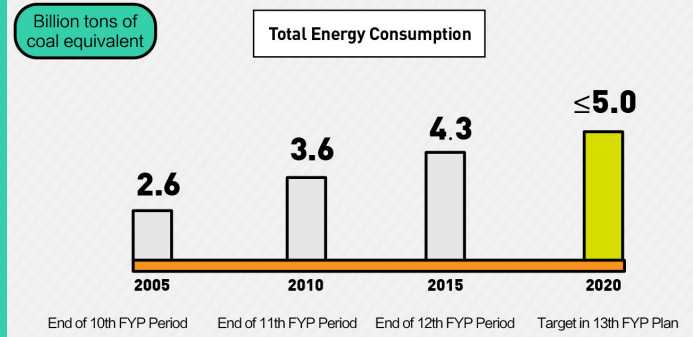
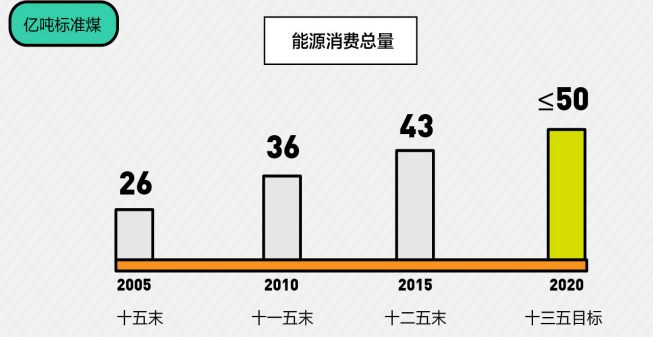
图解“十三五”气候能源要点 Climate, energy and China's 13th Five-Year Plan in graphics

中外对话精致四幅信息图，解读“十三五”规划中能源消费趋势和重要环境目标。

The country's most important environmental targets and energy consumption trends since the start of the century

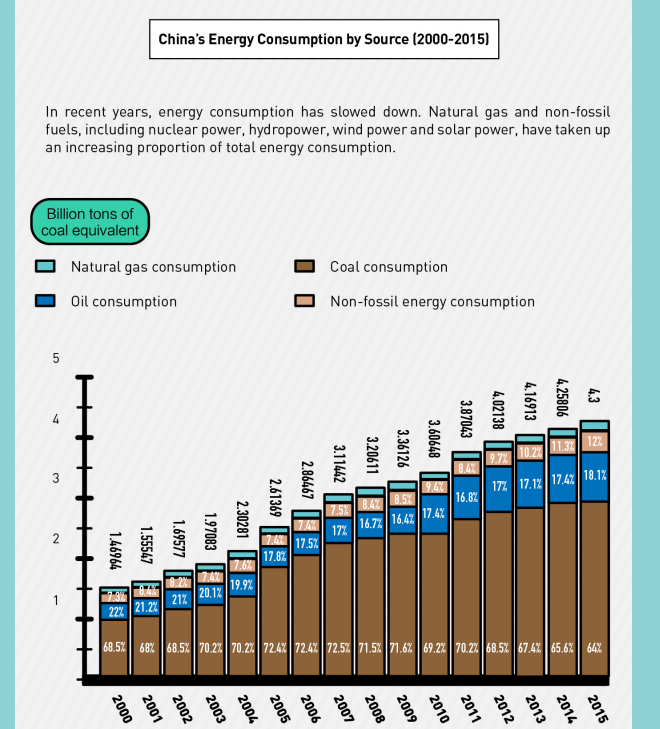
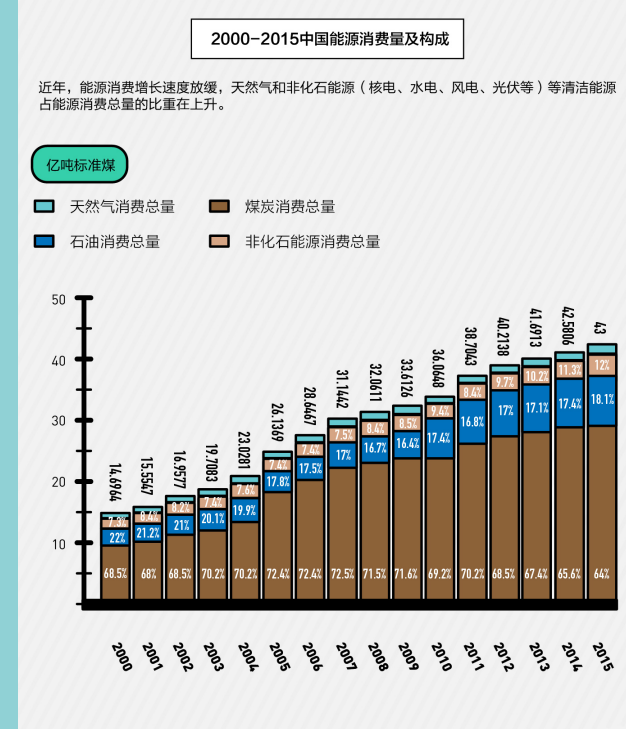
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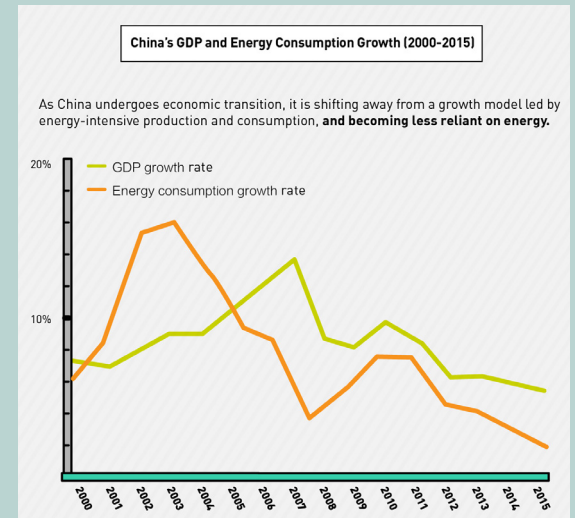
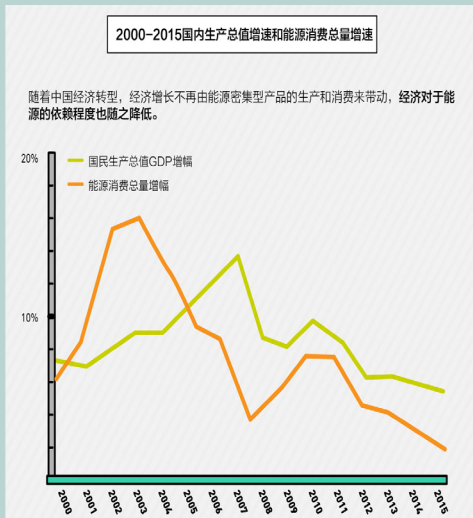
煤炭消费在中国能源消费结构中的比重下降

THE DECLINE OF COAL CONSUMPTION IN CHINA'S ENERGY CONSUMPTION MIX



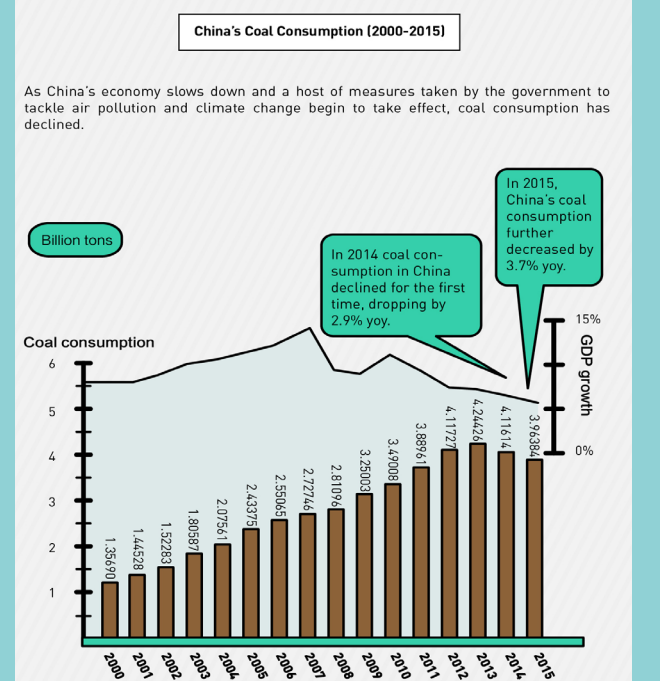
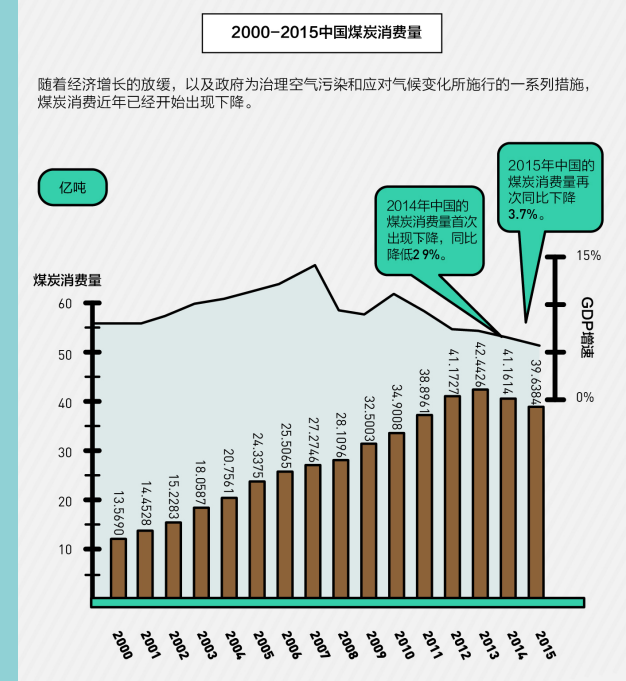
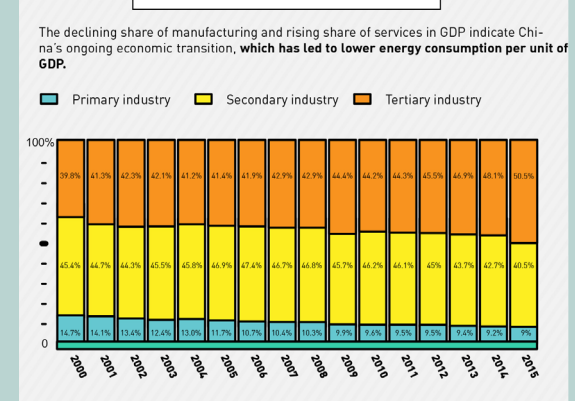
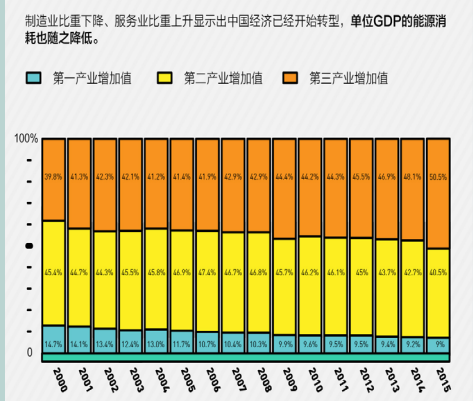
经济转型对中国能源消费的影响

IMPACT OF ECONOMIC TRANSITION ON CHINA'S ENERGY CONSUMPTION



2000-2015三次产业增加值占国内生产总值比重

Sector Contribution to GDP (2000-2015)



数据来源：中国能源统计年鉴2015

Source: China Energy Statistical Yearbook 2015

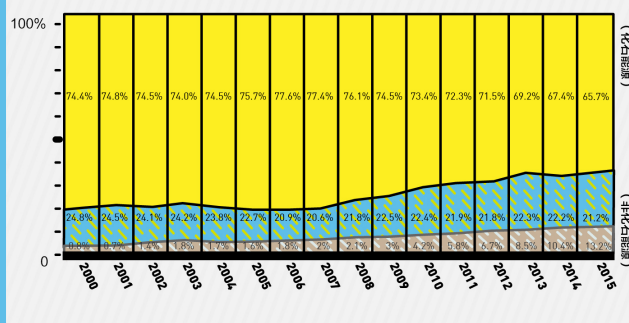
非化石能源的开发和利用

DEVELOPMENT AND UTILIZATION OF NON-FOSSIL ENERGY

2000-2015中国发电装机容量构成

电力生产是中国一次能源消费的主要行业，也是温室气体的主要排放源。近年，随着国家政策对可再生能源的推动及技术进步，火电在装机容量和发电量占比下降，非化石能源（水电、核电、风电、光伏）的装机容量和发电量上升。

■ 火电装机容量占比（包括煤电、气电和油电，以煤电为主）
■ 水电装机容量占比
■ 其他装机容量占比（核电、风电、光伏及其他）

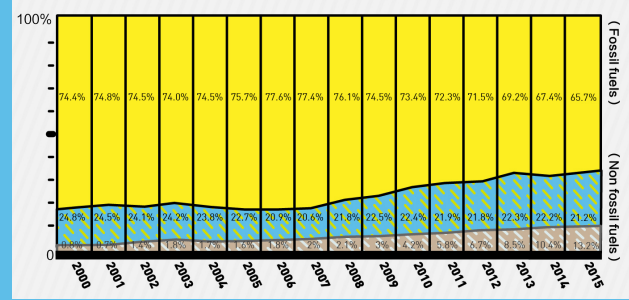


China's Installed Electricity Capacity (2000-2015)

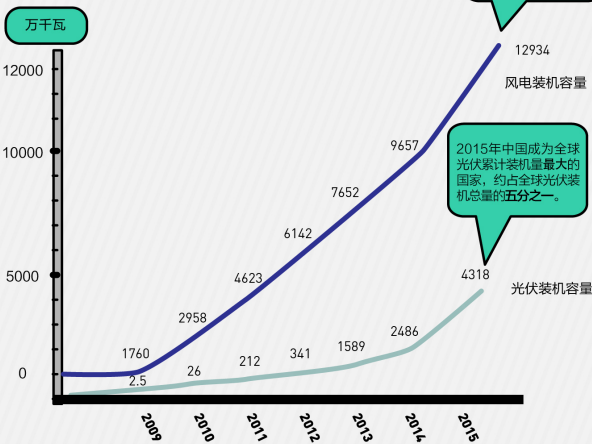
The power generation industry is a major part of primary energy consumption and a major source of GHG emissions in China.

In recent years, thanks to national policies on renewable energy and technological progress, the proportion of coal's installed and generating capacity has shrunk, while the installed and generation capacity of non-fossil energy (hydropower, nuclear power, wind power and solar power) has increased.

■ Thermal power installed capacity (including coal, gas and oil, mostly coal fired power)
■ Hydropower installed capacity
■ Other installed capacity (nuclear power, wind power, solar power and other)

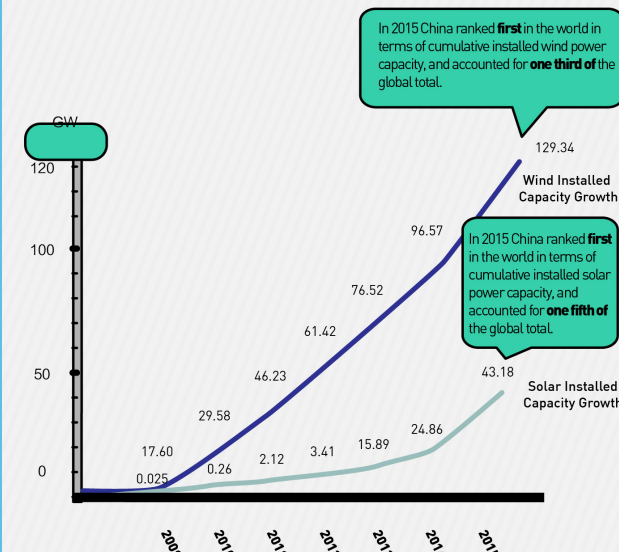


2009-2015风电和光伏装机容量的增长



数据来源：国家统计局、中国电力企业联合会、全球风能理事会、中国光伏行业协会

Wind and Solar Installed Capacity Growth in China (2009-2015)



Source: National Bureau of Statistics of China, China Electricity Council, Global Wind Energy Council, China Photovoltaic Industry Alliance

中国城镇化的新驱动力

城镇化长久以来被视为是拉动中国GDP增长的强大引擎，和推动经济社会发展的有效途径。在经济新常态下，中国的城镇化将呈现何种新的形态？

刘琴

中国社会科学院城市发展与环境研究所所长潘家华在接受中外对话专访时说，中国城镇化将由原来的依靠投资向扩大需求转变，由“工业化驱动”向“品质化驱动”转变。他特别提到，解决城市病、实现新型城镇化的均衡发展，尤其需要均衡配置教育、医疗等公共资源，“一所名牌大学能够带动一个城市发展”。

潘家华：2015年中国城镇化率为56.1%，2020年要达到60%；2015年户籍人口城镇化率是39.9%，2020年要达到45%，比2015年提高5.1个百分点。户籍人口城镇化是中国特有的概念，很多人在城市工作，户口却在农村，这使得他们享受不到拥有城市户籍的市民所享受的城市服务待遇。

潘家华：城镇化对于推动中国经济快速发展确实发挥了重大作用。过去城镇化是投资导向型，带动了钢铁、水泥、交通等各行各业的发展。但现在投资比较饱和了，各地有大量房产库存，处于库存量释放期，资金回笼期。

中国城镇化率每提高1个百分点就涉及1400万人口。而城镇化率要由现在的56.1%提高到2020年的60%，将带动家电、家具装修，餐饮等服务业的发展，这个内需市场是非常巨大的。

投资驱动转向消费提升

中外对话：与之前的城镇化相比，十三五期间中国的城镇化最显著的变化会是什么？

潘家华：中国过去的城镇化是规模扩张型，以后将向品质提升型转变。通俗地讲，以前是圈地盖房，靠“工业化驱动”、投资拉动来建造城市，以后是“品质化驱动”，通过“圈人”让打工者成为城市新市民，靠消费需求来引领和提升城市生活品质。

中外对话：十三五中国城镇化率要达到什么水平，目前处于何种阶段？

2020年中国将有超过6亿拥有城市户籍的城市常住人口，比2015年末的5.48亿人增加8000多万人。中国城镇化发展速度快，在2011年之后，明显快于世界城市化速度。到2015年，世界平均水平约为53%，中国达到56.1%，已经处于世界中等偏上水平，但比起发达国家80%的标准来，还很低，中国城镇化发展的前景还很广阔。

中外对话：有研究认为，城镇化率每提高1%，就会带动中国GDP增长0.8%。在经济新常态下，城镇化速度也在放缓，城镇化将如何继续拉动GDP和中国经济？

“新型城镇化”强调以人为本

中外对话：十三五规划提出“新型城镇化”的概念，新型体现在哪些方面？

潘家华：“新型城镇化”更强调人的城镇化，要走“以人为核心”的新型城镇化，这和过去不同。一直以来，农民进城打工很难享受和城市居民一样的社会保障制度，比如医疗、教育等。农民工子女不能在

城市上学，需要回到户籍所在地入学，把老人、孩子留在农村，孩子成了留守儿童，与父母分离，造成社会和人伦的许多痛楚。通过户籍城镇化，让更多的打工者和他们的家属就地市民化，在城市安居，享受与市民家庭相同的教育、医疗、养老等社会服务和保障。

中外对话：中国城镇化水平有了很大提升，但还存在哪些问题？

潘家华：第一，城市规划与发展有不匹配的地方，造成资源浪费，比如鬼城。第二，城市的产业发展超出了环境的承载力，出现了水资源短缺等问题。第三，政府的宏观调控方式和目标还有巨大的提升空间，比如在城市格局分布上和产业导向上。

中外对话：发达国家的经验，哪些方面值得中国借鉴？

潘家华：在中国，规划的科学性和严肃性有待加强。国外制定的规划相对稳定，在中国，市长、书记话语权比较重。比如某个城市，新领导上任，不喜欢的行道树都砍掉换成自己喜欢的树种。在城市治理方面，发达国家公众参与度相对高。但在中国，政府比较强大，公众主动参与渠道比较有限，参与水平不高。

公共资源配置首先要均衡

中外对话：十三五规划提出要促进城乡区域协调发展，但并没有详细解读。您认为怎么促进协调发展？

潘家华：中国城市的竞争力更多的是一种行政权力的竞争，行政

级别越高，权力越大，竞争力也就越强。今年春节过后，北京、上海、广州、深圳这些一线城市房价暴涨，三四线城市却面临房地产过剩、卖不出去的局面，说明这些大城市集聚了中国最好的资源。现在讲“京津冀协同发展”，但全国 100 所名牌大学北京就有 21 所，天津 2 所，河北省只有 1 所，河北的医疗条件显然远不及北京，使得大量河北百姓看病都要跑到北京来。

在省域层面，优质资源也都集中在省会城市，没有均衡配置到级别低的城市，尤其是医疗、文化、教育、科技等公共资源。但这些公共资源多为纯公共或准公共产品，不是纯竞争性市场资源，配置公共资源应该从国家利益、社会利益、环境生态的利益来统筹考虑。

北京集聚了中国最好的大学、最好的医院。有报道称，每天有 70 万人来北京就医。巨大的公共资源服务需求和庞大的人口流动，使得北京成了中国的“首堵”。居民出行可以不开车，但地铁线路虽便捷，可惜人太多挤不上去。北京的地铁也有一个承载力，所以只有技术的发展是不够的，还需要科学、合理的规划。

美国的公立大学如加州大学就分成 10 个校区均匀分散在全州，而不是扎堆在一个城市，纽约州立大学也是分布在全州。一个校区就是一座城镇，有就业、有基础设施、有社会服务。

中外对话：您认为，更多的大学下放，是否能够助力城镇化协调发展？十三五期间有可能解决公共资源不平衡的问题吗？

潘家华：斯坦福大学就是一座

大学城，剑桥也是一座只有大学的城市。举个例子：如果把清华大学搬离北京，比如搬到河北省的西柏坡镇，北京至少减少 50 万人口，西柏坡就可以发展成一座大城市。如果把清华大学搬到唐山，清华大学的师生就不会容忍唐山发展高污染产业来污染空气污染环境，而是会用自己的知识、智慧来把这座城市建设得更好；而且大学到来的就业岗位也会满足当地社会的就业需求。

中国现在讲扶贫，教育扶贫是最智慧、最环保的扶贫。如果贵州省毕节市（经济落后地区）有一座好的大学，就能带动周边餐饮业、服务业的发展，提高当地的科技、教育、文化和基础设施水平。教育给一座城市提供的是造血功能和持续的发展动力，能够推动中国城镇化的协调发展。

公共资源要实现均衡配置，背后有盘根错节的利益博弈，要说难，需要一两个世纪，要说容易，几十年也可以。如果中央财政投给公立高校的资金疏解到相对稀缺的中西部地区，中西部地区就有了就业岗位、科研经费，人员自然就中西部了。我们现在有一种误区：认为疏解的应该是低端产业，应该留下高端产业。殊不知，没有“低端”，也就无所谓“高端”。只要有高端，永远需要低端的服务和支撑。因而，疏解低端的效果比较有限。从国际经验和我国现实情况看，既然是公共资源，就要服从公共利益，就应该从社会利益的全局来考虑，这是发展的方向。



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刘琴，中外对话北京办公室编辑

What does urbanisation mean for China's economy

Urban growth will be led by domestic consumption and wider access to welfare, says Pan Jiahua

Liu Qin

Premier Li Keqiang once said urbanisation is a “huge engine” of China’s future economic growth. But since he made these comments four years ago, China’s economic model has shifted. In the context of the ‘new normal’ and emerging environmental revolution, what place does urbanisation have?

In an interview with chinadialogue, Pan Jiahua, director of Institute of the Urban Environment at the Chinese Academy of Social Sciences (CASS), said that Chinese urbanisation will no longer be powered by investment and industrialisation, but rather, by domestic consumption and a new focus on improving people’s quality of life.

Pan believes that in order to create greater social equality, public resources such as education and healthcare, must be more evenly distributed.

As he puts it, “building a university can help an entire city grow.”

From investment to consumption driven

chinadialogue (CD): How has urbanisation been redefined by the 13th Five-Year Plan?

Pan Jiahua (PJH): In the past, urbanisation was a process of expansion, now it’s going to be a process of qualitative improvements. To put it crudely, it used to be a case of building over fields, powered by industrialisation and investment. In the future it will be quality-driven, transforming migrant workers into urban citizens, and using consumption to raise the quality of life in cities.

CD: Why is such a fundamental shift happening?

PJH: We now have the right conditions needed to be more quality-orientated. After decades of development, China’s infrastructure is in many aspects world-leading – we’ve seen the rapid development of roads, railways, subways, and water and electricity supplies. There have been major improvements in education and healthcare and standards of living are higher.

But expansion creates problems after a certain point. In China, it has created a glut in the housing market. We can’t just expand our cities, we need to improve them, and ensure that people are not just a part of urban life but also enjoying the benefits.

“public goods such as healthcare, education and cultural facilities are state goods, not market goods, and their distribution should take national, social and environmental interests into account.”

CD: How will China's rate of urbanisation change in the next five years?

PJH: China is changing significantly quicker than the rest of the world. In 2011, the rate of urbanisation was not far off the global average of 53%. By 2015, it had reached 56.1%, putting it at the top of the global mid-range but still low compared to developed nations, where urbanisation has reached 80%.

By 2020, the rate of urbanisation in China will reach 60%, and the number of people who hold urban registration documents will rise to 45%, compared to 39.9% in 2015. The household registration system [or Hukou system] is unique to China. It means many people work in the cities but have rural household registration documents, which means they don't have access to the same welfare amenities as those registered in cities.

In five years from now, China will have 600 million people will have urban registration documents. In 2015, that number was 548 million.

CD: Under the 'new normal' urbanisation is slowing. How will that affect GDP growth?

PJH: Urbanisation has played an important role in China's rapid economic development. In the past urbanisation drove investment, it spurred growth in the steel, concrete and transportation sectors. But those investment markets are quite saturated now, and there's already plenty of housing stock available.

An increase of 1 percentage point in China's degree of urbanisation means 14 million more people become urban residents. An increase from 56.1% to 60% will mean growth in markets for household appliances, furniture, decorations, and in services such as restaurants.

New urbanisation: putting people first

CD: The 13th FYP talks of a 'new type of urbanisation'. What's new about it?

PJH: It puts more focus on people. This is different from the past. Before rural residents moving to the city for work have not had the same benefits as urban residents. Their children can't attend city schools, access the same healthcare and have to return to their native province to register their household. Children and the elderly get

separated and left behind, it's inhumane. Reforming the household registration system will allow families to become urban citizens.

CD: What have been the other downsides of urbanisation?

PJH: First there are problems with urban development and planning which result in the waste of resources, such as we see in China's 'ghost cities'. Second, industrial development in the cities is outstripping environmental capacity, causing problems such as water shortages. Third, the government isn't fulfilling its role as macroeconomic regulator, leading to problems with the overall distribution of cities and industry.

CD: What can China learn from the developed nations?

PJH: Planning in China could be more scientific and rigorous. Overseas planning tends to be more stable. In China, mayors and Party secretaries have a big say. There's more public participation in city governance in developed nations, while in China we have a powerful government and the public lack the inclination to get involved, so levels of participation are low.

Fairer access to public resources

CD: The 13th Five-Year Plan called for better balanced urban-rural development, but no more details were given. How do you see that happening?

PJH: There is huge competition among the different city governments. After the Chinese New Year, we saw property prices in first tier cities such as Beijing, Shanghai, Guangzhou and Shenzhen rocket, while in third and fourth tier cities there's a housing surplus, nobody's buying. This shows that China's best resources are concentrated in the big cities. There's talk now of coordinated development across the Beijing-Tianjin-Hebei region, but if you look at China's top hundred universities, 21 of them are in Beijing, two in Tianjin, and Hebei doesn't have a single one.

Look at the US: The University of California, a public university, has ten campuses across the state, it's not all in one city. The State University of New York is also spread out across the state.

People in Hebei travel to Beijing just to go to see a

doctor. Beijing has the best hospitals and every day 700,000 people come to Beijing to seek medical treatment.

Resources get concentrated in provincial capitals, rather than distributed across smaller cities. This is particularly the case with public goods such as healthcare, education and cultural facilities. But these are state goods, not market goods, and their distribution should take national, social and environmental interests into account.

CD: So will better distribution of universities help?

PJH: China needs to reduce poverty. The wisest and most environmentally-friendly way to do that is through education. If the city of Bijie in Guizhou had a good university it would help the local restaurant and service industry grow, and the local level of education would rise.

A university makes a city self-sufficient, it makes it able to develop sustainably, and that can promote balanced urban-rural development.

If you moved Tsinghua University to, say, Xibaipo in Hebei, you'd reduce the population of Beijing by half a million and turn Xibaipo into a city. Move it to Tangshan and the professors and students couldn't ignore the air pollution resulting from the dirty industries there – they'd use their knowledge to make the city better.

Redistribution of public resources involves handling complicated vested interests. At worst it could take a century or two, at best decades. But we need to think in the public interest, in the interests of society. ☺

With contribution from Ma Tianjie.

Liu Qin is an editor in chinadialogue's Beijing office.

2016年中国环境领域的几大看点

新年伊始，中外对话邀请5位中国环保领域的代表人物，对2016年的中国绿色转型进行展望。

中外对话

我们问了两个问题：2016年，中国环境领域有哪些值得关注的动向？你对新一年的绿色转型有何期待？从这5份侧重点各异的答卷中，我们看到了一张有趣的拼图。“雾霾”、“监督”和“参与”等高频词汇，看起来仍将占领2016年中国环保头条。

杨富强（自然资源保护委员会气候、能源和环境高级顾问）

2016年是中国十三五规划的开局之年，一定要做好。这要求我们用中央政府提出的“生态红线”理念来指导十三五能源规划，并能在6月之前完成规划的制定。这份规划中有几个重要议题值得外界关注：首先是能源消费总量控制，尤其是煤炭总量控制是否在规划中得到重视；其次是几个强制性能源措施：如十三五期间的能源强度下降目标是否不低于18%，碳强度下降目标是否不低于20%，2016年的可再生能源比例目标能否超过12.5%。碳排放总量控制也应该在今年开始实施，为2017年的碳交易市场启动做好准备。

中国现在把“去产能”作为2016年经济五大任务的首位。对于

煤炭行业和煤炭的主要消耗行业钢铁、水泥、建材等，去产能都将是今年主要方向。应该吸取去年大面积雾霾的教训，抓好占煤耗30%的散烧煤的管理，同时现有的6000多家煤炭生产企业需要减半。我们预估2016年中国煤炭消费量将下降2.5%到3%。

在电力行业中，除非有中央特许，应该停止煤电的审批。核电的发展也应该以安全、稳健和高效为前提，年内不应发展内陆核电。与去年相比，今年应该进一步减少弃风弃光，并讨论可再生能源市场配额制，这可以减少对可再生能源的补贴。今年的电力改革特别值得关注的地方是售电端的放开，像阿里巴巴这样有能力帮助消费端节能的企业将有可能参与进来。

今年中国将举办G20峰会，我们希望看到这20个排放大国显示他们在实施国家自主减排贡献（INDC）方面的进展，并在资金问题上进一步弥合缺口。今年中国的一带一路战略将开始启动，亚洲基础设施投资银行（AIIB）也将确定项目开始投资。我们应该关注政府、

企业、NGO如何促使它更好地推动发展中国家的共同富裕，同时走一条可持续的绿色道路。

王华（环境保护部环境与经济政策研究中心研究员）

雾霾已成为我国社会最为关注的环境问题，既影响大众身体健康，又影响经济发展甚至社会稳定。然而目前无论是从自然科学角度还是从经济学角度看，我国对雾霾治理的认识和理解都很缺乏，从而导致治理的力度和效果都不能令人满意，期待在2016年这方面能有所突破，从而使得雾霾治理能更加经济、有效。

在2016年，我国环境执法能力和力度应该能够得到大幅提升。在国际上，我国环境执法能力弱、守法程度差的问题一直“臭名昭著”。但随着新《环境保护法》的实施，我国环境执法力度在2015年得到显著加强，一系列的环境行政体制改革和司法体制改革开始启动。2016年，中央层面上的环境机构及职能设计会进一步合理，中央对地方的监督协调力度会进一步加强，行政力量和司法力量对企业的违法违规

行为将会产生更加有效的制约。

在2016年，我国的环境社会运动会更加广泛、成熟、有序、有效。可以说，如果没有社会力量的全方位参与和推动，我国环境污染的控制以及生态环境质量的改善最多只能是局部的、缓慢的，环境资源使用者和破坏者不会轻易放弃经济利益而投入更多资源到环境保护中去，仅有行政以及司法力量的加强不足以显著推动我国环境质量的改善。我国民众已经觉醒，尽管力量还很薄弱。期待在2016年我国社会力量在推动环境保护方面能发挥显著作用。

高胜科（《财经》杂志记者）

2016年环保部在2015年掀起了“环评红顶中介整治风暴”，现在应关注风暴能否持续，针对环评市场的诸多乱象是否有进一步专项整治措施，以及《环评法》修订与环评改革能否厘清思路并大刀阔斧实施。因为顽疾已久，一阵风的风暴难以彻底祛“毒”。

在国家力推“简政放权”的背景下，环保部门的审批、监督放权，能在2016年得到怎样的实施成果令人拭目以待。因为地方环保部门在人力资源、专业水平上的束缚是长期以来的现状，而“放权”之后是否具备能力做好项目把关、环保监督，为业内人所忧虑。因此，2016年，国家与地方的环保部门在“事”与“权”方面

的界限能否清晰，将关乎环保简政放权改革的成败。

此外，在“大气十条”、“水十条”相继出台后，外界都在关注作为土壤治理重要纲领的“土十条”能否在2016年出台。紧随其后，其决策的科学、合理性与实施的有效性有待进一步评估。

张伯驹（自然之友总干事）

2016年，中国的环境法治和公众参与将有更多行动空间与可能性。2015年新《环境保护法》生效后，2016年1月1日新《大气污染防治法》也将开始实施，环保组织和公民有了更多法律依据通过法律手段保护环境公共利益和自身权益。随着法院、律师、环保NGO在环境法领域的成长，我们预计2016年环境公益诉讼的数量和质量都将有所提升，也会看到更多富有针对性的系列案件及预防性案件，如针对大气污染、土壤污染和物种保护等。一些倡导性诉讼也可能应运而生，它们并非着眼于特定的环境生态破坏问题，而是用以揭示法律法规缺失或决策的局限性，以促进这些问题的解决。同时，行政环境公益诉讼的突破也值得期待。

在公众参与方面，随着环境影响评价重心从项目环评逐步转向规划环评，公众参与被进一步前置。当面对更大的公众参与空间时，能否有足够

专业性和动员能力有效参与和推动改变，将成为环保组织和绿色公民们必须回应的一个课题。

解焱（中科院动物研究所副研究员）

2016年生态保护领域的一个重要进展是新版《野生动物保护法》。该法第一次公开征求意见稿已于2015年底发布，2016年修订版本必将颁布。新版将野生动物栖息地保护纳入到法律中。“重点野生动物名录”修订也将成为常规性工作，而不是如之前的“野生动物重点保护名录”那样，30年后仍很难进行修订。修订版强调了野生动物保护对生态和社会的价值。不过该版本中仍然将野生动物合理利用作为指导原则之一予以保留，让《野生动物保护法》似乎变成了《野生动物利用法》，相信这方面的争论在今年将成为焦点。

过去一年，中国对国家公园体制启动了深入研究。在对国家级自然保护区投入增多、保护力度加强的情况下，中国对超出自然保护区范围的、更加全面的自然保护地的认识和保护将得到加强。相信2016年将对自然保护区相关法律法规进行研究，加大自然保护区的保护力度。虽然因为涉及管理部门众多，在短期内恐怕很难制订出一部管理法律，但是对自然保护区的重要意义的认识却由此获得了极大提高。☺

China's big environmental stories for 2016

As China launches its 13th Five Year Plan and steps up efforts to enforce environmental laws, experts tell chinadialogue what the main talking points are likely to be in 2016

chinadialogue



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Smog in Beijing's Tiananmen Square. Cutting air pollution in the capital and other cities is a major aim of the 13th Five-Year Plan to be readied this year

Yang Fuqiang, NRDC's senior advisor on energy, environment and climate change

This year will see the beginning of China's 13th Five Year Plan (FYP), and it needs to be a good start. That means policymakers will have to apply the central government's idea of "ecological red lines" when formulating plans, due for completion by June, for the energy sector over this period. There are several key parts of the 13th FYP that the outside world should be watching. First, a cap on total energy consumption, and in particular, whether or not there's a cap on coal consumption.

Secondly, what mandatory energy targets are to be put in place? Will the 13th FYP's targets for reductions in energy and carbon intensity be lower than 18% and 20% respectively (viewed as important thresholds) and will the 2016 target for the proportion of renewables in the energy mix go beyond 12.5%? We should also see the start of emission caps this year, in preparation for the launch of nationwide carbon trading in 2017.

China has put removal of excess production capacity at the top of a list of five economic tasks for 2016. This is going to have a particularly strong impact on the coal

industry, as well as coal-consuming firms such as makers of steel, concrete and construction materials.

The lessons of last year's widespread smog should be learned. China needs to better manage the small-scale coal burning which accounts for 30% of total coal consumption, and cut the number of coal mining firms, currently at over 6,000, by half. We estimate that coal consumption will drop by between 2.5% and 3% in 2016.

No new coal-fired power stations should be approved, unless special permission is obtained from central government. Development of nuclear power should only proceed if safety, stability and efficiency is assured; and no inland nuclear power plants should be approved this year. Further reductions in the wastage of solar and wind power should be made (known as curtailments in industry jargon), and the possibility of market quotas for renewable energy should be discussed.

These measures would help cut subsidies for renewables. One part of electricity sector reform particularly worthy of attention this year is the opening up of the retail market. We may see firms such as Alibaba, which can help consumers save electricity, get involved.

China will host the G20 this year, and we hope to see progress from these countries, which are also major emitters, on implementing the Intended Nationally Determined Contributions (INDCs) submitted ahead of last month's climate talks, as well as greater agreement on funding issues.

China's One Belt, One Road initiative will get started, and the Asian Infrastructure Investment Bank will make its first investments. We should watch how governments, businesses and NGOs use this to promote the joint welfare of developing nations and take a sustainable and green path.

Wang Hua, researcher at the Ministry of Environmental Protection's Policy Research Center for Environment and Economy

“ China needs to better manage the small-scale coal burning which accounts for 30% of total coal consumption, and cut the number of coal mining firms, currently at over 6,000, by half. ”

Smog has become China's most watched environmental issue - it's affecting public health, economic development, and even social stability. But there is a lack of understanding of the both the science and the economics of air pollution. This has meant efforts and achievements in dealing with the problem have been disappointing. Hopefully we'll see breakthroughs in 2016, perhaps leading to more cost-effective and efficient ways of tackling smog.

This year should see big increases in China's environmental law enforcement capabilities and efforts. Internationally, China has been known for having weak and often broken environmental laws. But the revised Environmental Protection Law that took force 2015 is a driver of change, with a range of administrative and judicial reforms put in motion. This year will see further improvements at the central government level, with stronger central oversight and coordination with local governments. Both government and the courts will be coming down harder on businesses that breach environmental laws.

In 2016, we will also see China's environmental movement expand and mature, becoming more organised and effective. Without full participation and encouragement from social forces (wider society), the Chinese government's efforts to control pollution and improve environmental quality will be at best partial and slow.

Companies will not easily give up profits and spend more on environmental protection, and government and judicial efforts alone will not be enough to bring about major improvements. China's people are now aware of the problem, but still lack power. I hope to see social forces play a much stronger role in environmental protection in 2016.

Gao Shengke, reporter, *Caijing*

In 2015 the Ministry of Environmental Protection launched a crackdown on official rent-seeking in the environmental impact assessment (EIA) sector, and we should look to see if that can be sustained and whether there can be further specific crackdowns on bad practices. There will also be scrutiny on whether the new environmental protection law and EIA reforms can be properly implemented. This has been a chronic problem, and a brief crackdown will not resolve it.

With the government promoting simpler administration and devolving of powers, the MEP's handing down of EIA and oversight powers to local government in 2016 will be closely watched. Local environmental authorities have

long lacked staff and capabilities - there is concern over their ability to block projects when necessary and oversee environmental protection efforts. How responsibility and human resources are divided up between central and local authorities will determine whether these reforms are successful.

Also, with action plans for air and water pollution in place, will there be a similar plan for soil pollution in 2016? And if so, how will that plan be assessed, in terms of responding to scientific evidence and potential outcomes?

Zhang Boju, Friends of Nature secretary general

This year will likely usher in possibilities for environmental rule of law and public participation. 2015 saw a revision of the Environmental Protection Law, and a new law on air pollution came into effect on January 1. These give environmental groups and members of the public more legislative tools with which to protect their own and the public interests.

As courts, lawyers and environmental groups become more familiar and experienced with these laws, we expect to see an increase both in quantity and quality of environmental public interest cases, and a rise in the number of targeted and preventative cases - such as those on air or soil pollution, or protecting biodiversity. We may also see some cases aimed at exposing and resolving failings in the law or policy-making, rather than dealing with specific environmental issues. We can also hope for breakthroughs in how administrative environmental public interest cases are brought to court.

The shift in emphasis from project-based to regional environmental planning will bring public participation further to the fore. Environmental groups and activists will need professionalism and the ability to mobilise the public to promote change.

Xie Yan, deputy researcher at the Chinese Academy of Science's Institute of Zoology

A major environmental advance for 2016 will be the new revision of the law on protection of wild animals. A consultation draft was released late last year, and the revised law is to be published later this year. The new law will include protection of wild animal habitats, and allow for regular changes to the schedule of protected animals - currently it is difficult to make changes to a list first written 30 years ago.

The revision stresses the ecological and social importance of wild animals, but unfortunately still retains the principle of 'reasonable utilisation' of wild animals, almost turning it into an 'wild animal utilisation law'. Debate over that will be focus for the year.

The year just past saw in-depth research into the nature reserve system. With more funding and better protection for national reserves, there will now be increasing awareness of the need to protect areas outside of reserves. I expect to see research into legislation for reserves in 2016, in order to provide stronger protection. We're unlikely to see a new law soon, as too many different government bodies are involved, but there's a new high in awareness of the importance of nature reserves. ☺

2016年《巴黎协定》怎么走

京都议定书经过七年才生效。巴黎协定生效会用多久？

喻捷

《巴黎协定》如何正式生效？

2015年12月12号，《联合国气候变化公约》的各缔约国通过《巴黎协定》，历时两周的谈判终于尘埃落定。但事实上，《巴黎协定》尚未正式生效。和《京都议定书》一样，它的生效也有几个前提。并且，框架性的《巴黎协定》仍需在未通过谈判敲定执行细节。

2016年，首当其冲的跟进事宜，就是将于4月22日于联合国纽约总部举行的高级别签署仪式。作为《巴黎协定》保存人，联合国秘书长潘基文届时将邀请《公约》所有缔约方在相关仪式上签署该协定。因全球对《巴黎协定》高度关注，预计不少国家元首将会出席仪式。对于国内条件尚未成熟的缔约方，联合国总部将在之后的一年内开放签署。开放签署结束以后，各国亦可酌情尽快交存各自的批准、接受、核准或加入书。当然，这一年过了以后再签署也是可以的。

只有签署公约的缔约国达到55个以上，其总排放至少占到全球排放55%，并且这些国家以交存法律文书的方式正式接受《巴黎协定》的约束，《巴黎协定》方能正式成为具有法律约束力的国际协议。《巴黎协定》正式生效后，公约缔约国会议（COP）将召开《巴黎协定》的成员国会议（简称MOA, members of the agreement）。

世界资源研究所（WRI）的专家指出，一个国家仅仅在联合国签署协定仍然不足以成为《巴黎协定》的成员国。各国还需走国内程序，以获得国际法在国内的合法地位。这样，原先的预定国家自主贡献（INDC）也将正式成为国家自主贡献（NDC）。之后，各国再次回到联合国，递交一份名为“签署、批准、接受或者核准”的法律文件。走完

所有程序，才能正式成为《巴黎协定》的成员国。至于一国何时提交这份文件，并没有具体的规定。可以在签署当天，也可以两步分开走。

当年，《京都议定书》生效花了七年时间，《巴黎协定》的生效难度大吗？中国外交部气候变化谈判特别代表高风认为：“《巴黎协定》生效应该没什么悬念，主要大国和集团都比较满意，他们会较快完成各自国内的法律程序。欧盟动作会慢些，他们内部程序比较繁琐。”

高风分析指出，中国国内承认《巴黎协定》应该也无悬念。至于是否核准还是批准，官方尚未对外宣布。国务院负责核准，全国人大施行批准的权利。前者程序简单，级别较低，后者耗时更长，但最为正式。估计年后就有答案。无论哪种，都不会影响《巴黎协定》的生效结果。

另外，在每年年中的附属机构会议上、年末的缔约方大会上，将

“只有缔约国达到55个以上，总排放至少占到全球排放55%，且这些国家以交存法律文书的方式正式接受《巴黎协定》的约束，《巴黎协定》才成为具有法律约束力的国际协议。”

出现一个新的工作组：《巴黎协定》特设工作组。《巴黎协定》相关机制的谈判都将在这个工作组内进行，组织安排参照“德班加强行动平台特设工作组”，而“德班平台”轨道则完成了历史使命。

COP22在摩洛哥谈什么？

2016年年底，公约第22次缔约国会议（COP22）将在摩洛哥召开。而相关的各国特使会议将在夏天先行召开，东道国摩洛哥的组织 and 斡旋也由此拉开帷幕。“这将是一个关于行动和共同的解决方案的缔约国大会。我们将会加快《巴黎协定》中2020年前相关内容的谈判，并在动员资金和适应方面进行创新。”摩洛哥环境部长、COP22主席海蒂（Hakima El Haite）说。

各国政府也将开始为新的《巴黎协定》中的细节展开谈判，大致时间会在今年年中，举办城市是德国波恩。他们将按照重要性来开列工作任务清单，待办事项如下：

- * 设计透明度系统的技术细节，制定出一个国家如何测量、报告和核证他们的温室气体排放的指导原则；
- * 开发出每五年一次的气候行动计划评估，俗称“齿轮机制”的相关治理规则；
- * 各国也应评估因受气候影响而导致损失和损害的脆弱国家所需要

的帮助。

“我们必须保持这个势头。”海蒂部长说，“有赖于所有各方的参与，一场战役刚刚胜利，但是斗争仍将继续。”

高风认为：“接下来较难谈的议题，和去年高度政治化的议题比较起来，都相对容易些，都比较技术性。当然，要守住巴黎协定的成果，让它在所有具体规则的层面都能完美体现出来，又都是不容易的。”

随着气候变化影响的加剧，“损失与损坏”（loss and damage）将变得益发重要。《巴黎协定》中就包含了一个两年的项目，专门探索在遇到极端气候时，发展中国家如何获得“气候”援助。一个叫做“华沙国际机制”（Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts）的20人委员会将向缔约国大会提出应对异地安置移民，以及为脆弱人群拓宽保险项目的相关建议。

公约秘书处做什么？

政治层面的进一步决策，会在COP这个平台上进行。而公约秘书处的工作将转向协定中一些尚未完成的技术性实施细节。自2016到2020年的将要开展的主要工作有：

- * 规则，指导和实施方法：为了准备和沟通国家自主贡献，开发一个

以增进清晰性、透明性和理解的共享模版；在2018年前提供计算国家自主贡献的方法学；计算包括公共资金以及因公共资金的杠杆而产生的金融资源；在可持续发展机制下计算的排放，以防止二次计算；评估适应的需要。

* 推荐：关于如何在已有的支持适应行动的功能之间保证更强的制度连贯性；关于损失与损害，那些防止、降低、解决气候变化的负面影响引起的重新安置的组合措施。

事实上，巴黎协定和决定里规定的任务有40项之多，分别规定了特设工作组、大会、两个附属机构、秘书处承担的任务。除了以上提到的议题，有关国家自主贡献应包括的信息、碳交易、森林等议题，都会继续谈判。

关于协定中广受瞩目的减缓气候变化的长期目标，即本世纪下半叶净零排放的目标，高风认为，那个目标太遥远了，目前的这些议题都并不直接针对那个目标。目前规定的这些议题总体上是为巴黎协定的运作所需要的，只能说为净零目标提供了基础。未来，2030、2050这些时间节点上，经过多次全球盘点，缔约方或许会有新想法，出台新措施。☺

喻捷，中外对话气候变化方向沟通策略专员，曾任大自然保护协会（TNC）气候政策主任

What next for the Paris Agreement?

It took seven years for the Kyoto Protocol to come into effect. Yu Jie asks: how long will it take to implement the Paris Agreement?

Yu Jie

Two months after the Paris climate summit delivered an agreement that could put the world on a path to avoid runaway global warming, the task now is how to implement it.

For member countries – or United Nations Framework Convention on Climate Change (UNFCCC) Parties – the next key date in the calendar is 22 April at UN headquarters in New York.

Then, Ban Ki-moon, UN secretary general and custodian of the Paris Agreement, will invite UNFCCC parties to UN headquarters in New York to add their signatures to the document.

Many world leaders are expected to attend, and those who cannot will have an additional year to sign the Paris Agreement.



© Thomas Hawk

UN secretary general Ban Ki-moon has invited countries to sign the Paris Agreement on April 22

The outcome of the Paris talks will only become a legally binding international treaty when at least 55 signatories, representing at least 55% of global emissions, put pen to paper.

Experts from the World Resources Institute highlight that countries must first ratify the Agreement at home before it can be recognised as international law. With that, each country's Intended Nationally Determined Contribution or INDC (a pledge made in the run up to the Paris COP to lower carbon and national GHG emissions) become an NDC – no longer intended, but actual.

It took seven years for the Kyoto Protocol to come into effect – will the process be as cumbersome for the Paris Agreement?

“There shouldn't be any concerns over the Paris Agreement coming into effect – the key countries and groups are all quite happy and will go through their own domestic processes quite quickly. The EU is likely to move a bit more slowly, due to the fact that it has more complex processes,” Gao Feng, the Ministry of Foreign Affairs' special representative for Climate Change Negotiations, told chinadialogue.

He also dismissed concerns that China's will fail to implement the actions agreed in Paris.

However, his comments came before the US Supreme Court on 9 February voted 5-4 to block the White House's Clean Power Plan (CPP), which aims to phase out coal-fired power.

Last week's court action has the potential to dismantle a major pillar of US climate policy – and some analysts have expressed concern that other big emitters may delay action

to cut carbon emissions if the US is unable to deliver on its own commitments because of legal challenges.

Others think that China and India will press on with their carbon-cutting plans in any case, partly because in both countries there is considerable self-interest in a shift away from highly-polluting coal towards renewables and greener technologies.

How China will ratify the treatment domestically has yet to be decided, but it is expected to go one of two ways; either through the State Council or through the National People's Congress.

The State Council is a lower-level body but has simpler processes. The National People's Congress route would take longer but be more official. The Chinese government's decision on how it will be processed is expected to come soon.

To smooth the path of implementation, the Ad Hoc Working Group on the Paris Agreement has been established. It is based on the model of the Durban Platform for Enhanced Action -- a successful work group set up in 2011 to implement outcomes from UN climate talks in Durban that year).

The COP22 agenda

The next major UN climate summit, COP22, will be held in Morocco on 7-18 November.

According to Hakia El Haite, Morocco's environment minister and COP22 chair, the conference is going to be about "action and joint solutions".

"We will speed up talks on pre-2020 content of the Paris Agreement and innovate on mobilisation of funding and adaptation," he said.

Before then, talks in May in the German city of Bonn will focus on ironing out the fine detail of the Paris Agreement and creating new implementation structures for the following:

- A transparent system by which countries measure, report and verify their greenhouse gas emissions.
- Guidelines on managing five-year appraisals of climate action, commonly referred to as the ratchet mechanism.
- How to assist vulnerable nations that are affected by loss and damage caused by climate change.

"We need to maintain momentum," said Hakima El

Haite. "Thanks to everyone's involvement we've just won a battle – but the war must go on."

According to Gao Feng: "The difficulties ahead are easier and more technical than the highly politicised issues of last year. But of course, it still won't be easy to maintain the success of the Paris Agreement and ensure that it is reflected in new rules."

As climate change impacts worsen, the issue of "loss and damage" – the liability and compensation countries receive as a result of climate change – has become more important to nations most vulnerable to climate change.

The Paris Agreement includes a two-year project examining how developing nations can obtain "climate aid" when harmed by the effects of manmade global warming. Building a mechanism to make this work will be a key challenge.

The 20-person executive committee of the Warsaw International Mechanism for Loss and Damage will present the COP with proposals on resettlement and insurance for vulnerable groups – which is a start.

The Secretariat's role

The UNFCCC Secretariat will turn its attention to the technical details of implementation. According to the UNFCCC website, its main tasks between now and 2020 include:

- Implementation methods: developing a clear, transparent model for how countries calculate NDCs; identify sources of funding, including public funding; assessing adaptation needs.
- Recommendations: how to ensure better institutional coherence within existing actions; on supporting adaptation; on preventing, reducing or resolving the need for relocations due to the impacts of climate change.

One of the most important mitigation targets set out in the Paris Agreement is to have zero net emissions by 2050. For Gao Feng, it's too far in the future to predict whether it can be achieved. For now, he says the Secretariat's agenda is focused on the short-term goals rather than those that lie in the more distant future. ☺

Yu Jie is a communications strategist with chinadialogue and former director of climate policy for The Nature Conservancy.

中国电力产业呈现“新常态”

随着中国工业活动减少和整体宏观经济结构调整，国内发电量近半个世纪以来首次下降。中外对话北京办公室副主编李颖探究了造成这一趋势的原因。

李颖

持续下降的发电量

世界第二大经济体经济减速的又一个切实证据出现了。根据国家统计局公布的最新数据，2015年中国的发电量略高于5.6万亿千瓦时，较上年减少0.2%。这是1968年以来发电量首次下降。

发电量是体现工业整体活力的一个重要标准。中国GDP年增速下降到25年来的最低点6.9%时，电力供应商们也不得不控制巨大的发电能力来适应不利的市场环境。

第一财经研究院助理院长王韬博士在接受中外对外采访时说，整个能源产业的总体形势也是如此。

“从周一国家统计局公布的数据可以看出，中国经济仍然在转型过程中，新常态尚未成型。根据已公布的能源强度和GDP数据推算，2015年的能源消费总量只增长了0.9%，这是1998年以来的最低增速，和GDP的增长情况毫无二致。”

中国的电力消费量也出现下滑。国家能源局已经确认，2015年中国的电力消费量为5.55万亿千瓦时，同比增长0.5%，较2014年增速下降了

3.3个百分点，创1974年以来的新低。

国家发展和改革委员会能源研究所研究员周大地指出，工业部门需求的减少是造成电力消费下降的最大原因。

“可以说，中国电力产业的一个新常态正在形成，其主要标志是需求减少和发电量下降，这是产业结构转型的结果。现在来看，这个新常态似乎要持续一段时间。我们过去一直习惯了中国的年发电量以8%或者更高的速度增长，但如今情况已经截然不同。”周大地谈到。

非化石能源成为关键角色

电力产业的能源结构正在发生着深刻变革。中国电力产业正逐步减轻对传统煤炭的依赖，更多地利用非化石能源和可再生能源。

王韬说：“从能源结构来看，煤炭占比从2014年首次出现下降以后就一直停止下滑的趋势。2015年火力发电量减少了2.8%，这一趋势是由整体用电需求的下降以及非化石能源比例的持续增长所造成。”

与火力发电量的下降形成鲜明

对比的是，2015年非化石能源和可再生能源的发电量增长了20%以上。中国国家应对气候变化战略研究和国际合作中心主任李俊峰将这看作是能源结构优化调整的一个标志。

他说：“非化石能源的比重增加，不仅可以满足未来电力需求的增长，也可以逐步替代由燃煤发电所占据的份额。未来几年，火力发电量将以每年2-4%的速度下降；与此同时，非化石能源发电量将保持每年20%以上的增速。”

周大地指出，能源结构的变化是国家战略再调整中优先利用非化石能源和可再生能源的结果。由于政府的利好政策和激励措施，非化石能源和可再生能源所生产的电力已经越来越多地纳入国家电网。他表示，火力发电产能过剩的问题仍然困扰着电力产业，因此，非化石能源和可再生能源仍有发挥更大作用的潜力。

燃煤发电过剩仍是一个巨大挑战

尽管发电量下降，2015年新装

燃煤发电机组仍在增加。据国家统计局估算，去年新增火力发电机组容量为6400万千瓦时。这样一来，中国的火力发电机组的年总发电能力达到9.5亿千瓦时。周大地强调，如何削减或导出这些过剩产能，仍然是今年电力行业的当务之急。

“电力行业似乎低估了电力供求关系的急剧变化。中央政府已经说得很清楚，要把非化石能源和可再生能源放在优先地位，未来会注入更多资金来激励发展。但是，某些地方政府仍然在购进和安装新的燃煤发电机组。这种做法显然是对整体形势的误读误判，必须切实加大管控力度。”

周大地的上述表态代表了大多数专家的观点。李俊峰提醒电力产业，事实上中国的煤炭生产和消费从2014年就开始持续下降。

李俊峰说：“当时，中国的煤炭生产和消费似乎进入了一个停滞期，未来可能会有回弹，但强劲的反弹

或上涨将不会出现，下降会是一个长期的趋势。”

可再生能源前途大好

专家们估计，2016年中国的可再生能源发电量将达到1.7万亿千瓦时，其中风力和光伏发电是最受青睐的方式。自然资源保护协会中国气候与能源政策项目主任林明彻认为，中国的经济和能源结构正在坚定地向着去除煤炭密集型的方向发展。可再生能源需求的不断增加对实现中国的环境保护承诺来说会是利好。

“去年，中国对可再生能源的投资达到1100亿美元，创历史新高。清洁能源正在逐步替代燃煤发电。随着减少空气污染和碳排放的努力，中国要限制煤炭消费并用一种更加可持续的方式实现经济转型，2016年将是至关重要的一年。”

中国要保持相对强劲的经济增

长势头，更高效广泛地引入非化石能源和可再生能源会是一个可行出路。国际可再生能源署最近发表的一份报告有力地支持了这一观点。

这份题为《可再生能源之益：经济杠杆》的报告预测，如果2030年可再生能源在全球能源结构中的比例达到36%，全球GDP将有1.1%的增长，折算成货币价值约为1.3万亿美元。

该机构认为，中国已经拥有世界最大的可再生能源相关产业劳动群体，从业人数超过340万，其中一半以上都集中在光伏产业。随着投入的持续增加和技术升级，这些产业有望愈发多样化，并助力于中国经济引擎向更健康和绿色的方向发展。

李颖，中外对话北京办公室副主编
喻捷和王亚敏对本文亦有贡献

China's power sector under a new normal

China's coal-dominated electricity output has dropped for the first time in 50 years. Li Ying examines the reasons why

Li Ying

The slowdown in China's economy is increasingly reflected in the country's flatlining power demand, a move that could deliver clear environmental benefits through a fall in coal consumption and increased use of renewable energy.

According to the latest figures released by National Bureau of Statistics (NBS), China generated a little over 5.6 trillion kilowatt-hours of electricity in 2015, down 0.2% from the previous year - its first drop since 1968.

Electricity output is an important gauge of the vitality of the industrial sector, and is a major cause of pollution in China, where coal is used for around two-thirds of power generation. Much of this electricity is used by heavy industries such as cement, steel, chemicals, materials and metals production.

Not only is coal-fired power generation blamed in part for the country's chronic air quality, the fuel is the biggest single source of greenhouse gas emissions in China, the world's largest emitter of carbon dioxide.

Since China's GDP fell to an annual rate of 6.9%, its slowest pace in 25 years, electricity suppliers have been forced to rein in production and adapt to less favourable market conditions.

"From the data, we can see that China's economy is still in the process of transition," said Wang Tao, assistant dean of the China Business News Research Institute. Total energy consumption, which includes oil products used in transport, only grew by 0.9% in 2015, the lowest growth rate since 1998, Wang added.

The same downward trend has affected China's electricity consumption. The National Energy Administration confirmed that power consumption in 2015 stood at 5.55 trillion kilowatt-hours, an increase of only 0.5% year-on-year. The figure is 3.3% less than the 2014 level, registering as the slowest growth since 1974.

Zhou Dadi, a senior research fellow with the Energy Research Institute of the National Development and Reform Commission, said that weakening demand from the industrial sector had contributed most to the decline.

"A 'new normal' has been unfolding in China's power sector. It's marked by weakening demand and a contraction in output resulting from the industrial restructuring. We have been used to seeing annual electricity consumption increase by 8% or more but it's quite a different situation now," said Zhou.



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Chinese workers install solar panels in Shanghai

New players

Meanwhile, coal's contribution to the energy mix has continued to fall since its initial drop in 2014. Last year, electricity generated from thermal power (which includes gas) fell by 2.8%.

"This trend originates from an overall weakening demand and the increasing contribution of non-fossil fuels," said Wang.

By contrast, 2015 saw a 20% increase in the contribution of non-fossil fuels and renewables to electricity output, further evidence that China's fast-growing renewable energy sector is speeding up its shift away from coal, said Li Junfeng, director general of the National Climate Change Strategy Research and International Cooperation Center.

Long-term trend

"The deployment of more non-fossil fuels will not only meet electricity demand, but will eventually substitute the share that coal-fired power plants used to provide. In coming years, thermal powered electricity output is expected to decline at an annual rate of 2%-4%. In the meantime, the contribution of non-fossil fuels will increase by more than 20 % annually," Li added. "The decline [in power demand] will be a long-term trend."

However, despite the decline in output, more coal-fired plants were installed last year even though these are expected to become less economically efficient in future years, as renewable energy is given preferential access to the grid.

"Some local governments are still purchasing and installing new coal-fired generation units. This activity is clearly a misconception of the overall [oversupply] situation and should be curbed vigorously," said the ERI's Zhou.

Renewables power up

Analysts estimate that renewable energy, including hydro

and nuclear will account for 1.7 trillion kilowatt-hours in 2016. Increases in wind and photovoltaic solar capacity will become the main focus of China's push for cleaner energy.

Alvin Lin, China climate and energy policy project director from the Natural Resource Defense Council, noted that China's energy sector, and wider economy, are moving decisively away from coal.

"With continuing efforts to reduce air pollution and carbon emissions, 2016 is likely to be a crucial year for China to cap coal consumption and restructure its economy in a more sustainable manner."

More efficient and wider deployment of non-fossil fuels and renewables could have wide economic benefits, said a recent report by the International Renewable Energy Agency.

Economic benefits

The report predicts that the global GDP can increase by up to 1.1% in 2030 if the share of renewables in the global energy mix can be doubled to reach 36% by that time. In economic terms, the GDP increase would be worth US\$1.3 trillion (8.3 trillion yuan), in which China would have a large share.

According to the agency, China is already home to the world's largest workforce for renewables-related industries. More than 3.4 million people are employed in the sector, with more than half of them concentrated on the solar photovoltaics sector.

With more investments and technological upgrades in the offing, these industries are expected to diversify further and serve as an alternative, healthier and greener lubricant for China's economic engine. ☺

Li Ying is Beijing Senior Editor at chinadialogue.

With contributions from Yu Jie and Monica Wang.

中国经济下行无益于全球气候变化

中国经济增长放缓可能会刺激高耗能产业卷土重来，阻碍低碳经济的发展。

龙·信鑫 比约恩·康拉德

中国的气候倡导者最近的心态应该很乐观。因为中国的煤炭消费和钢铁生产持续下降，市场预计“全面峰值”也会同样出现在碳排放方面。乐观主义者认为，经济下行，尤其是能源密集型重工业增速趋缓，能够进一步带动排放下降。中国政府去年12月在巴黎气候峰会上做出的气候变化应对承诺无疑给了他们更多信心。

但是，如果现在就断言中国会迅速实现低碳经济转型，恐怕还为时尚早。在稳定的经济环境下，中国最终应该可以完成从重煤炭经济向低碳增长的模式转变。诚然，目前的经济下行让一些气候倡导者看到了希望；但从长期来看，这样的经济放缓反而会成为中国应对气候变化的巨大阻碍。

经济增长放缓的直接影响是能源消费和二氧化碳排放下降。然而从中长期来看，这种经济下行压力

反而会刺激人们牺牲长期气候目标，采用原有方式实现短期增长。

三种情景

在经济放缓的情况下，未来中国二氧化碳排放将会出现以下三种情况。“延迟”是最有可能出现的，这无疑浇灭了气候倡导者刚刚燃起的希望之火。因为政府需要首先保证经济增长、稳定就业，所以有些必要的结构性变化政策可能会延迟出台。短期内通过发展基础设施建设来刺激增长的措施可能会延迟碳排放密度下降的时间。在这种情况下，即便经济放缓，二氧化碳排放总量仍然会缓慢增长。

另外一种消极的情况是“倒退”，在政治压力之下选择牺牲减排目标来换取增长。由于担心经济下滑在短期内无法控制，以及由此带来日益增长的失业率和政治风险，中国

政府可能会首先支持传统重污染行业发展，希望通过基础设施建设实现快速增长。这种经过测试的刺激引导方式对于国家领导层来说无疑最为保险。

这样的说法不是空穴来风，因为中国过往的经济刺激计划都倾向于支持既定行业。比如2008年到2011年全球金融危机期间，中国政府的救市资金中有70%投入了基础设施建设领域，并由此在煤炭消费和二氧化碳排放方面造成了毁灭性的后续影响。尽管遭受了如此重大的环境损失，但却成功帮助中国实现了快速的短期增长。因此，中国很有可能“汲取经验，再次来过”。

支持重工业和建筑业发展能够稳定就业——应该是“倒退”模式可能出现的核心原因。经济下行速度越快，短期失业率上升的可能性越大。

在经济快速下滑的时候，首要任务就是保证采矿、重工业、制造业和建筑业这些既有产业的就业率，而不是将劳动力转移到新型领域。

然而，这些传统经济“药方”的作用正在逐渐减弱。要想实现与2008年一样的就业人数增长，需要

在经济放缓情况下，未来中国二氧化碳排放将会出现三种情况。“延迟”最有可能出现，这无疑浇灭了气候倡导者刚刚燃起的希望之火。

注入相当于当年两倍的投資。所以说，在这些行业增加就业越来越难。

这些措施的确还能在短期内微量刺激经济发展，长期下去却不大可能。所以说，这种最消极的情形对政府最缺乏吸引力。即便中国政府只采取了部分此类措施，仍然会对整个中国应对气候变化的努力造成极大的负面影响。中国许诺到2030年实现二氧化碳排放浓度下降60%到65%，如果真的采用上文所述的经济方案，那中国恐怕要食言了。

中国恐将错失加速应对气候变化的良机

在积极的“加速”模式下，中国将抓住经济放缓的机遇，加快向可持续经济模式转型。比如政府会利用刺激措施促进经济结构重组，加快低碳经济领域产业发展。

这种模式会改变原有的行业政策驱动机制，环境技术将成为新的经济增长催化剂。政府将会在环境、高科技和服务行业创造出更多的就业机会。有研究预计，到2020年，经济转型将在能源密集型领域削减290万个工作岗位，同时也会在环境领域创造出1250万个新的工作机会。

如果这种积极“加速”模式可以实现，中国的二氧化碳排放总量将会快速下降。中国将超额完成2030年提升非化石燃料占比和二氧化碳排放密度削减的双重任务，并成为减缓全球气候变化的中坚力量。

然而在经济严重下滑时期，侧重长期绿色增长模式的经济刺激措施并不实际。要在环境科技或者互联网经济这种从未经历过考验的领

域实施经济刺激计划，国家领导层要面临巨大的风险。他们是否能够从宏观经济层面上实现全面快速增长？一切还是未知数。

在经济和政治的双重压力之下，在可持续发展行业创造大量的工作机会也绝非易事。中国能否在新兴领域快速完成劳动力转移？中国的教育系统能否保证新工作岗位有足够的合格就业人员？让政府将赌注都压在快速创造绿色经济就业机会上，这个风险太大。

碳排放峰值将会延迟

上文提到的消极“倒退”和积极“加速”模式都是极端情况，现实情况很可能出现在两者之间。

第三种“推迟”模式就是以上两种模式的综合，也最有可能出现。在这种情况下，中国的领导层会抓住基础设施建设刺激措施带来的经济和就业利好。

这些活动恰好代表了这种经济萧条环境下的专门刺激措施和危机应对方式。由于中国的政策决策者对这种新型经济模式还比较陌生，所以他们应该会从原有经过检验的政策入手。

当这些行业的产出逐渐下降之后，领导层就会逐步将经济恢复措施的重点放在长期经济模式转型上来。

在不久的将来，中国政府还会继续开发既定行业中的就业机会。只有在这些领域的机会枯竭之后，他们才会转向环境和高科技行业进行大规模就业开发。换句话说，就业机会向新型产业转移的过程还会延长。

现有的环境框架模式保证中国

应该不会出现全面“后退”的情况。但是，经济放缓的确会阻碍新规定和政策的落实。地方政府债台高筑，赤字频现，进行环境投资的意愿也并不高。这会导致原计划于2017年实施的全国碳交易市场等一系列项目全部延期。

在“延迟”模式下，二氧化碳排放会在经历初始下降阶段后迅速反弹。由于中国经济刺激计划逐步向低碳模式靠拢，二氧化碳排放增速也会相对放缓。中国最终还是达到二氧化碳的排放峰值，但是肯定会晚于原定的2030年。

在这之后，由于经济结构变化持续受到经济波动临时应对措施的影响，即便经济增长缓慢，温室气体排放下降的进程还是会缓慢进行。虽然难度很大，但是中国依然希望能够为减缓气候变化做出一份努力。

未来几年是关键

未来几年中国的经济政策走向对巴黎气候协议的实施至关重要。如果中国的经济政策能够躲过短期利益的诱惑，采用“加速”模式，那么必将会对全球气候变化应对做出突出贡献。但是现在最大的问题在于，中国的经济和生态健康将长期受到直接经济必需品的影响。如果中国采取了“延迟”模式，推迟主要经济模式转型和可持续气候应对措施出台，那么减缓全球气候变化的努力注定是要付之东流。

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China's slowing GDP could delay peak CO₂

A sharp downturn in China may prompt stimulus to energy-intensive industries, hindering a shift to lower-carbon growth

Jost Wübbeke and Björn Conrad

Advocates of big carbon cuts in China have had many reasons for optimism lately. Coal consumption and steel consumption are falling after a long period of overproduction. Hopes are high that carbon emissions will peak soon after an apparent high water mark in coal demand and industrial commodities.

China's economic slowdown, which has had a disproportionately big impact on heavy industries, could help lower emissions further. And they are further encouraged by China's commitment to the Paris Agreement on combating climate change last December.

Yet, expectations of a swift change towards a low-carbon economy in China are premature. Under stable economic conditions, China would be expected, over the long term, to steer its coal-addicted economy toward a new model of low-carbon economic growth. But the very economic slowdown that is stoking expectations of falling emissions could eventually hinder China's efforts to slow and reverse growth in greenhouse gas emissions.

The immediate effect of the slowdown is a drop in energy consumption and CO₂ emissions growth. In the medium to long-term, however, weaker growth will increase the temptation to stimulate short-term growth at the expense of long-term climate goals.

Three scenarios

Three possible scenarios can be drawn for China's future CO₂ emissions under an economic downturn.

In the first, and most likely scenario, which we call

“delay”, maintaining growth and preventing unemployment becomes the priority, necessary structural changes to the economy are likely to be postponed. Short-term stimulus through infrastructure and construction would delay the reduction in carbon intensity. In this scenario, even a phase of low growth would be accompanied by a slower but continuing increase in CO₂ emissions.

In our second scenario, “backslide”, political pressure to create immediate growth wins out at the expense of emission reduction goals. Driven by short-term fears about an uncontrolled economic downturn, rising unemployment and the connected risk of political crisis, the government primarily tries to generate growth quickly by supporting traditional, highly polluting industries, through investments in infrastructure and construction. Channeling stimulus through these tested methods appears as the “safest bet” to the political leadership.

This backslide scenario mimics past practices. Previous stimulus packages in China have tended to support established industries. For example, the government's response to the global economic crisis in 2008-2011 was to pour 70% of funds into infrastructure and construction, with devastating implications for coal consumption and CO₂ emissions. Despite the environmental cost, the response did produce rapid short-term growth. The temptation to repeat the past is therefore high.

The hope that bolstering heavy industry and construction will stabilise employment is a central driver of the backslide scenario. The sharper the economic downturn, the more urgent a problem short-term unemployment becomes.



经济学家们预测了中国面对经济放缓可能出现的情景，这将影响二氧化碳达到峰值的时间

In a sharp downturn, the priority is saving jobs within established industries, such as mining, heavy industry, manufacturing, and construction – rather than transferring jobs to emerging and less carbon-intensive sectors such as services and internet-related technologies.

However, these methods are losing their effectiveness. Nearly twice as much investment is needed today to generate the same amount of job growth as in 2008. Job creation in these industries is therefore becoming increasingly difficult.

While these measures might still deliver short-term economic relief, it is unlikely that they can successfully stimulate growth for a prolonged period of time. This ultimately renders the most pessimistic scenario an unappealing option for the government. But even partial developments in this direction could cause a major setback for China's climate change efforts. China misses its targets of a 60-65% reduction in CO₂ intensity by 2030.

Missed opportunities

In an optimistic “acceleration” scenario, China seizes the opportunity of the slowdown for accelerating the transition towards a more sustainable economic structure. The government uses stimulus to hasten economic restructuring and rapidly expands less carbon-intensive parts of the economy.

This scenario also earmarks environmental technologies

as catalysts for growth. Studies estimate that economic transition could eliminate 2.9 million jobs in energy-intensive sectors, but create 12.5 million new jobs in environmental industries by 2020.

Assuming the acceleration scenario is realised, CO₂ emissions will decline rapidly. China will outperform its non-fossil energy and CO₂ intensity targets for 2030 and emerges as a driving force of global climate change mitigation.

However, in the context of acute economic slowdown, stimulus measures focusing on a long-term strategy towards green growth seem unrealistic. It would be a high-risk endeavour for the political leadership to base stimulus attempts primarily on untested industries like environmental technologies or the internet economy. Their ability to quickly create growth across the entire economy is uncertain.

Under economic and political pressure, extensive green job creation is rather unlikely as well. It is uncertain whether a rapid transfer of employment into new industries is possible and whether China's education system would be able to prepare workers for their new jobs in time. It would be a high-risk proposition for the government to place its bets mainly on quick green job creation.

Delay to ‘carbon peak’

The pessimist “backslide” and the optimist “acceleration”

scenarios represent the less likely outcomes, whereas the “delay”, a combination of the two, is more feasible.

In this scenario, China's leadership takes stimulus measures in infrastructure and construction to raise employment levels and steer the economy through the most dangerous phase of any major economic downturn.

Eventually, as the output of these industries decline, the political leadership gradually returns to stimulus measures more in line with a long-term economic transition. But this will delay the long-term process of job transfer into new sectors.

The existing environmental framework prevents a full “backslide” scenario. However, the economic slowdown halts the expansion of new regulations and policies. Willingness to make environmental investments decreases among local governments suffering from high budget deficits and debts. This puts new initiatives, such as the carbon market projected to be rolled out nationally by 2017, effectively on hold.

Under the “delay” scenario, CO₂ emissions quickly increase after the initial drop. As China's government then gradually returns to stimulus measures more in line with low-carbon growth, the emission increase slows down. China eventually achieves a CO₂ emissions peak at a high emissions level, but misses the 2030 target.

Afterward, even with low economic growth, absolute

reductions in emissions progress slowly as the structural change is continuously disturbed by ad-hoc reactions to economic turbulence. China struggles to make a major contribution to avoiding dangerous climate change.

The years to come are a decisive period

China's economic policy decisions over the next years will be a crucial factor for making the Paris agreement a reality.

If China's economic policy breaks free from short-sighted temptations, attempting to achieve an “acceleration” scenario, it can make a major contribution to turn the tide in the global fight against climate change.

But the danger is great that immediate economic necessities will prevail over a long-term vision for China's economic and ecologic well-being. If China is heading into the “delay” scenario that postpones important economic structural changes and substantial climate change measures, the global climate change mitigation efforts are doomed to fail. ☹

Jost Wübbeke is head of Programme Economy & Technology of the Mercator Institute for China Studies (MERICS).

Björn Conrad is Vice President Research of the Mercator Institute for China Studies (MERICS).

为何美国最高法院裁决不会影响中国气候行动计划进程？

中国减少使用化石燃料是出于自身利益考虑，所以气候行动难以被美国的宪法障碍阻挠。

芭芭拉·费雯莉

近日美国最高法院决定，在对法案的法律价值达成一致前，暂缓实行奥巴马总统提出的清洁能源计划。此举一出，许多国家都对美国实现气候承诺的能力提出了质疑。但是自然资源保护委员会（Natural Resources Defense Council，简称 NRDC）主席瑞亚·苏（Rhea Suh）却指出，这并不会动摇全球能源结构从重污染化石燃料向清洁化、智

能化的方向发展。即便是对中国这个世界上最大的碳排放国来说，我们也不必担心其气候行动计划受到影响。中国的气候行动计划是与该国的自身利益息息相关的，而且也是该国应对空气污染、能源安全和其他各种气候变化造成的重大影响之后做出的决定。中国也意识到，只有远离以煤炭为燃料动力的重工业，积极投资低碳科技才是实现长

期经济增长的关键。

由中外对话和中国能源气候智库与低碳创新联合撰写的《中国的低碳未来为全球提供无限机遇》一文详细阐述了“不应该再将中国当作气候与清洁能源领域的落后者”的观点：

目前中国的低碳化速度和视野都是前所未有的。比如，中国的风力涡轮机和太阳能电池板企业在全世界都属于世界先进水平。这些产品将逐步为中国，乃至整个世界提供能源供应。与此同时，受到空气污染和气候变化的严重影响，中国燃煤行业面临的限制也越来越多，其程度远超过五年前任何一位分析家所预测的水平。这些国家层面的趋势为国际气候变化谈判提供了一种全然不同的新路径。

中国是全球气候目标最明确的几个国家之一。比如，中国承诺到2030年将非化石燃料占能源消费比重提高到20%，这就意味着这一时期风能、太阳能、核能、以及其他零排放发电装机容量需要增加8亿到10亿千瓦——这比中国现有燃煤发电能力的规模都要大，装机容量



习主席和奥巴马总统在2014年，具有里程碑意义的协议达成前会面。质疑已经涉及到中国的承诺，如果美国不能实现巴黎气候峰会的目标

相当于美国的装机总量。此外，中国新提出的65%的碳强度目标也是前所未有的。澳大利亚国立大学克劳福德公共政策学院气候经济与政策中心总监弗兰克·约托（Frank Jotzo）表示：

二氧化碳排放强度下降65%意味着中国从2005年到2030年每年的去碳化速度要达到4%。这样的速度是前所未有的，甚至已经超过了欧美国家的去碳化速度。中国提交了一系列的气候目标行动计划，包括为高效行业、经过改造的交通和城市系统提供低碳能源供应，提高国家在整个能源市场中的作用和地位等。中国对待这个问题的态度是严肃认真的，而且所有的行动计划都是从自身利益出发：工业现代化是过渡到下一阶段发展的必要步骤，削减煤炭消费可以帮助遏制空气污染，减少化石燃料使用有助于提高能源供应安全度，而采用先进的能

源科技同样可以为中国在全球市场赢得先机。

我的同事林明彻（Alvin Lin）认为，无论其他国家发生了什么，我们都应该相信中国可以履行其气候承诺。一切还得实践证明，毕竟中国在摆脱煤炭、增加清洁能源利用方面走得比我们所有人想象得都要快、都要远。中国2015年的清洁能源投资达到了破纪录的1105亿美元，去年一年的新增风力发电装机容量就达到了全球总量的一半，更是超过了欧洲总量。此外，中国还超过德国成为了全球最大的太阳能电池板安装国。总部位于华盛顿的中国能源论坛的数据显示，截至2015年7月，中国七大试点地区的次级煤炭市场完成的二氧化碳交易量已经超过3800万吨。就在上个月，中国发布了全球首个绿色债券发布官方规则，希望借此吸引更多私人资本投资中国的绿色经济转型。

在我的上一篇文章中，我还详细记述了中国通过高效方式削减煤炭依赖、淘汰重工业和降低能源需求的各种关键步骤。好消息是，所有的这些措施都已经开始产生效果：中国经济增长的同时，煤炭需求量却在缓步下降。长此下去，中国有望在2030年前就实现巴黎气候峰会承诺的气候目标。此外，由于中国削减了煤炭使用，全球二氧化碳排放总量在2015年大约下降了0.6%。如果这个数字得到确认，那么这无疑将是经济增长期内全球首次出现二氧化碳排放下降。

奥巴马总统的“清洁能源计划”的司法程序还在继续，不过中国在气候领域取得的成绩和先机已经再次向全球各国证明，巴黎气候协议重申的全球能源结构清洁化转型还在继续进行，而且运行良好。

芭芭拉·费雯莉，自然资源保护委员会（NRDC）中国项目主任

The US Supreme Court ruling won't stop China

China is motivated by self-interest in shifting away from fossil fuels and is unlikely to be distracted by legal barriers to climate action in the US

Barbara Finamore

The US Supreme Court's decision to temporarily halt implementation of President Obama's Clean Power Plan until the courts reach a final decision on the legal merits has raised concerns in other countries about the ability of the U.S. to meet its climate commitments.

Yet as NRDC President Rhea Suh explained, this ruling cannot reverse the global shift away from dirty fossil fuels towards cleaner, smarter ways to power our future. In particular, it will have little effect on the ambitious climate plans of China, the world's largest carbon emitter.

China's climate actions are grounded squarely in its own self-interest and driven by concerns about air pollution, energy security and the country's own vulnerability to the devastating impacts of climate change. China also recognises that moving away from coal-powered heavy industry and investing heavily in low-carbon technology are keys to its long-term economic growth.

An excellent recent report, *China's Low Carbon Future Offers Global Opportunities* (authored by chinadialogue in association with the Energy and Climate Intelligence Unit and Low Carbon Innovation in China), explains in detail why the notion of China as a "reluctant laggard on climate and clean energy is definitely out of date":

It adds: "China is moving towards a low-carbon future with unexpected speed and remarkable breadth of vision. Its

“China's new 65% carbon intensity target, moreover, is virtually unprecedented.”

manufacturing companies already lead the world in market volume for products such as wind turbines and solar panels. Increasingly, those products will both provide power for China itself and for the rest of the world.”

The report continues: "At the same time, it is putting tougher constraints on coal-burning than any analysts deemed possible five years ago, driven by the spectre of air pollution and climate change impacts. These national trends complement a much-changed approach to international climate change negotiations.”

China's climate targets are among the strongest in the world. Its pledge to meet 20% of its energy needs with non-fossil energy by 2030 will require China to deploy an additional 800–1,000 gigawatts (GW) of wind, solar, nuclear, and other zero emission generation capacity by 2030—more than all the coal-fired power plants that exist in China today and close to the total current electricity generation capacity in the US.

China's new 65% carbon intensity target, moreover, is virtually unprecedented. According to Frank Jotzo, Director of the Centre for Climate Economics and Policy at the Australian National University's Crawford School of Public Policy, a 65% reduction in carbon dioxide emissions intensity means an annual decarbonisation rate of 4% per year all the way from 2005 to 2030.

"This rate has little precedent and exceeds decarbonisation rates in the US and Europe, he says, adding: "China has submitted a long list of actions in support of its climate target, ranging from a lower-carbon energy supply to more efficient industry and revamped transport and urban

systems, with a strong role for a national carbon market.”

He continues: "China is clearly serious about this, and its actions are driven by self-interest: industrial modernisation is necessary to reach the next stage of development, cutting coal consumption helps with air pollution, relying less on fossil fuels improves the security of energy supply, and pushing advanced energy technologies could give China an edge in global markets.”

Green finance

My colleague Alvin Lin explained why we can trust China to meet its climate commitments, regardless of what happens in other countries. But the real proof is in the pudding, as China is moving faster and further than anyone expected to kick its coal habit and deploy clean energy.

Driven by a record \$110.5 billion in clean energy investment in 2015, China installed half of all new wind capacity worldwide last year and overtook the EU. China also just surpassed Germany as the world's largest installer of solar panels. According to the Washington DC-based China Environment Forum, more than 38 million tonnes of carbon dioxide had been traded in the secondary carbon markets of China's seven pilot regions by July 2015. And last month, China became the first country in the world to issue official rules on issuing green bonds, designed to

raise more private sector capital to invest in the country's transition to a green economy.

Coal use falling

In a previous article, I also detailed the decisive steps that China is taking to curb its reliance on coal, phase out heavy industry and cut energy demand through greater efficiency. The good news is that all of these efforts are bearing fruit: China's coal consumption is dropping steadily as its economy continues to grow. China is now on a path to achieving its Paris climate commitments well before its 2030 target date.

Moreover, thanks in large part to China's decreasing coal use, global CO₂ emissions are estimated to have declined by about 0.6% in 2015. If this is confirmed, it will be the first-ever drop in global CO₂ emissions during a period of economic growth.

As President Obama's Clean Power Plan continues to wind its way through the legal process, China's climate leadership should reassure other countries that the fundamental global shift away from dirty energy towards a cleaner future, reinforced by the Paris climate agreement, is alive and well. ☺

Barbara Finamore is the director of the Natural Resources Defense Council's China Program.

中国煤矿禁令将如何有益于气候及环境

能源及气候专家告诉约翰·麦克加里蒂中国近期发布的煤矿禁令将会产生怎样的影响。

约翰·麦克加里蒂

2015年的最后一天，中国政府宣布2016年起将停止审批新建煤矿，借此将煤炭在能源消费中的比重由目前的64.4%下降到62.6%。

中外对话就此发问中国能源及气候政策专家：该禁令将如何有助于中国实现二氧化碳减排目标和可再生能源发展目标，并且降低煤炭开采、运输和使用过程中产生的其他污染？

林明彻(美国自然资源保护委员会中国气候与能源政策主任)

政府颁布禁令禁止新煤矿开发的审批，反映出能源政策正逐步贴近中国煤炭产业的现状。随着中国经济的重工业转型，风能、太阳能、天然气、核能逐步取代燃煤发电，中国的煤炭产业呈加速下滑的趋势。下一年度政府的目标是使风能和太阳能装机容量分别达到至少2000万千瓦和1500万千瓦，并扩大可再生能源的并网与输配。鉴于中国正大力发展可再生能源发电，再加上用电需求已呈下行趋势，如今扩大煤炭开采可以说是一项不合理、甚至是糟糕的投资。

即使是煤炭大省山西省也在过去几年认识到发展煤炭产业是没有未来的。去年6月，山西省开始在采煤沉陷区建设大同市国家先进技术光伏示范基地，试图转型为太阳能领域的领头羊。该基地将在未来3年启动装机容量为300万千瓦的太阳能光伏项目，并将向北京输送清洁电力。

此项禁令是中国调整其能源结构的开端。当然，中国煤炭年生产量和消费量仍然超过36亿吨，国有企业仍计划在新疆、内蒙古、山西等省建设已获批准的煤炭开采、燃煤发电、煤炭化工等项目。未来5年，为了控制空气污染，加快经济结构调整，实现绿色转型，中国必须加大力度控制煤炭消费。因此，政府和产业部门接下来要做的就是重新对上述项目进行评估。

邓舜(安迅思煤炭行业分析师)

由于近年来的粗放发展，中国的大气、土地和水资源污染情况已经较为严重，中央已经意识到这一点，从2013年9月国务院发布《大气污染防治计划》开始，中国就正

式下决心要大幅减少煤炭消费量，以便控制和治理日益严重的环境问题。此后，国家能源局等多部门也发布了多项减少煤炭消费量，转而大力发展天然气、水力和核能等清洁能源发电的措施。

此次中央宣布禁止新建煤矿，主要是现时中国煤炭行业供需失衡，中央希望通过严禁新产能和淘汰现有落后产能来恢复行业的供需平衡。

我们认为以上这些措施将有助于减少中国煤炭消费量以及二氧化碳的排放量。

谭浩(澳大利亚纽卡斯尔大学纽卡斯尔商学院高级讲师)

新煤矿开发禁令从经济和生态角度都具有重大意义。做出这一决定有经济方面的原因。2015年，中国煤炭工业仍举步维艰，超过80%的煤炭开采公司处于亏损状态。与钢铁、水泥行业类似，中国煤炭行业面临着严重的产能过剩，特别是在风能、太阳能、核能等其他能源产量快速增长的情况下，煤炭行业的形势更加严峻。2016年国家经济战略的头号任务就是降低过剩产能，而此项禁令似乎正是

该政策的一部分。

同时，促成这项禁令颁布的原因似乎还有人们对于煤炭造成的环境影响的日益关注。中国的煤炭生产面临着两个重大瓶颈。中国承诺在2030年前达到碳排放上限，意味着未来煤炭在国家能源结构中的占比将大幅减少。需要限制局部地区的煤炭使用，尤其是要限制燃煤供暖，从而应对严重的雾霾问题。这项煤炭新政反映了中央政府各部门最新的努力，相较于地方政府，中央政府需为此承担更多的责任，并且与通过地方政府或扭曲的“市场”解决问题相比，通过国家行政措施解决问题似乎更有必要。

此项政策无疑是一项正确的举措。但要实现环境目标和经济目标，政府应当考虑采取更为严厉的禁煤措施，比如大幅削减现有的煤炭生产能力，加快能源价格改革，从而更好地反映煤炭生产的环境成本和社会成本等。

柳力(绿色和平能源活动家)

随着能源密集型产业增速放缓，可再生能源迅猛发展，煤炭需求随之锐减。只要实现可再生能源占比目标，就从根本上保证了中国将超额完成二氧化碳减排目标和非化石燃料目标。

煤炭产量锐减完全归因于需求侧，这让煤炭开采和燃煤电力公司

始料未及。目前令人难以置信的是，中国煤炭开采能力相较于其产量和消费量高出约10亿吨，超过了世界第二大产煤国美国的煤炭总产量。据悉，仍有数十亿吨的煤炭产能正在建设中。这表明，过去十年的投资热潮使中国一些行业产能过剩，导致中国仍存在大量的过剩工程项目。

就这点而言，停止煤矿审批的现实意义在未来几年内显得十分有限。国家还需花更大力气解决巨大的产能过剩问题。相比其实际意义来说，这一决定有着更为突出的象征意义与政治意义。

中国正着手准备落实“十三五”规划。中国的高层能源管理机构已经认识到，煤炭需求增长已经一去不复返。这一点十分关键。特别是，这一针对新建煤矿审批颁布的禁令与“十二五”规划大力发展西部大型煤炭基地的目标难以调和。在我们2013年撰写的报道《无路可退》中，曾重点将这些基地列为全球气候的最大威胁。

随着新煤矿审批的终结，新的五年计划似乎有必要放弃进一步开发西部煤炭基地的计划。由于这些基地大多数位于极度缺水 and 生态敏感的地区，即使矿藏的利用率和寿命远低于预期，矿山建设也可能带来十分严重的影响。从长远来看，无论从经济还是政治的角度，不再开发新的矿坑，减少搁浅资产的进一

步积累，都将有助于中国从煤炭向其他能源的转型。

郭建利(煤炭科学研究总院经济研究所所长)

十三五，中国宏观经济进入了后工业化阶段，传统工业行业都面临产能过剩，大规模投资拉动经济的时代已经结束了。以煤为例，据我们推算，到十二五末，煤炭产能已达到55-56亿吨，而实际的需求却只有40亿吨左右，加上约2亿吨进口煤，产能已严重过剩。我们认为，环保、生态当然也是考虑因素，但是此举更主要的目的是产业结构调整。

我们认为，“十三五”期间，优化存量首先要淘汰落后产能。再有，就是遏制住超产现象，2014年8月，国务院颁布了相关规定，加起来总共约能削减产能10亿吨。几项措施加起来，希望能够实现供需平衡，解决产能过剩的问题。

对存量的调整也将减少对生态的影响，因为通过产业结构调整，使产业集中度和生产效率大幅提高，具有安全、绿色、高效特点的煤炭科学产能比重进一步增加，这将使得煤炭产业单位产出对环境的影响逐步减小。

约翰·麦克加里蒂，中外对话副总编

What are the benefits of China's ban on new coal mines?

Climate and energy experts discuss the likely impacts of China's January ban on new coal mines

John McGarrity

On the final day of 2015, China's central government said it would suspend the approval of new mines, with the ban starting in 2016, cutting coal's share of national energy consumption to 62.6% in 2017, down from 64.4% currently.

We asked experts on China's energy and climate policies the following question: How will this ban help China meet its CO₂ and renewable energy targets, and reduce other types of pollution from the mining, transportation and use of coal?

Alvin Lin, China climate and energy policy director, Natural Resources Defense Council

The government's ban on approving new coal mines is a reflection of energy policy catching up with the reality that China's coal use is on an accelerating downward trend, as its economy shifts decisively away from heavy industry, wind, solar, natural gas and nuclear replace coal-fired power. The government is targeting at least 20 gigawatts (GW) of wind and 15 GW of solar projects next year, and is determined to improve grid integration and dispatch of renewables. Expanding coal mines now is a poor investment, and makes no sense given China's expansion of renewable power and slowing growth for demand in electricity.

Even the king of coal, Shanxi province, has in the past few years recognised that coal is not the future, and is seeking to transform itself into a leader in solar energy with the opening of a new national solar PV demonstration base in Datong last June, constructed on top of coal mine subsidence land. The base will install 3 GW of solar PV

projects in the next three years, generating clean electricity to be sent east to Beijing.

The ban on new coal mines is a start to re-balancing China's energy structure, but of course, China is still producing and consuming over 3.6 billion tonnes of coal per year, and state-owned enterprises (SOEs) are continuing with plans to build already-approved coal mining and coal power bases and coal chemical plants, including in Xinjiang, Inner Mongolia and Shanxi. The next step will be for government and industry to re-evaluate the wisdom of these projects, given that China will need to control coal consumption even more strictly in the next five years if it is to solve its air pollution problem and re-balance its economy to a greener path.

Deng Shun, analyst, ICIS Energy

Expansive development has led to China suffering quite severe air, water and soil pollution. The central authorities are aware of this and, as marked by the September 2013 action plan on air pollution, have decided to make major cuts in coal consumption so as to alleviate worsening environmental issues. Later the National Energy Administration and other government bodies followed suit with their own measures to cut coal use and push forward with cleaner sources of energy, such as natural gas, hydropower and nuclear. This ban on new coal mines is due to the oversupply of coal – the aim is to prevent new mines opening and close existing inefficient mines in order to re-balance supply and demand. We believe these measures will



China's coal mining industry has about 1.5 billion tonnes of surplus

help reduce China's coal consumption and CO₂ emissions.

Dabo Guan, University of East Anglia

China's coal consumption increased at an annual rate of 8.8% over the 2000–2013 period, and reached a consumption peak in 2013 of 422 million tonnes. In 2014, Chinese coal consumption actually decreased 2.9%, and is expected to further decrease another 4%–5% in 2015. China's coal stock has been kept at a very high level of 300 million tonnes or above for over four years. Due to weak consumption, China doesn't need new coal mines. Furthermore, China is contemplating a coal cap at 420 million tonnes right now. Chinese economic growth will be mostly powered by the newly added capacity from natural gas and renewables in the future.

Hu Tao, director, China Programme, WWF

This ban on new coal mines is mainly for economic

reasons rather than climate change concerns. China is facing an over-supply of coal. Prices have fallen sharply since the start of the decade. It's because of slowing demand for coal; and fast growing capacity of coal mining. However, China's poor air quality is likely to be part of the reason for the ban, as the government aims to sharply reduce sulphur dioxide, nitrous oxide and other pollutants to improve ambient air quality.

The ban will have positive impacts for the environment, decreasing the use of coal and increase the share of renewables in the energy mix; and reduce carbon emissions, which would fulfil two of China's commitments targets outlined in its Intended Nationally-Determined Contribution to UN climate talks. The ban is unlikely to be hugely relevant to coal-to-gas plants, which had they been built, would have made a big increase in China's emissions. But these aren't economically feasible (because of low energy prices), nor environmentally-friendly (because of high CO₂

output and water shortages). So I don't think this ban will make much of a difference as these projects wouldn't likely happen anyway.

Lauri Myllyvirta, energy campaigner at Greenpeace

The rapid in fall in demand for Chinese coal appears to have taken coal mining and coal power companies completely by surprise. China's current coal mining capacity exceeds output and consumption by one billion tonnes – more than the total coal output of world's number two coal producer, the US – and another billion tonnes of coal mining capacity are still reported to be under construction. This demonstrates the massive overhang of projects that China still has in industry as a result of the investment boom seen in the past ten years.

In light of this, the practical significance of ceasing coal mine approvals appears limited within the next years. Much more is needed to resolve the enormous overcapacity issue. The symbolic and political significance of the announcement, by contrast, is high.

As China prepares its all-important 13th five-year plan, the fact that the country's top energy regulator seems to have accepted the reality that coal demand growth is not coming back, is very important. In particular, it seems hard to reconcile the ban on new approvals with the western large scale coal bases outlined in the 12th five-year plan. We highlighted these bases as the biggest threat to the global climate in our 2013 report "Point of No Return".

Hao Tan, senior lecturer, University of Newcastle, Australia

The ban on new coal mines makes both economic and ecological sense. China's coal industry continued to struggle financially in 2015, with over 80% of coal mining companies being in loss. Similarly, as in industries such as steel and cement, China's coal industry suffers from major oversupply, especially in face of the rapid growth of energy production based on other sources such as wind, solar and nuclear. This ban, therefore, seems to be a part of the policy

package to reduce the excessive capacity which is now the number one task in the country's economic strategy for 2016.

Locally, to limit the use of coal, especially that for coal-fired heating, is urgently needed to tackle the severe smog problem. The new policy on coal reflects a latest effort by agencies of the central government, which take greater responsibilities for those challenges than local governments, and which seem convinced that certain administrative measures at the national level are necessary rather than leave those to local governments or to distorted 'market forces'.

The policy is certainly a good step forward. However, the government should consider tougher measures on coal if its environmental and economic goals are to be achieved, such as to make a more radical cut to the existing coal producing capacity, and to accelerate its energy pricing reform to better reflect the environmental and social costs of coal.

Jianli Guo, head of economics research, China coal science research institute

Oversupply of coal production capacity is the main reason why the government has halted approval of new mining projects. The coal mining industry has about 1.5 billion tonnes of surplus. Currently, China is entering into a post-industrialisation era, all the conventional industries face an over-capacity problem.

So, how to reduce supply so that the overproduction gap is wiped out? The closure of old and small mines, and a removal of the practice where supply contracts are overfulfilled, would cut around 35% of this surplus production.

The destruction of existing coal mines will reduce the ecological impact due because output will be concentrated in fewer mines and production made more efficient. ☺

John McGarrity is chinadialogue's deputy editor based in London.

低油价与电动车中国市场前景

国际油价一路走低，对于刚刚崛起的中国电动车行业意味着什么？

喻捷

近一年来，国际油价一路走低。2016年初，更是跌破30美元一桶。国际上，有人担心低油价会进一步削弱交通领域电气化和低碳化的希望，导致电动车的普及放慢应有的步伐。那么，对于近年崛起的电动车生产和消费大国中国，油价会打乱中国的电动车发展战略吗？

中国成品油特殊定价机制

在经历最近一次油价调整后，北京市92号汽油的零售价是每升5.56元人民币，相当于0.85美元。有人计算过，在国际油价达到一百四十美元一桶时，美国国内的油价按照当时的汇率，大致相当于

0.93美元。而目前，中国的油价管制部门，已经不愿继续随着国际油价的降低，进一步降低国内的成品油价格了。

2016年1月中旬，国家发改委为国内油价设置了参照物。国际油价设置130美元每桶的“天花板”和40美元每桶的“地板价”。即当国际油价低于四十美元/桶时，国内油价将不再随之波动。官方给出的理由是，充分发挥成品油价格杠杆作用，促进资源节约，以治理大气污染。

即便如此，国内每升油价还是比四年前低了大约30%左右。这会影响到人们买车时的选择吗？相比于燃油车，电动汽车一次性投入大，但是后期充电成本低，普通家用电动汽车百公里耗电大约为20千瓦时，以北京的电价每千瓦时约0.5元人民币（合七点六美分）计算，花费比燃油车的一半还低。如果一些城市实行峰谷电价，那么夜间充电会更加便宜。

看起来在中国，国际油价降低对电动汽车的经济性的冲击，因油价波动的局限，影响并不是很大。

但是，人们购买、使用新能源汽车



比亚迪e6电动车

车的考量因素却因人而异，应该细分。

购买电动车的利好

中外对话采访了北京和上海的三位市民，他们近期都有购车计划，并花了数年的时间反复比较。

北京市对小汽车实行限购，市民购买小汽车需经过一个类似于抽奖的“摇号”过程才能获得车牌。但电动汽车所面临的购买限制比燃油车少很多。

“想买电动车，就是为了占个车牌。去年电动车抽中率大约是 30%，大大高于燃油车的 0.7%。今年，政府加大了力度，凡是电动车，都给配号。”一位北京市民告诉中外对话。

除了更易获得车牌、来自中央和地方政府的购车补贴、以及购置税全免之外，在最近北京市酝酿的重度污染天气车辆单双号限行新政策中，纯电动汽车也拟受豁免。

相比于北京的限购，在上海购置新能源车，则可以直接省去车牌拍卖的麻烦。而且，上海的送牌和补贴政策还覆盖混合动力汽车。

一位上海市民告诉中外对话：“上海最火的新能源车是比亚迪的混合动力车。除了免费上牌，还可以补贴六万多元，车主实际支付 14 万元，所费不多。”

目前，全国共有 7 个城市限制机动车增量，而电动车在这些城市则是突破这个瓶颈的一个重要通道。

购买电动车的烦恼

对于中国城市居民来说，购买电动车的决定有太多油价之外的因素需要考虑。

北京市只给纯电动汽车牌照和补贴等优惠，并为此制定了目录。目录中的选择范围非常有限，大约只有六七种。

消费者总结了这 3 个特点：车型少，续航短，售价高。将插电式混合动力汽车排除在推广目录之外，北京市的做法招来业内质疑。北京汽车工业研究所首席分析师贾新光之前在接受《中国经济周刊》采访时表示，“由于北京市的企业没有生产插电式混合动力汽车，北京就将该车型排除在新能源汽车推广目录之外，这是典型的地方保护。”

其次，安装充电桩颇费周折，车主往往需要在物业公司、电力公司、消防、4S 店等部门机构之间周旋，耗时费力。

一位北京市民告诉中外对话，他认为纯电动汽车的工艺水平不高。且因为其核心技术是电池组，技术门槛比较低，一些车甚至就是加强版的电动自行车。

政策补贴逐渐淡出

从宏观层面看，中国电动汽车的发展并未受到油价等外部因素的太大冲击。在政策的强力推动下，中国的新能源汽车销量全面增长。据中国汽车工业协会数据统计，2014 年新能源汽车产量为 78499 辆，销售 74763 辆，比上年分别增长 3.5 倍和 3.2 倍。2015 年新能源汽车产量飙升至 340471 辆，销量 331092 辆，同比分别增长 3.3 倍和 3.4 倍。在电池续航能力尚显不足和充电设备有待完善的情况下，政策彰显了推动新技术的威力。

但一些国内因素却可能影响行业

整体走向。2016 年初，数家媒体刊出了调查报告，称近年来接近 300 亿人民币的新能源汽车补贴被一些不良车企骗取。其中的重灾区是商用车和专用车领域。但影响无疑是全行业的。一方面，财政部部长楼继伟宣布，针对新能源汽车的补贴政策将于 2020 年后退出。具体的措施是，2017 年至 2018 年的新能源汽车补贴标准，将在 2016 年的基础上下调 20%，2019 年至 2020 年下降 40%，2020 年以后补贴政策退出。另一方面，政府将对新能源汽车推广应用实施情况及财政资金使用管理情况进行专项核查。骗补调查报告密集出炉的背后是国家整顿行业混乱局面的决心。而有关专家认为，在过去几年里，补贴虽然扶持了尚弱小的电动车行业，但是也抑制了创新。

混合动力变燃油车

正当主管部门为中国新能源汽车的前景谋篇布局时，低油价却在以另一种方式影响着这个市场。因为充电不便，及油价降低，很多买插电式混合动力车的市民把车子直接当燃油车使用了。这让鼓励市民购买混合动力车型的上海市感到头疼。

人民网在对此进行采访时，遇到了不少有这样想法的车主。“老实说，购买新能源车从很大程度就是为了那张车牌。现在油价在降，用油当然更方便。”这代表了不少新能源车主的心声。由于比亚迪兼具一键切换模式，汽车可以在完全不用电的情况下行驶。^⑤

喻捷，中外对话气候变化方向沟通策略专员

China's electric car sector grows

What do falling oil prices mean for China, where the manufacture of electric vehicles is just getting started?

Yu Jie

International oil prices have fallen steadily since last year, sinking as low as US\$30 per barrel this week. The most recent drop left 92-octane petrol on sale in Beijing filling stations for 5.56 yuan (US\$0.85) a litre – a record low for the capital's residents.

Normally when oil prices fall so too do petrol prices. But in China, the authorities have responded to this continued drop by capping petrol prices.

In January, China's National Development and Reform Commission (NDRC) rolled out a policy that won't let fuel prices fall in line with crude below US\$40 a barrel. The government claimed this measure was taken to promote the conservation of natural resources and help curb the country's air pollution.

But are lower oil prices influencing car buyers' choices in China? The cost of petrol in China is approximately 30% cheaper than it was four years ago. Cars are now cheaper to run. However, electric vehicles are even cheaper to run (though still more expensive to buy).

The average electric car driving 100 kilometres will consume 20 kilowatt hours of electricity. With electricity in Beijing costing 0.50 yuan (US\$0.07) per kilowatt hour, that is less than half the cost of driving a petrol vehicle the same

distance. But the environmental advantages of electric cars are tempered somewhat by the fact that coal-fired power stations account for two-thirds of China's electricity output.

If cities start offering cheaper power electricity at off-peak hours then the cost of running an electric vehicle could fall further. But while investing in electronic vehicles makes economic sense in the long-term, consumers have other concerns.

The pros of electric

In Beijing, the use of private vehicles is restricted through a number plate lottery system. In order to buy a Beijing-approved number plate your name must be drawn in a city-wide lottery. If you are planning to go electric, your chances of winning this draw are higher.

“I only wanted to buy an electric car so I could get the registration documents – last year 30% of applicants for electric cars were successful, compared to 0.7% of those who wanted a petrol car. This year the government's gone even further – anyone [with an electric car] who wants one can get one,” one Beijing resident told chinadialogue.

In addition, central and local government subsidies and tax breaks are available to electric car owners, with plans to offer electric vehicle drivers special exemptions from the temporary restrictions placed on road vehicles during periods of heavy smog.

In Shanghai, similarly, registration documents are auctioned and electric vehicles are exempt. That perk, and the subsidies, apply to both electric and hybrid cars.

In Beijing, the registration and subsidy benefits that favour electric cars exclude hybrids and only apply to a small number of vehicles.

According to one Shanghai resident: “The most popular new energy car in Shanghai is the BYD Qin hybrid [a plug-in compact saloon car developed by BYD Auto]. You get free registration and over 60,000 yuan in subsidies. The owner only pays about 14,000 yuan which isn’t that much.”

In total, seven Chinese cities are currently restricting the purchase of new cars, but going electric offers a way around this.

The cons

Fuel savings are not the only consideration for Chinese car buyers.

In Beijing, the registration and subsidy benefits that favour electric cars exclude hybrids and only apply to a small number of vehicles. The choice of these electric vehicles is limited to a mere six or seven models.

Buyers complain that the list is too short, and that the cars on it have short ranges and are too expensive. Manufacturers are concerned about Beijing’s motives for excluding plug-in hybrids.

In an interview with the China Economic Weekly, Gu Xinguang, chief analyst at the Beijing Vehicle Research Institute, said: “No Beijing-based companies make plug-in hybrids, so the city kept them off the list. It’s classic local protectionism.”

For car owners, the logistics of getting a recharging point installed is also problematic. The owner often has to waste time running back and forth between their building managers, the electricity company, the fire brigade, and the car dealership.

One Beijing resident told chinadialogue that he lacks faith in the technology behind electric cars. “Some are little more than upgraded electric bicycles,” he said.

Phasing out subsidies

So far, the reduction in the international price of oil has not had a negative impact on the sales of electric cars in China. In fact, there are indications that the sales of electric and hybrid vehicles are up thanks to policy support from local and central government.

Statistics from the China Association of Automobile

Manufacturers show that 78,499 electric vehicles were made in China in 2014, with 74,763 sold. This is an increase of 300% on the previous year. With range and lack of charging points still a problem, this demonstrates how powerful policy support can be in promoting a new technology.

But there are factors at work which may damage the industry. In early 2016, Chinese media reported a spate on subsidy fraud, with allegations that almost 30 billion yuan in subsidies had been fraudulently obtained by rogue companies.

The worst offenders were those selling commercial or special-use vehicles, but the problem affects the entire industry. Lou Xuwei, China’s minister of finance, announced that subsidies for electric vehicles would fall by 20% by 2018 from this year, and by a further 40% in both 2019 and 2020 – suggesting that subsidies for electric vehicles are being phased out.

Also, the government is to investigate how public money is used in the promotion of electric vehicles. The spate of reports was a sign that the government is determined to stamp out fraud. Meanwhile, experts say that although subsidies are supporting a young industry, they are also discouraging innovation.

As China’s authorities plot a course for the expansion of their electric vehicle sector, the impact of low oil prices internationally is giving pause for thought. While the uptake of electric and hybrid vehicles in China is growing overall, the regional picture is patchy. In Shanghai, for example, many owners of plug-in hybrids are simply running their cars on petrol.

“To be honest, the main reason I bought a hybrid was for the registration. With falling fuel prices, it’s just easier to use petrol,” a Shanghai commuter was quoted as saying in an article by People.com.cn.

As BYD hybrids can switch between sources of energy at the press of a button, they can be driven without using electricity at all. The focus of local governments should be how to convince hybrid drivers to top up with electricity. More recharging stations would be a start. ☺

Yu Jie is a communications strategist with chinadialogue and former director of climate policy for The Nature Conservancy.

最严机动车排放标准不足以应对北京雾霾

北京计划于2017年底开始实施第六阶段机动车排放标准，但北京周边机动车污染和非道路机械污染仍然很大，不足以应对雾霾问题。

张春



北京市政府希望通过新汽车排放标准助力空气污染的治理

人意处；此外，北京只能管住自己，周边同样烧油但排放标准较低的车辆、移动机械对北京空气影响不容忽视。

北京将执行最严机动车排放标准

中国的机动车排放都采用欧洲标准，为了加强污染排放控制，京六标准将采用更加严格的美国加州标准和排放检测方式。与欧洲相比，加州大城市的路况和车辆排放特征都和北京更接近。

新标准主要有三部分，分别是轻型汽油车、重型汽油车和两种重型发动机（点燃式、压燃式）的排放标准。其中，轻型汽油车和重型汽油车的单车污染物排放将比京五标准下降 40-50%。符合京六标准车的燃油将从 2016 年开始供应，其标准将在京五车燃油标准（含硫 10ppm）上再减少一些有害烃类物质等。

北京市环保局预估到 2022 年左右，北京 50% 的机动车将达到京六标准，实现北京机动车排放整体减少 20-30%。

如果顺利的话，2017 年 12 月 1 号，北京将开始实施第六阶段机动车排放地方标准，为世界最严。较已经公布的国家第五阶段排放标准（国五标准），所有汽油车的排放将降低 40%-50%。征求意见稿已于 11 月底向社会发布，预计 2016 年将公布。

对于升级一向滞后的重型柴油车（北京不发展轻型柴油车），北京也计划在 2016 年让新车满足“特京

五标准”——即在 2015 年 6 月开始实施的“京五”重型柴油车标准上，再加装高效的微颗粒物过滤装置 DPF。加装 DPF 的柴油车，其尾气排放会比欧洲第六阶段标准还低。由于机动车排放的氮氧化物和微颗粒物 70% 以上来自柴油车，此举结合京六标准，可以大大减少机动车污染物排放。

不过，京六标准也有其不尽如

国际清洁交通委员会创会主席 Michael P. Walsh 告诉中外对话，为了避免再出现像大众柴油车一样的造假事件，北京还将在实验室六种驾驶情景排放测试外，进行真实驾驶条件下的测试，以防止车辆造假。

而让重型柴油车加装 DPF 的“特京五标准”，也具有重要意义。

中国机动车污染物中，70% 以上的 NOx 和微颗粒物是柴油车排放的。尾气对雾霾的贡献，三成是直接排放，剩下七成是氮氧化物、挥发性有机物在光照、高温下再次反应形成的二次污染物。北京已经提前实施第五阶段柴油车标准，通过提高发动机和尾气处理装置的要求，大大减少了排放氮氧化物等的排放。而加装了 DPF 之后可减少微颗粒物排放，控制效果更加明显。

原环保部机动车排污监控中心主任汤大钢对中外对话说，装了 DPF 的车辆在城市中运行，“即便处于怠速（发动机启动但未行驶，催化处理装置此时不起作用）状态，车辆尾气颗粒物含量也比周围空气要少。”

高标准管不了老旧车、流动源和非道路源

当前北京 PM2.5 来源，机动车污染占 30%。如上所说，到 2022 年，也即新标准实施以后 4-5 年，北京机动车污染只能整体下降 20%-30%。因为机动车标准是针对新车的，还有一半老旧车辆全部改造的可能性不大，淘汰又需要时间，排放量将远大于新车。

车辆排放水平是由发动机和尾气处理装置状况决定的。运行较长时间以后，发动机功率下降，燃油燃

“当前北京 PM2.5 来源，机动车污染占 30%。如上所说，到 2022 年，也即新标准实施以后 4-5 年，北京机动车污染只能整体下降 20%-30%。”

烧不充分、气体温度不够高，尾气处理的效率会大受影响。四川都江堰市有 20 多年轻型车修理经验的赵师傅告诉中外对话。

2014 年底，北京汽车保有量超过 559 万辆，私家车近逾 437 万辆，每年新增车辆 15 万。

另外的挑战，就是流动车辆和非道路移动性燃油机械。

每天装载着蔬菜、生鲜、建筑材料的大卡车，排着滚滚黑烟，趁着夜色驶入北京城，成为北京 PM2.5 排放半夜小高峰的主要来源。一些重型柴油车的排放，可以达到一辆普通京五标准汽车排放的几百倍。此外，还有来来往往的垃圾车、邮政车等。这些车辆大多不在北京登记，所以不受北京标准的约束。

全国范围内，还在以每年 2000 多万辆车的速度出产国四标准车。全国范围内如不尽快实施最高标准，这类车辆即便是在五环运行，也可能成为京霾来源。

非道路机械的污染更让人头痛。到现在为止，这些可能整天在居民社区旁边轰隆隆响的挖掘机、起重机、升降机，或者是在田地里的拖拉机、收割机等，没有任何排放标准。

据 Walsh 所知，建筑机械一般不属于建筑公司，而属于专门的机械租赁公司。他们自带油罐，而这些油很可能是从不受监管的小炼油厂买的，便宜，但污染多大不得而知。中国有许多不受监管的小炼油厂，

“现在没有人知道有多少。”他说。

沿海、沿江港口城市还有一个特殊污染源，就是船舶排放。例如深圳，空气中 40% 的硫排放来自港口船舶。

有什么好办法？

工程、农用机械等非道路源污染，需要制定单独的政策来管理，但是要治理全国范围内所有的道路车辆，捷径就是加装尾气处理装置。

最要紧的，就是尽快让新下线的车辆都安装最严的尾气处理装置。加州大气资源局前局长 Catherine Witherspoon 和 Walsh 都多次提到这一举措的重要性。但将在 2018 年在全国实施的国五标准并没有这样要求。

鉴于中国现在的城市污染形势，两位专家都建议中国跳过国五，直接实施国六标准。但是国五标准已经宣布，制造商也在往这个方向改造生产线，要重新宣布国六比较困难。

汤大钢也认同安装过滤装置。他认为当前油品标准（含硫 50ppm）已经符合要求，新车直接安装尾气处理装置没有问题。柴油车只要安装一个选择性催化处理装置（SCR）和 DPF，其排放就可以达到六阶段标准。汽油车也已经有更新更高级的尾气处理装置，在国四标准的新车上就可以安装。否则拖上四五年，等国六标准实施的时候，全国将增

加上亿辆污染超标的车辆。

京六标准的单独实施，由于增加了全国标准管理和执行的难度，中国内燃机协会已经表示反对，若获通过，执行效果还不可知。单是 DPF 应用，也有实际的难处。汤大钢说，由于 DPF 需要频繁做维护处理，司机们都不愿意用；DPF 做再生维护时需要的油和动力，都来自车辆本身，全年要多耗油 5% 左右，车辆所有人不愿意承担。

同时，新标准在同一时间全面实施的政策，也让标准升级难度增大。汤大钢建议像美国一样，实行阶段达标计划，例如标准发布一年之内 10% 车辆达标；第二年 30%，第

三年 50%，以此类推。如此可以缓和转型期的压力。

由于技术在不断发展，车辆减排也可能出现新的趋势，如电动车和油电混合车。电动车由于充电系统及续航能力等问题，前景还不明朗；油电混合车辆，在启动和车速每小时 60 公里以下用电，时速 60 公里以上用油，根本解决了怠速和低速状态下尾气处理装置无效的问题，且大大提高了用油情况下的污染处理效果。汤大钢十分认同后者，但目前全国范围内应用不多。

和中国政府合作、有近 20 年机动车污染治理工作经验的 Walsh 先生，希望在新的《大气污染防治法》

和更加严格的车辆排放标准之下，环保部能够利用法律赋予的权利，坚定实施召回制度，叫停不合格生产线，杜绝不达标车辆上路。

“这也是检验中国治理车辆污染排放是不是动真格的时候。”他说。

感谢中国清洁空气中心为本文提供的帮助。2015 年 12 月底“中国清洁空气中心”举办的国际清洁技术大会，评选了解决柴油车排放、VOCs 污染等的新技术并颁奖。多名专家一致认为，在机动车污染治理方面，技术已经不是大的障碍。

张春，中外对话北京办公室编辑

Beijing's car controls won't beat the smog

The impact of Beijing's tougher vehicle standards will likely be blunted by slacker rules in other provinces

Zhang Chun

The municipality of Beijing is preparing to introduce new standards for vehicle emissions. But plans to tackle smog in the capital, before the arrival of the Winter Olympics in 2022, have been thwarted by lax environmental regulations elsewhere.

A final version of the 'Beijing VI' standards is expected later this year following a public consultation that started in 2015. The reforms are expected go further than pre-existing national regulations ('China V') to cut petrol vehicle emissions by 40-50% in the long-term.

However, polluting vehicles and machinery from outside Beijing will still be allowed to enter the capital with impunity. Tougher emissions standards for new cars will only apply to vehicles sold in Beijing, a large market in its own right but dwarfed by sales nationwide.

Car and truck pollution is estimated to be responsible for around one third of Beijing's smog, with the rest coming from industrial sectors, in particular coal industries and construction.

The incoming Beijing VI covers light-duty and heavy-duty vehicles, as well as heavy-duty diesel and petrol machinery. In common with the Beijing V (which also applies to diesel), it will limit the sulphur content of fuel to 10 parts per million (ppm) while restricting the level of harmful hydrocarbons found in fuel.

The Beijing Environmental Protection Bureau estimates that by 2020, 50% of vehicles in the city will meet the Beijing VI standards, resulting in a 20-30% drop in the volume of harmful particulates such as PM2.5 and nitrogen oxide in the air.

Last year's emissions scandal involving German car-makers Volkswagen, which had been using rigged devices in emissions tests, highlighted the need for higher emissions standards across the industry.

Michael Walsh, adviser to the International Council on Clean Transportation (ICCT), told chinadialogue that the Beijing authorities will need to start spot testing vehicle emissions on the road, as well as in laboratory conditions.

Walsh hopes to see the Ministry of Environmental Protection use China's new Air Pollution Law and new vehicle regulations to enforce a recall system that will see offending production lines shut down and polluting cars taken off the roads.

"Now we're going to see if China is serious about dealing with vehicular pollution," he said.

China's central government plans to take Beijing's car reforms nationwide in 2020, in the form of the 'China VI' standards. But until that time, up to a 100 million cars that are subject to slacker standards are expected to be sold. The policy is therefore unlikely to be a catalyst for the widespread adoption of greener cars in the way that California's vehicle emissions standards have been in the US.

New approaches

Pollution experts have suggested skipping China V and moving directly to the China VI. But implementation of China V has already been announced and manufacturers have already invested in bringing production into line with

national criteria. Moving to the China VI now could be disastrous, say some businesses.

Tang Dagang, former head of the Ministry of Environmental Protection's Vehicle Emissions Control Centre, suggests that a US-style approach is adopted, where new car regulations have been rolled out incrementally. In the first year, 10% of cars have to meet the new national standards, in the second year 30%, in the third year 50%, and so on.

The Chinese government also intends to improve the quality of fuel such as better regulation of the type of products coming from Chinese refineries.

A rapid shift to electric vehicles could help alleviate the impact of direct emissions from combustion engines. But according to new research from Tsinghua University, powering up battery-operated cars might inadvertently contribute to smog by placing extra demands on a mainly coal-reliant grid.

Diesel

Plans by Beijing's city government for tighter standards on diesel vehicles are a response to what are regarded as weak national standards, which levy lower penalties on diesel compared with petrol cars.

Diesel vehicles have become increasingly popular in the past few decades because of they are cheaper to run than their petrol equivalents, while in Europe, policymakers encouraged their use because they emit less CO2 than other types of combustion engines.

The 'Beijing V' standard would require high-efficiency diesel particulate filters (DPFs) to be fitted to all vehicles, bringing exhaust emissions below those permitted by the EURO VI level applied in the EU. And the city has already tightened diesel standards with new requirements for engines and emissions control devices, such as catalytic converters, DPFs, and NOx 'traps', prompting large reductions in nitrogen oxide emissions. The addition of diesel particulate filters will reduce particulate emissions even further.

Tang told chinadialogue that when DPFs are fitted,

"exhaust gas contains less particulate matter than the surrounding air, even if a vehicle is idling and the catalytic converter is not working, exhaust [in Beijing]."

As 70% of vehicular nitrogen oxides and particulate matter comes from diesel engines, these measures would, in theory, greatly reduce vehicle pollution. However, the problem remains that diesel cars emit far more harmful particulate matter than petrol cars.

Older vehicles

There is little hope that all older vehicles (which usually produce higher emissions) will be retrofitted with new equipment. And for those that can be upgraded, it will take time.

Vehicle emissions are determined by the size and nature of the engine, as well as exhaust gas devices. In general, engine efficiency declines as a vehicle ages. When exhaust gases fail to reach high enough temperatures the efficiency of emissions control devices deteriorates.

In 2014, Beijing had 5.59 million vehicles on the road, 4.37 million of which were privately owned. Every year, 150,000 new vehicles are registered in the city.

Additional threats to the effectiveness of new vehicle standards come from vehicles registered outside of Beijing, and from off-road industrial machinery.

Every night fleets of trucks carrying fruit, vegetables and building materials drive into the city, spewing exhaust fumes as they go and causing a small night-time peak in PM2.5 levels. Some diesel trucks have emissions several hundred times higher than a Beijing V-compliant car. As most of these are registered outside the capital, they are not subject to Beijing's rules.

For Beijing to win the war on smog it must join forces with its neighbouring provinces and launch a coordinated attack before the 2020 deadline. ☞

Thanks to the Clean Air Alliance of China for assistance with this piece. In late December 2015 the Clean Air Alliance of China held Bluetech 2015, awarding prizes to technologies aimed at improving diesel vehicle emissions and volatile organic compound pollution.

Zhang Chun is an editor in chinadialogue's Beijing office.

中国瓶装水产业岌岌可危

中国瓶装水生产与消费将走向繁荣，但瓶装水产业发展对环境造成的沉重负担以及潜在的商业危机仍有待解决。

刘虹桥

出于对水质下降和污染问题的担忧，中国的瓶装水饮用者人数已经达到历史新高。瓶装水已经成为许多城镇居民日常生活的一部分。

2014年的一项调查显示，来自100座中国城市的3万名城市居民中，仅有59%的人饮用（煮开的）自来水。供水行业协会中国供水服务促进联盟发布的一份报告显示，瓶装或桶装水比用民用净化系统或者家用过滤器净化的水更受欢迎，成为放弃饮用自来水的居民的首选。

这使得瓶装水产业成为中国增长最快的行业之一。自1990年代中期进入中国市场以来，瓶装水已经快速占领了中国各地区的便利店货柜。

虽然企业领导者和地方政府都对这一现象带来的经济增长前景表示欣喜，但瓶装水产业发展对环境造成的沉重负担以及潜在的商业危机仍有待解决。

中国水危机是一家驻香港的非营利性组织，主要关注中国水资源短缺给环境和商业带来的危机，它在《中国瓶装水：繁荣还是衰败》一文中探讨了这些危机和中国瓶装水产业的发展前景。

中国是全球瓶装水消费第一大国

世界瓶装水协会（IBWA）的数据显示，2013年中国市场消耗瓶装水总量达3950万立方米，占全球总量的15%，成为全球最大的瓶装水市场。

报告显示，瓶装水已经成为中国增长最快的快速消费品（FMCGs）之一，复合年增长率达到了18.1%，是全球平均水平的两倍还要多。

然而，世界瓶装水协会很可能低估了中国市场的实际消费规模。中国国家统计局发布的官方数据显示，2012年度包装饮用水的产量已经达到5560万立方米，比世界瓶装水协会的估值高出近2,000万立方米。

伴随瓶装水生产而来的是水、能源和塑料制品的大量使用

非盈利环境机构太平洋研究所在一篇报告中指出，每生产一瓶瓶装水需消耗三瓶的水量和四分之一瓶石油。这一估值与中国国家发展和改革委员会（NDRC）以及工业和

信息化部发布的国家标准相一致，该标准为包装饮用水的生产设置了取水额和能耗限额基准。

以这些基准为基础，中国水危机估计为了满足中国瓶装水的年生产需求，该产业消耗的水量将足够灌满约20个西湖（中国著名的人工湖泊之一）；电力消耗则达到870亿到1580亿千瓦时之间，相当于三峡大坝的年发电量；包装水用的塑料制品则可以填满整个金茂大厦（上海著名摩天大楼，高420米）。

增长潜力

中国是全球瓶装水第一消费大国，但中国人均瓶装水消费量仍低于世界平均水平19%。一些人认为，国内外消费率的差异说明中国市场尚未苏醒。

目前，吉林省计划在2020年之前将饮用水生产力提高至5000万立方米，西藏自治区（TAG）则计划提升至500万立方米。考虑到两个省份当前的饮用水产量，这两个计划都相当大胆，它们分别计划将生产力在原有基础之上提高12倍和52倍。

2011年，中国出台了旨在控制水资源利用、提高用水效率、遏制水污染的“三条红线政策”。国务院2015年4月发布的《水污染防治行动计划》（又称“水十条”）也对三条红线政策做了重申和强调。新推出的水管理政策更加严苛，说明中国未来的经济发展与水资源管理息息相关。

目前，中国国家政策重点关注降低能源、纺织和农业等主要耗水部门的用水量。为了节水，中国在这些部门投入了数百万的资金。若以吨为单位进行比较，开采一吨煤的耗水量约等于生产同等重量瓶装水的耗水量。然而不知为何，瓶装水产业还在增长。

到2020年，中国的人均瓶装水消耗量如果能够达到全球平均水平，那么该产业的总耗水量增长将超出“全国总用水量”红线。即使个别生产企业采取行动提高用水效率并降低用水消耗，但由于行业的总用水量仍会继续增加，这种努力很可能只是徒劳；瓶装水产业用水缺乏规范。这对于其他产业来说是不公平的，在水资源短缺的省份更是如此。

繁荣还是衰败

瓶装水产业已经对中国的地下

水、冰川和上游流域造成了压力。中国71%的瓶装水生产都位于“干旱11省”或“风险9省”，这些都是淡水资源稀缺的省份。中国的瓶装水中有20%产自北部平原地区，那里却饱受水资源短缺、水污染、地下水过度开采以及地面沉降问题的困扰。作为“干旱11省”，山东以及河南省的缺水程度不亚于中东国家约旦。但尽管自身高度依赖调水工程缓解用水问题，这两个省份2012年的瓶装水产量仍占到全国总量的12%。

正如之前所说，瓶装水不仅耗水量大，耗能量也高。中国计划在2020年之前达成7020亿千瓦时的节能目标。如果能够改善公共供水，让自来水适合饮用，那么瓶装水的需求量可能会减少。假设瓶装水生产能够就此停止，那么中国的节能目标就能完成12%到22%。

塑料使用也是一个问题。在中国，由于塑料回收十分有限，具体数值更是不得而知，再加上瓶装水生产消费的增长，越来越多的塑料出现在垃圾填埋场、废物焚烧站，或是流入河流、海洋、森林和农田等生态系统。这一切都可能给环境和人类健康带来进一步的挑战。近来，科学家在中国的食盐中发现了塑料微粒。

中国已经到达了一个临界点。在通往“生态文明”的路上，中国的环境已经没有任何可以恶化的空间。对决策者而言，重新思考瓶装水相关政策、让地方与中央政策相协调十分重要。

对瓶装水品牌而言，公开信息、提高用水效率自然十分重要，但风险已经超出了企业的社会责任。

这些品牌也是时候需要重新思考未来的战略——中国政府承诺在2020年之前达成自来水饮用完全安全的目标，届时，中国人是否还会继续青睐瓶装水？随着地下水相关政策变得愈发严格，中国政府是否会禁止从水资源短缺地区或脆弱的上游流域开采矿泉水？巴黎气候大会之后，所有的气候行动计划都必须彻底执行，到时候“第三极”上高端冰川水生产瓶装水的能力是否会受到威胁？企业怎样才能满足消费者不断变化的需求，生产出价廉物美的“绿色”饮用水产品？与此同时，消费者也应该对自己的饮水行为负起责任。

在一个水资源并不太充足的国家，瓶装水的未来可能会很不一样。

刘虹桥是一名屡获奖项的环境调查记者，常驻北京

China's bottled water industry is a new threat

Bottled water consumption and production in China are expected to boom, posing increased environmental threats

Liu Hongqiao

In response to concerns over water quality and contamination issues, more Chinese people than ever are drinking bottled water. For many citizens it has become a part of everyday life.

A 2014 survey of 30,000 urban residents in 100 Chinese cities showed that only 59% of people drink (boiled) tap water. The report by the China Water Supply Services Promotion Alliance, an industry association, showed that among non-tap water drinkers the first choice is bottled water (including water 'carboys', large plastic vessels used in water coolers), which ranks higher than water from residential purification systems or home filters.

Bottled water is now one of China's fastest growing sectors in the food and drink industry. Since being introduced in the mid-1990s, bottled water has filled the shelves of convenience stores up and down the country.

While both industry heads and local governments are excited about the economic growth prospects this trend presents, the heavy environmental burden and business risks remain unaddressed.

These risks and are explored in the report, 'Bottled Water In China: Boom or Bust' by China Water Risk, a Hong-Kong based non-profit organisation.

No.1 consumer

According to the International Bottled Water Association (IBWA), in 2013 bottled water consumption in China reached 39.5 million cubic metres, representing 15% of the global market, making China the number one market for



China's bottled water market is growing twice as fast as the global average

bottled water in the world.

As shown in the report, bottled water has become one of the fastest growing Fast-Moving Consumer Goods (FMCGs) in China with a compound annual growth rate of 18.1% - more than twice the global average.

However, the true extent of consumption in China is very possibly underestimated by the IBWA. Official data from the Chinese Bureau of Statistics shows the annual production of packaged water in 2012 had already reached 55.6 million cubic metres, almost 20 million cubic metres more than the IBWA estimate.

The Pacific Institute, a non-profit environment research body, concluded in a study that to produce one bottle of water, requires three bottles of water and a quarter bottle of oil. The estimate is in line with the national standards issued

by the National Development and Reform Council (NDRC) and Ministry of Industry and Information Technology (MIIT) of China, which have set benchmarks on water intake and energy consumption limits for manufacturing packaged water.

Based on these benchmarks, China Water Risk estimates that to meet the annual bottled water production in China, the industry's consumption is 20 times that of China's giant West Lake, one of the most famous artificial lakes in China. In terms of energy use, it would have consumed between 87-158 Terrawatt hours (TWh) of electricity, which is comparable to the electricity generated by the Three Gorges Dam. The plastic used for bottling the water can fill up one Jinmao Tower – the famous 420-metre high skyscraper in Shanghai.

Growth potential

Although China is the world's number one consumer of bottled water, its per capita bottled consumption rate is still 19% below the world's average. Some say the gap between international and domestic rates suggests that the Chinese market has lots of unfilled potential.

Current provincial development plans aim to increase production capacity to 50 million cubic metres in Jilin province and 5 million cubic metres in Tibet Autonomous Region (TAG) by 2020. Both plans are rather aggressive if current production volume is considered. The two provincial governments' plans aim to scale up production capacity by 12 times and 52 times, respectively.

In 2011, China introduced the "Three Red Lines Policy" to control water use, improve water efficiency and curb water pollution. In the State Council's Water Pollution Prevention and Control Action Plan (also known as the "Water Ten") released in April 2015, all three red lines are reasserted and reinforced. The new, more stringent water management policies show that China's future economic development depends on the management of its water resources.

Currently, national Chinese policy is focused on reducing

water use in major water consuming sectors such as energy, textiles and agriculture. Billions of yuan of investment is flooding into such sectors to help reach water saving targets. In a tonne-to-tonne comparison, it can take around the same amount of water to extract coal as it does to produce bottled water. Yet, somehow the bottled water industry is mandated to grow.

If China catches up to the per capita bottled water consumption global average by 2020, total water consumption by the industry would grow faster than the "national total water use" red lines. Even if companies take action to improve water efficiency and reduce water consumption, such efforts could easily be in vain because the overall water use by the industry will still continue to rise. The sector is unregulated, putting it in a privileged position compared to other industries, especially in water-challenged provinces.

Boom or bust

Already, the bottled water industry is putting a strain on China's groundwater, glaciers and upper watersheds. 71% of China's bottled water production is located in "Dry 11" or "At Risk 9" provinces, where fresh water resources are scarce. China's parched northern plain produces 20% of China's bottled water, yet suffers from water scarcity, water pollution, groundwater over-exploitation and ground subsidence. "Dry 11" provinces Shandong and Henan are as thirsty as Middle East countries such as Jordan. And despite heavy reliance on water transfer projects to mitigate their thirst, the two provinces together produced 12% of bottled water in 2012.

As mentioned previously, bottled water is not only water intensive but also energy intensive. China has an energy savings target of 702TWh of electricity by 2020. If China was to improve public water supply and make tap water fit for drinking, the demand for bottled water might fall. Assuming no more bottled water would be produced, 12%-22% of the energy saving target could be achieved.

The plastic issue also needs to be considered. China's

71% of China's bottled water production is located in "Dry 11" or "At Risk 9" provinces, where fresh water resources are scarce.

plastic recycling is limited, and exact figures are unknown. Increased bottled water production and consumption means more plastic is heading to landfills, waste incineration stations, or into ecosystems – rivers, oceans, forests and farmlands. All could lead to further environment and health challenges. Very recently, scientists discovered microplastic contamination in table salt produced in China.

China has reached a tipping point. It cannot afford more environmental degradation on the journey towards an ‘Ecological Civilisation’. For policy-makers, an important step is to rethink bottled water policy and to address the mismatches between national and provincial policies.

For brands, information disclosure and improving water efficiency is of course important, but risks have gone beyond Corporate Social Responsibility.

It’s time for brands to rethink their future strategies. One the biggest questions to answer is whether bottled water will continue to be as popular with Chinese consumers if, as the

government has promised, drinkable tap water is available to all by 2020.

There are other uncertainties. Will the government ban mineral water extraction in water-scarce regions and vulnerable upper watersheds as its groundwater policy gets more stringent?

And will the high-end glacier water bottling capacities in the “Third Pole” be threatened after COP 21 when all the climate action plans are obligated to fully implemented? There are also doubts as to whether companies can fulfill changing consumer desires for cheap quality products that are also deemed to be ‘green’.

In a country with dwindling water supplies, the future of bottled water could have a big impact. ☞

Liu Hongqiao is an award-winning environmental investigative reporter based in Beijing.

亚投行环境标准存在制度性风险？

金立群行长在多个场合表示，亚投行会十分重视生态环境的保护和改善，重视搬迁居民的利益。但亚投行官网上一个环保文件引发众多环保组织热议，他们呼吁亚投行能够以更加透明公正的态度展开新一轮磋商。

刘 琴

吸引了 57 个创始成员国的亚洲基础设施投资银行（AIIB），于 2016 年 1 月 16 日在北京正式成立，前中国财政部副部长金立群为首任行长。金立群在开业前夕接受《财新周刊》专访时谈到，美国和日本没有加入亚投行，“担忧主要包括银行标准，特别是环境保护和移民问题上”。

金立群在多个场合谈到，亚投行会十分重视生态环境的保护和改善，重视搬迁居民的利益。他曾撰文指出：“亚投行在项目甄别，筹备和实施过程中谨遵可持续发展原则。对于潜在的环境以及社会风险以及冲击进行有效管理对于取得成功的发展结果至关重要。”但在官网上具体阐述该行环保行为准则的文件——《环境和社会保障框架》草案却引发众多环保组织担心。他们呼吁亚投行完善草案，规避风险。

“目前这个草案和金立群行长所做的表态确实有差距。”环保组织绿色流域负责人于晓刚告诉中外对话，草案涵盖面广，但深度不够，“在制度上可能会给亚投行留下环境风险空间”。

这份长达 38 页的草案提出，亚

“亚洲迫切需要改善基础设施，但决定其声誉最重要的因素将是它在社会和环境领域的表现。如果运营顺利，亚投行的投资将创造大量工作岗位，并为中国和其他创始成员国赢得尊重。”

投行将会在今后的业务中“确保环境与社会完好无损，以及行动的可持续性”。并且，它还支持“将业务开展中的环境与社会因素整合到各方参与的决策过程中”。

企业责任资源中心大中华地区高级研究员周龙炜告诉中外对话，亚洲迫切需要改善基础设施，但决定该银行合法性和声誉最重要的因素将是它在社会和环境领域的表现。如果运营顺利，亚投行的投资将创造大量工作岗位，为中国和其他创始成员国赢得尊重。

但于晓刚认为，无论是草案的

磋商程序，还是内容构成方面，亚投行都需要建立更加公开透明的信息披露机制、更加严格的问责机制等，“而且要披露到项目层次”，这有利于亚投行未来的发展。

磋商程序不够公正？

亚投行于 2015 年 9 月 7 日在官网上公布《环境和社会保障框架》草案，及与利益相关方针对草案内容进行磋商的计划。磋商时间从 9 月 10 日到 10 月 23 日，磋商方式为两个小时的视频会议、书面提交意见，磋商语言为英语。

绿色流域项目官员陈香雪告诉中外对话，至少已经有 14 份书面意见提交到亚投行，其中有些是 NGO 联署意见，200 余家 NGO 和 11 个独立专家对草案提出了意见。

一些环保组织认为，视频会议的磋商形式不足以收集到相关地区弱势群体的完整意见和建议。两个小时的远程交流难以确保取得建设性成果。

创绿中心研究员白韞雯告诉中外对话，就磋商程序来讲，希望看到

亚投行能够与利益相关方和民间组织有效沟通，提供至少两轮磋商环节，并采用本地语言，或者提供口笔译服务，方便潜在受影响的社区居民能参与。

于晓刚认为，对如此重要的保障政策，磋商时间持续至少需要4至6个月。第一轮磋商后，应向意见提供者和外部利益相关方反馈，其观点和意见应被包括在更新的草稿中并披露。磋商结束后，应给所有与会者发送会议记录草稿，并提供为期至少三十天的评论时限，翻译成当地语言多渠道披露。

世界自然基金会(WWF)中国可持续金融项目总监孙轶頔告诉中外对话，亚投行作为一个多方参与的新兴国际机构，其环保体系不应低于目前多边机构如世界银行、亚开行的环境社会标准。亚投行以更加开放、透明的姿态来征询多方声音，可以把草案做得更好。

信息披露、问责机制缺乏？

于晓刚认为，从多边开发银行的政策和实践来看，环境和社会影响评价、强有力的问责机制等是开发性金融降低投资风险、确保长远利益以及体现负责任的关键。“基础设施建设规模越大对环境影响就越大，有一些甚至是不可逆的，亚投行更需要有公开透明的信息披露机制，以及问责机制。”

周龙炜认为，若想超越其他竞争者，除制定常见的社会和环境保障政策外，亚投行还需确保可能受到负面影响的群体，能够利用申诉和救济机制来维护权益。

在项目分类管理上，创绿中心认为，草案虽遵循了国际金融机构的惯例，但在具体管理手段和标准上却不如国际惯例严格。具体表现在，对可能给环境和社会造成累积性且不可逆的严重影响的A类项目，亚投行仅要求客户提供全面的文件。B类项目没有在环境和社会影响评价方面有强制性要求，“这就有可能导致许多高风险的B类项目在没有充分环境和社会影响评估的情况下得到批准。”

《赤道原则》要求每个A类和B类项目均须开展社会和环境评价过程。而亚开行《保障政策声明》要求A类和B类项目都必须提交环境影响评价报告。

另外，在信息公开和透明度方面安排欠缺。创绿中心说，草案要求其客户进行信息披露，而对其自身并无规定信息披露的义务。

陈香雪认为，草案用词有些地方模糊。如亚洲开发银行明确规定：“以下内容不符合亚开行融资支持”，而亚投行的规定是：“亚投行不会蓄意对涉及下列内容的项目融资”。

“‘蓄意’这样的表述非常不明确、模棱两可。如果以后项目出现问题，则会留下‘非故意’的借口而推卸责任。”陈香雪说，希望亚投行能够明确规定不支持的行业。

据创绿中心信息，NGO Forum 9月份两次就《框架》草案磋商计划致信亚投行，均未收到答复。10月12日，NGO Forum联合66家民间组织再次就框架草案中亟待解决的若干问题发出公开信，希望亚投行在环境和社会保障政策方面，严格按照国际金融机构的标准要求自己。

但在亚投行的官网上，所有关于这份文件的消息仍然是公开磋商窗口期延至10月23日这一条。亚投行迄今为止，并没有针对国内外NGO的建议做出任何公开回应。这份草案的最终文本何时发布，何时生效，都还是未知数。

亚投行首批项目集中在电力、交通、供水三大领域。金立群在刚结束的瑞士达沃斯世界经济论坛年会期间接受彭博采访时说，亚投行正式审批发放第一批贷款将会不晚于今年年底，2016年项目贷出至少15到20亿美元。该行还计划在4至5月发行至多5亿美元债券。

哈佛大学肯尼迪政府学院经济学教授肯尼斯·罗格夫说，中国基础设施开发模式能否成功输出到全世界还远未可知。中国强大的政府可以因修路、建桥梁和大坝的需要而移民，但一些亚洲国家运作方式却有所不同。比如印度，重建孟买机场用了8年时间，因为法院强制政府必须尊重周围贫民的权利。西方领导的基础设施银行留下了大量有问题的贷款和工程。

于晓刚认为，一些受困项目正是因为起初没有做好环评和社评，失之于宽失之于软，教训值得借鉴。

对于这些未竟的工程，金立群在媒体专访中表示，如果条件合适，将来可以支持受困项目。“发展中国家的这类需求不少，不少项目做到一半做不下去了，但相当大一部分是有前景的。只要我们评估认定这个项目本身是好的，就可以做。”

刘琴，中外对话北京办公室编辑

AIB under pressure on green lending

The China-led development bank needs to provide greater assurances

Liu Qin

The China-led Asian Infrastructure Investment Bank (AIIB) formally came into existence on January 16, but many environmental campaigners want to see greater clarity from the world's newest multilateral development lender.

The bank's president, Jin Liqun, has said repeatedly that the AIIB is serious about protecting the environment and limiting the human impact of development.

But many environmental groups are concerned that the bank's draft Environmental and Social Framework document, available on its website, lacks detail and firm commitments to sustainable lending. They call for rules on lending to be made more explicit and for improved consultation with local people.

Yu Xiaogang of Chinese NGO Green Watershed



The bank's president, Jin Liqun (left) has said repeatedly that the AIIB is serious about protecting the environment

told chinadialogue: "There is a gap between the stance described by Jin Liqun and the contents of that draft." For example, at present there are no binding requirements to carry out environmental or social impact assessments before projects start.

While the framework has already undergone an initial round of public consultation, environmental groups remain dissatisfied with the outcome and are asking that the guidelines be resubmitted for further scrutiny.

Critics say that without stringent standards on what the AIIB deems to be 'sustainable', the bank could end up spending hundreds of billions of dollars on projects that will be a major source of greenhouse gases, pollution and deforestation for decades to come.

The AIIB is scheduled to start spending US\$100 billion of raised capital on infrastructure and energy projects from the second quarter of this year, highlighting the need for urgent clarification on sustainable lending criteria, campaigners told chinadialogue.

In recent years, China has ramped up spending through its 'One Belt One Road' initiative to develop new trade routes and infrastructure. These new roads, ports, railways and power stations in around 60 countries could be worth US\$2.5 trillion over the next few decades, according to services firm PricewaterhouseCoopers.

This has raised fears that Chinese investment will exacerbate environmental problems in central Asia and south-east Asia, where environmental oversight is regarded as weak.

Yu said that the AIIB needs to implement additional

“There are fears that Chinese investment will exacerbate environmental problems in central Asia and south-east Asia, where environmental oversight is regarded as weak.”

measures to ensure greater transparency and accountability. This should “apply project-by-project,” and will benefit the future development of the bank, he said.

According to the Washington-based World Resources Institute (WRI), discussions are ongoing at board level about how to make the bank’s lending greener.

“Our hope is that the public voicing of these concerns will prompt the AIIB to take a more cautious stance on fast-tracking large scale infrastructure projects, and instead put a premium on managing environmental and social risks associated with such investments,” said Athena Bastelleros with the WRI’s Finance Center.

Lowell Chow, East Asia researcher at the Business and Human Rights Resource Centre, said Asia urgently needs better infrastructure, but the bank’s legitimacy will ultimately be judged by its environmental and social record.

If strong standards on sustainability are applied, the bank’s investments will create huge numbers of jobs and win respect for China from other founding members, including Germany, UK and France.

Japan and the US, which wield considerable power over the World Bank and Asian Development Bank (ADB), have refused to join the AIIB.

First draft

In September 2015, the AIIB placed a draft of its Environmental and Social Framework on its website, along with a plan for consultation with stakeholders. The consultation took place in English language, via a two-hour video conferences and written submissions, between 10 September and 23 October.

Some environmental groups complained that vulnerable stakeholders in affected areas would not be able to contribute via video, and that two hours was not enough to achieve a constructive outcome.

Bai Yunwen, a researcher at Greenovation Hub, a China-based green group, told chinadialogue that she hoped to see the bank communicate effectively with stakeholders and civil society groups, with at least two rounds of

consultation, either in local languages or with translation and interpretation supplied. This would make it easier for potentially affected communities to participate.

According to environmental groups, consultation on such important safeguards should last for a minimum of at least four-to-six months. In addition, minutes of the meeting should be translated into local languages and published with a thirty-day deadline for submitting comments.

Sun Yiting, Sustainable Banking and Finance Program Manager with WWF China, said the AIIB should be more open in seeking a range of opinions to further improve the draft of its sustainability criteria, in accordance with those set out by the World Bank and Asian Development Bank.

So far, more than 200 NGOs and 11 independent experts have commented on the AIIB draft.

Impact assessment

In Yu Xiaogang’s view, environmental and social impact assessments and strong accountability systems are crucial if multilateral development banks are to reduce investment risk, protect their long-term interests and show responsibility.

“The bigger an infrastructure project is, the more impact on the environment, and sometimes that impact is irreversible. The AIIB needs open and transparent disclosure mechanisms, as well as accountability systems,” Yu said.

Chow wants AIIB to go further than its competitors and ensure that those negatively affected by its projects can use litigation to seek legal redress.

Greenovation Hub said that although the AIIB’s draft framework adopts the project categories usually applied by international financial bodies, its actual management measures and standards are more lax.

Specifically, for projects in Category A – those which may have major cumulative and irreversible negative environmental and social impacts – project developers simply need to submit full documentation.

There are no binding requirements to carry out environmental or social impact assessments for projects in

Category B. “This may lead to many high-risk Category B projects being approved without full assessments of environmental and social risk,” Greenovation Hub added.

According to Asian Development Bank (ADB) criteria, category A and B projects require environmental and social impact assessments to be carried out. Accordingly, the ADB’s Safeguard Policy Statement requires projects in these categories to submit environmental impact assessment reports.

Transparency

Transparency is also lacking. According to Greenovation Hub, the AIIB draft requires clients to disclose information, but there is no obligation for the bank itself to do so.

Other critics say that in some places the language of the

draft is vague. For example, when listing types of projects not suitable for funding, the ADB states clearly that “the following do not qualify for ADB financing,” while the equivalent language in the AIIB draft document is “the AIIB does not knowingly finance operations involving the following”.

“The use of ‘knowingly’ is ambiguous. If problems arise later, they can avoid blame by saying this was not done ‘knowingly’”, said Chen Xiangxue of Green Watershed. She hopes the AIIB will be clear about the industries it will not finance.

In its first year of business, it is hoped that the AIIB will hold itself to international standards on environmental and social safeguards. ☞

Liu Qin is an editor in chinadialogue’s Beijing office.

去商品化是象牙禁贸关键

中美两国最高领导人承诺全面禁止国内象牙贸易，但半年过去双方并未制定各自的禁贸时间表。中外对话记者刘琴专访了大象保护专家张立，请他分析了拖延背后的原因，以及有效打击象牙贸易的国家策略。

刘琴

2016年1月13日，香港特别行政区行政长官梁振英在新年施政报告中宣布禁止境内象牙贸易计划。国际保护生物学会中国委员会秘书长、北京师范大学教授、大象专家张立说，希望中国内地也要紧跟步伐，尽快落实习近平主席向全世界做出的中国终止象牙贸易承诺。

张立近日在《自然》杂志撰文，认为中国政府可以采用赎买的方式收购国内合法象牙库存。他告诉中外对话，收购花费大约在8000万美元左右，“这种方法的执法过程更简单、经济，也更加高效。”

中外对话：习近平主席的禁贸表态，对中国国内的象牙贸易有没有产生直接影响？

张立：去年9月底习主席访美后的表态，已经对国内象牙市场产生了影响。对广州、北京、上海、南京、杭州等城市的实地调查显示，很多象牙销售企业的象牙产品价格都有明显下降。此外，国家有关部门也已经组成联合工作组赴福州、广州、扬州等地实地调研象牙雕刻和

销售企业，并正在制定禁贸时间表。

中外对话：为什么还没有看到中国全面停止象牙贸易的时间表及实施禁贸的相关举措？您认为什么时间全面禁贸合适？

张立：中国现行法律的目的是保护新建立的市场经济，并不允许简单关闭注册的合法象牙雕刻企业和经销商。中国还面临着牙雕这一国家非物质文化遗产如何传承的问题，以及象牙合法交易市场在中国长期合法存在，立即全面禁贸存在一定的难度。但是，如果迟迟不出台具体的禁贸举措，就会给非法象牙流入合法市场以可乘之机，也有可能让习近平主席的表态蒙尘。全面禁贸越快越好！

“禁贸必须让象牙去商品化。国家通过赎买回购合法库存是象牙去商品化最简单的方法，也是政府应当考虑的策略。”

中外对话：全面禁贸难度何在？有什么好的解决办法？

张立：禁贸必须让象牙去商品化。国家通过赎买回购合法库存是象牙去商品化最简单的方法，也是政府应当考虑的策略。政府将市场上所有的合法象牙库存一次性购回，再视情况将它们移交给博物馆。回购完成后，不再允许任何形式的商业性象牙贸易，市场上的所有象牙制品都为非法。牙雕工艺品依然可以作为艺术品在博物馆中陈列，也可以在学校作为教具使用，传承中国文化遗产和宣传保护濒危物种的重要性。

中外对话：回购需要多少资金投入？

张立：在2009年，进口企业从非洲获得的象牙库存大概是每千克150美元，再公开拍卖给注册牙雕企业的价格是每千克1350美元，再加上期间库存和管理的费用，目前每千克大概售价为2100美元。以此计算，回购中国境内所有合法象牙原

料的花费大约在8400万美元左右，此外，在现行市场价格下，还另外需要5亿美元来购回所有象牙制品。如果扣除企业30-40%的利润空间，赎买回购的成本将更低。

整体费用听起来似乎很高，但中国政府经常在“生态补偿”(Eco-compensation)项目上花费数十亿美元。比如，补贴农民和土地拥有者停止耕种贫瘠耕地，改为植树种草(“退耕还林”、“退耕还草”项目)，地方政府也拥有用于生态保护和生态系统管理的资金。根据一些估计，中国已经在这类项目中花费了超过1000亿美元，在这样的背景下，为消除象牙消费、保护濒危大象物种花上数亿美元并不算大数目。

中外对话：您提到的这些国家生态补偿工程，保护和受益的是中国自身，但中国政府愿意为保护非洲大象花巨资吗？

张立：少数的非法象牙贸易和严峻的象牙走私问题已经影响到中国在非洲的长远投资发展战略，影响了中国的国际形象。相比于欧美等其他国家，中国作为负责任的新兴大国，更会为非洲的环境保护和野生动物保护而投入更多的经费。而且以此根除对象牙等濒危物种的

奢侈品消费也符合国家提倡的生态文明建设的大政方针。

中外对话：中国全面禁止象牙贸易之后，非法贸易有可能转移到其他国家吗？

张立：中国和美国全面禁贸后，非法贸易可能还会存在一段时间。但是随着两国国内执法的加强，合法市场的取缔，非法贸易势必会转向其他国家。因此我一直认为象牙禁贸绝不仅仅是中美两国的事情，需要全球其他国家的参与和支持。对于非洲国家，目前所面临的更大挑战是由于盗猎、人口快速增长造成的大象栖息地丧失等问题。如果国际社会能够通过帮助非洲摆脱传统的、依靠售卖自然资源谋求自身发展的非可持续性经济成长模式，我想没有哪个非洲国家愿意冒着大象物种灭绝风险而继续进行象牙贸易。

中外对话：美国和中国情况有什么不同，美国禁贸需要做什么？

张立：中国的象牙禁贸问题主要挑战来自两个方面。一是目前仍有较大的合法库存象牙，二是牙雕是中国数千年传统文化的一部分，牙雕工艺也是中国的非物质文化遗产

产。因此对中国象牙禁贸而言，既要考虑到如何解决好合法牙雕刻和销售企业的转型和替代生计扶持的问题，又要兼顾非物质文化遗产如何传承的问题。而美国没有像中国这样大的合法库存。CITES公约2008年一次性允许中国购得62吨合法象牙，经过近年的消耗，仍有较大合法库存。(CITES, 即《濒危野生动植物种国际贸易公约》，于1975年7月1日起正式生效，成为管理濒危物种国际贸易的国际法)

美国的问题是大量的战利品狩猎象牙的进口和公约生效前所获得的象牙的贸易问题。目前美国国内象牙禁贸受到枪支协会和猎人协会等组织的坚决反对，推行全国禁贸的联邦法律即使通过了，也仅能禁止各州之间的贸易，而各州内的象牙贸易仍需各个州议会来立法予以禁止。但是目前美国国内象牙交易较集中的纽约州、新泽西州和加利福尼亚州已经率先进行了立法，禁止公约生效后获得的象牙贸易，仅允许公约前的古董象牙交易，这是重要的进展。但是中美两国距离全面禁止各自国内的象牙贸易仍然困难重重、任重道远。☺

刘琴，中外对话北京办公室编辑

China struggles to ban ivory trade

Six months after the US and China banned imports and exports of ivory, no timeline on future action has appeared. Liu Qin asks elephant conservationist Zhang Li about the reasons for the delay

Liu Qin

On January 13, in his New Year policy address, Hong Kong's chief executive Leung Chun-ying announced a plan to ban ivory trade within the region.

Zhang Li, secretary general of Society for Conservation Biology China Chapter, professor at Beijing Normal University and an expert on elephants, hopes that mainland China will keep pace and enact a national ban on ivory trading, as promised by President Xi Jinping on his inaugural visit to the US in September.

In a recent article for the journal *Nature*, Zhang Li wrote that he believed the Chinese government could purchase the country's entire stockpile of legally held ivory, making it easier to identify the illegal ivory trade thereafter. He told chinadialogue that this acquisition would cost the country roughly US\$80 million.

"This would be a straightforward, economical and effective measure to enforce," he said.

chinadialogue (CD): Has President Xi Jinping's decision to ban domestic ivory trade had a direct impact?

Zhang Li (ZL): The effect can already be seen on China's domestic ivory trade, from when Xi Jinping returned from a visit to the US and made his stance known publicly last September. Surveys carried out in cities such as Guangzhou, Beijing, Shanghai, Nanjing and Hangzhou have shown a significant decrease in the price of ivory from many suppliers [because demand has been impacted by the measures].

State departments have formed joint working groups and travelled to places such as Fuzhou, Guangzhou and Yangzhou to carry out research on ivory carvers and sellers, while setting a timetable for the ban.

CD: Why is there still no timetable for the total ban of ivory trade in China? What do you think is an appropriate timeline for the phase-out?

ZL: China's current law aims to protect the newly established market economy, and legal and registered ivory carvers and suppliers cannot simply be shut down. One problem is that ivory carving is classed as part of China's 'intangible cultural heritage'. The legal ivory market in China has been going for a long time, which makes it difficult to enact an immediate total ban. However, delaying initiatives related to the ban will give illegal ivory the chance to flow into the legal market, and the effect of Xi Jinping's stance might fade. The sooner we see a total ban on the ivory trade the better.

CD: What are the main challenges in introducing a total ban and how might they be resolved?

ZL: To ban the trade of ivory, the product has to be 'decommodified'. The simplest way would be for the state to purchase the entire stockpile of legal ivory, a strategy that the government should be thinking about. The government could purchase all of the legal ivory on the market in one go, and pass it on to museums if appropriate.



© Kate Miyamoto / USFWS

Ivory carvings that have driven a rise in the poaching of elephants in Africa

After this appropriation, commercial ivory trade would no longer be allowed, and all ivory products still on the market would be classed as illegal. Ivory handicrafts could still be exhibited in museums and used in schools to educate both about Chinese cultural heritage and also the importance of protecting endangered species.

CD: How much would be needed to purchase this stockpile?

ZL: The stockpile of African ivory acquired by importers in 2009 was priced at about US\$150 per kilogramme, while in public auctions registered ivory carvers were getting \$1,350 per kilogramme; adding on inventory and management costs has increased the current price to \$2,100 per kilogramme. Using this figure, the cost of purchasing all of China's domestic legal raw ivory works out at approximately US\$84 million, but an additional US\$500 million would be needed to purchase all the ivory products at the current market price. This cost could be lowered if the profit margins of these businesses could be cut by 30-40%.

It sounds like a huge cost, but the Chinese government has already spent over a billion dollars on eco-compensation, e.g. the 'grain for green' programme. These are subsidies given to farmers and land-users in order to stop them cultivating marginal cropland, which can be turned instead to forest and grassland, and funds used by local governments to carry out environmental protection and ecological system management. According to estimates, China has already spent over US\$100 billion through programmes like these, and therefore a few hundred million dollars to protect endangered elephants is not a big expense.

CD: These state eco-compensation programmes that you mentioned are to protect and benefit China itself. Will the government be as willing to spend huge sums to protect African elephants?

ZL: A small amount of illegal ivory trade and the serious issue of ivory smuggling has already had an effect on China's long-term investment strategy in

Africa, and harmed China's international image. China is a responsible emerging power, and has invested more funds than other Western countries into the protection of Africa's environment and the conservation of its wildlife. Eradicating the consumption of luxury products, such as ivory, that come from endangered species is in line with state policy in promoting the development of an 'ecological civilisation'.

CD: Will the trade move to other countries after China enacts a total ban?

ZL: After China and the US enacted a total ban, there may still be some illegal trade for a time, but as domestic laws within these two countries are strengthened and there is a crackdown on the legal market, illegal trade is likely to move to other countries. My opinion has always been that this ban on ivory trade should not just be carried out just by China and the US – it needs participation and support from all other countries. The biggest challenges African countries face are poaching, and a rise in human population, leading to loss of elephant habitat. If Africa received help from the international community to move away from the traditional and unsustainable development model that relies on selling off its natural resources to survive, I don't believe that any African country would want to continue trading ivory and risk the extinction of elephants.

CD: What are the main differences between the situation in US and China, and how should the US need to approach the ivory trade ban?

ZL: There are two major challenging aspects to the

ban on ivory in China. First, China has a relatively large stockpile of legal ivory, and second, ivory carving has been part of China's traditional culture for thousands of years. To ban the trade of ivory in China, there needs to be ways to transform the businesses of legal ivory carvers and suppliers that provides them with alternative livelihoods, as well as means to safeguarding this intangible cultural heritage. The US legal stockpile of ivory is nowhere near as large as China's. In 2008, CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) granted China a one-off purchase of 62 tonnes of legal ivory, and even after recent consumption there is still a relatively large legal stockpile.

[The CITES Convention came into effect on 1 July 1975, and has become international law governing the international trade of endangered species.]

In the US, the problem is mainly due to ivory imported from trophy hunting and ivory acquired before the CITES Convention came into effect. The US domestic ban on ivory trade is currently receiving firm opposition from firearm and hunting organisations. If a national ban on the trade of ivory were to be passed within federal law, it would still only apply to trade between US states; each state would need to set up its own legislation to ban ivory trade. The states of New York, New Jersey and California, where the domestic trade of ivory is most concentrated, have already taken the lead in legislating to ban the trade of all ivory acquired after the CITES convention went into effect. This means that only the trade of antique ivory is allowed. This is an important step, but China and the US are still far from a total ban. There is a long way to go. ☺

Liu Qin is an associate editor at chinadialogue's Beijing office.

弗林特丑闻过后 美国水行业面临重重审查

科迪·科扎塞克表示，美国的公共水供应现在处境尴尬，人们担心密歇根州的铅中毒丑闻还会在其他地区继续上演。

科迪·耶格尔-科扎塞克

在本周三召开的一场国会听证会上，美国立法机构开始就密歇根州弗林特市持续一年多的居民饮用水铅含量超标事件进行调查。

这是美国公共卫生领域几十年来面临的最严重的危机之一。联邦调查局和州政府对此展开了调查，市民及环保机构也提起了相关法律诉讼。所有质疑都指向了同一个问题：弗林特的供水系统到底出现了什么故障？这样的悲剧是否会在美国其他地区重演？

很遗憾，水资源专家给出了肯定的答复。美国有相当一部分的供水设施已经接近使用期限上线。以往旨在保护美国城市地表水和地下水资源的主要法律已经过时，无法为应对如今的水质威胁提供充足的保护。此外，气候变化和人口增长也让传统的水资源管理方式面临着重重压力。

弗林特事故是管道设施年久失修和政府不作为两个因素共同导致的结果。去年秋天之前，弗林特还是美国北部“铁锈地带”（指由多个曾经工业发达、如今已经衰败没落的城市构成的地带）上一个默默无闻的城市。弗林特是上世纪中期密歇根州汽车工业大繁荣的标志。但从1960年开始，这里的人口开始逐步下滑，目前的人口总数只有原来的一半，过去十年里弗林特的公共支出一直处于严重的负债状态。

这次水危机事故起源于2014年4月。当时，弗林特政府决定放弃一直使用的底特律供水系统，改从当地的弗林特河汲取水源，希望借此节省500万美元的公共支出。但由于没有采取恰当的防腐蚀措施，导致河水引流降低了铅质管线抵抗侵蚀的能力，最终导致了供水系统内的铅泄露。

2015年9月，有医生发现弗林特市的儿童血铅指数达到了危险水平，这将对儿童的认知和行为能力造成永久性的伤害。弗林特市从2015年10月恢复使用底特律供水系统，但是此前的伤害已经无法挽回。虽然具体的污染程度尚不得而知，但是上万名当地居民的饮用水可能都已经遭到了铅污染。

美国进步中心是一家来自华盛顿特区的无党派政策研究机构。该机构进步2050项目负责人丹雅·所罗门（Danyelle Solomon）表示：“这些孩子真的太可怜了。相关研究和医生的意见都显示，铅中毒造成的损害是不可逆的。铅中毒的孩子辍学的可能性是普通孩子的7倍，参与犯罪的可能性则是普通孩子的6倍。这才是最严重的问题。”

弗林特事件是全美大规模基础设施危机的一个缩影。美国给水

“弗林特事件是全美大规模基础设施危机的一个缩影。虽然目前绝大多数社区的饮用水都是安全可靠的，但是要想保持这个水平，预计到2050年至少需投资1.7万亿美元。”

工程协会 (American Water Works Association, 简称 AWWA) 2012 年的一项研究显示, 虽然目前绝大多数社区的饮用水都是安全可靠的, 但是要想保持这个水平, 预计到 2050 年至少要投资 1.7 万亿美元。这个数字仅指饮用水基础设施的维修和必要的扩建, 还不包括污水和暴雨水处理系统。

密歇根大学土木与环境工程教授格伦·戴格尔 (Glen Daigger) 表示: “目前全美的城市供水基础设施都面临投资不足的窘境。这种状况只能持续一时, 不能持续一世。”

所以只能提高水费, 将上涨的这部分成本转嫁给消费者。AWWA 联络部负责人格雷格·凯尔 (Greg Kail) 指出: 相比于水资源为社会提供的价值, 目前的水价实在太低了。目前这一状况还不会发生太大变化, 但是将来水价还是会有所上升, 以便更好地反映出水资源为社会提供的服务价值。

弗林特事件清楚地告诉我们: 袖手旁观的代价反而更高。

斯坦福大学土木与环境工程教授、美国国家科学基金会工程研究中心负责人理查德·卢西 (Richard Luthy) 表示: “水质与安全饮用水供应对于一个社会的健康均衡发展至关重要。如果我们不能完成这项基本要求, 就要面对类似弗林特事故这样的严重后果, 而这一切本来都是可以避免的。”

破旧的基础设施还不是威胁美国饮用水安全的唯一因素。不仅清洁供水系统的零部件已经年久失修, 美国现有的水资源保护法和传统的管理机制也已经无法应对新的水资源供应和水质挑战。

2014 年伊利湖爆发了有害水华事件。该事件导致距离弗林特市 100 英里的俄亥俄州托莱多市有近 50 万人饮用水中断。农业污染排放加重了这次水华事故, 但美国最重要的水资源保护法《清洁水法》却基本没有对这一领域进行监管。尽管修改法案的呼声越来越高, 但是近三十年来《清洁水法》却并没有得到重大的修订。

同样, 2014 年西弗吉尼亚州的化学泄漏事故也对华盛顿特区 30 万人口的水供应造成了影响。这次事故的源头是距离华盛顿的饮用水汲水地上游仅 1.5 英里的一个化工槽罐。此次事故也凸显了美国《健康饮用水法案》在水源地保护和执法上的不足。

而美国西部地区面临的另一个显著的问题就是加利福尼亚州连续五年遭受干旱。加州大部分的水井已经干枯, 条件较差的农业种植区还要面临地下水污染带来的公共卫生问题。去年, 加州政府已经出台了城市限水强制规范。

卢西指出: “现有的系统到底可以给我们提供多少可靠而富有弹性的水资源? 气候变化、人口增长、

用水需求的不断增加都将我们放在了这个选择的边缘。”

干旱的压力迫使城市开始重新思考水资源管理的模式。过去人们会选择利用联邦和地方沟渠进行远距离水资源调度。而如今, 有些地方已经开始探索通过捕集暴雨水来补充含水层了。

加州的一些水务管理人员还积极向其他国家学习经验。比如在澳大利亚, 当地政府就采用了一种创新的水交易系统, 保证了该国在二十一世纪前十年的严重干旱时期依旧拥有安全的水资源供应。

虽然进展缓慢, 但是俄亥俄州也已经开始行动了。去年, 该州通过了一项法案, 要求在农业施肥过程中减少可能导致伊利湖水华爆发的农业污染排放。

戴格尔指出: “我们知道我们可以做到的, 但也不是说我们一定要一个社区一个社区地逐个执行。不要只看到水资源管理模式改进的成本, 其实这种可持续的新型系统也会给我们带来巨大的经济收益。我们当然希望改革过程中的每一分钱都花的物有所值, 而事实上这些花费也的确能够产生几倍的回报。这一点我们必须明白。”

科迪·耶格尔-科扎塞克, 美国环境新闻网站蓝圈 (Circle of Blue) 记者

US investigates water scandals after Flint

Public water supply in the US is in a sorry state, raising fears that Michigan's lead poisoning scandal could be repeated elsewhere

Codi Yeager-Kozacek



Flint, a former car-making centre, is now notorious for hazardous management of its water supply by municipal officials

In a Congressional hearing this week, US lawmakers began to untangle how drinking water laced with high levels of lead was supplied for more than a year to citizens in Flint, Michigan.

The crisis, one of the most acute threats to public health the US has faced in decades, is also the focus of a federal investigation involving the FBI, a state probe, and

lawsuits brought by citizen and environmental groups. All are demanding answers to the same question: what went wrong in Flint, and could it happen in other cities across the country?

The answer is yes, according to water experts. Much of the nation's water infrastructure is nearing the end of its useful life. Landmark laws meant to protect the surface and

groundwater reserves that supply US cities are outdated and insufficient to address new threats to water quality. In addition, climate change and population growth are putting pressure on traditional methods of water management.

In Flint, the story comes down to a potent mix of ageing water pipes and government incompetence. Up until the crisis, Flint's narrative had followed the arc of the once-mighty industrial towns in America's northern Rust Belt. Its heyday was in the mid-20th century as a bastion of Michigan's auto industry, but its population has declined by half since 1960, and for much of the past decade the city's public administration has been drowning in debt.

Problems with the city's water began in April 2014, when Flint switched water sources from its longtime supplier, the Detroit water system, and began taking water from the local Flint River in an effort to save US\$5 million. But a failure to implement proper corrosion control measures when treating the river water left ageing lead service lines vulnerable to deterioration, leaching lead into the system.

By September 2015, doctors found unsafe levels of lead in the blood of the city's children, which can cause permanent cognitive and behavioural problems. Flint switched back to Detroit water in October 2015, but the damage was done. Thousands of residents may have been exposed to lead in their drinking water, though the precise extent of lead contamination in the city is still unknown.

"You look at these children, and we know from studies and doctors that exposure to lead is irreversible," said Danyelle Solomon, director of the Progress 2050 programme at the Center for American Progress, a nonpartisan policy institute in Washington, DC. "Children who are poisoned with lead are seven times more likely to drop out of school, and six times more likely to be involved in the criminal justice system. That's what's at stake."

The Flint crisis is symptomatic of the massive infrastructure challenge facing the US. While the vast majority of communities still have clean, safe water, maintaining that level of service could take an investment of more than US\$1.7 trillion by 2050, according to a 2012 study by the American Water Works Association

(AWWA). That estimate only includes repairs and necessary expansions to drinking water infrastructure, not wastewater or storm water systems.

"Systematically in this country, we are underinvesting in our urban water infrastructure," said Glen Daigger, professor of civil and environmental engineering at the University of Michigan. "You can do that for a while, but you can't do that forever."

Much of the cost will be borne by water customers through higher water rates. Water is currently priced well below its actual value to society, according to Greg Kail, director of communications at AWWA. That is unlikely to change, but rates will almost certainly increase to more accurately reflect the cost of providing water service.

As Flint so clearly illustrates, the cost of doing nothing is much higher.

"Water quality and the provision of safe and wholesome water is absolutely essential to a well-functioning society," said Richard Luthy, professor of civil and environmental engineering at Stanford University, and the director of the National Science Foundation's Engineering Research Center for Re-inventing the Nation's Urban Water Infrastructure.

He added: "When we fall down on that obligation, then we have serious consequences like Flint, which could have been avoided."

Dilapidated infrastructure is not the only threat to safe drinking water in the US. Just as the physical components of clean water systems are ageing, so too are the nation's water protection laws and traditional management paradigms that are ill-suited to address new water supply and water quality challenges.

Spills

A toxic algal bloom in Lake Erie in 2014, for example, shut down drinking water supplies for nearly half a million people in Toledo, Ohio, about 100 miles from Flint. The bloom was fuelled by agricultural runoff, which is largely unregulated by the federal Clean Water Act, the nation's

most important water protection law. Despite repeated calls to update the act, it has not been significantly revised in nearly three decades.

Similarly, a chemical spill in a West Virginia river in 2014 temporarily poisoned the water supply for 300,000 people near the state capital. The spill, from a chemical tank located just 1.5 miles upstream of the city's drinking water intake, highlighted weaknesses in source water protections and enforcement under the federal Safe Drinking Water Act.

Drought

In the western US, an additional problem is apparent in the five-year drought gripping California. Wells have gone dry in parts of the state, many in poor farming communities where groundwater contamination is also a public health concern. The state issued mandatory water use restrictions for cities last year.

"Climate change, population increase, and ever more demands on our water supply have put us at the limits of what our current system can provide in terms of a reliable and resilient water supply," Luthy said.

Water trading

The pressure of the drought is forcing cities to rethink how

they manage water. Instead of transferring water from far-off sources through miles of state and federal aqueducts, for example, some communities are pursuing ways to capture more stormwater to replenish aquifers.

Water managers in California are also looking to countries such as Australia, which put in place an innovative water trading system to secure water supplies following a severe drought in the early 2000s.

Economic benefit

Changes, while slow, are occurring in Ohio, too. The state last year passed a law regulating manure spreading and fertiliser applications to cut down on the runoff that drives toxic algal blooms in Lake Erie.

"We know we can do this. It's just that we are not doing it as consistently as we need to from community to community," Daigger said. "Water is not a cost, it is in fact a benefit when you look at the economic benefit that is created by a good, sustainable, robust system. We definitely want to be efficient in what we do, but the money we're spending comes back to us, from an economic perspective, many fold. We need to understand that." ☞

Codi Yeager-Kozacek is a reporter with US-based environmental news website Circle of Blue.

While the vast majority of communities still have clean, safe water, maintaining that level of service could take an investment of more than US\$1.7 trillion by 2050, according to a 2012 study by the American Water Works Association (AWWA).

德里单双号限行成效众说纷纭

新德里开展为期两周的单双号限行措施，用以改善空气质量。此举逻辑上可行，但并没有显著减少雾霾。

朱希·乔德哈里

新年伊始，为了应对空气污染，印度首都新德里力排众议试行了一项激进的交通管制措施——单双号限行。该措施出乎意料地获得了民众的高度配合。

尽管人们对于试行交通管制究竟能在多大程度上改善新德里的空气质量众说纷纭，但动用非常手段应对非常局势这一点却得到了人们的普遍认可，而第一步要做的便是提升民众意识。

随着2016年的头两周结束，印度首个规模空前的交通管制试点——机动车单双号限行也告一段落。大力推动此次限行措施的德里政府备受鼓舞。首席部长阿尔温德·凯杰里瓦尔在推特上写道：“我为德里人民感到骄傲。你们给了我信心。团结一心，我们所向披靡。首次单双号限行于今天结束。我们将对其进行改进后再次实行这样的政策。”

1月15日，限行的最后一天，凯杰里瓦尔在一场记者招待会上就成功实行政策向德里市民致以谢意。“15天的试行取得了很好的成效，感谢德里人民积极参与。这项政策十分严格，但大家都给与了配合。”

“全世界都对我们的单双号限行能否获得成功拭目以待。而德里人民为世界树立了榜样。人们之所以配合并不是因为一旦违规就会受到2000卢比（约194元）的罚款，而是因为他们理解这项政策。一方面，污染物减少了，但更重要的是道路畅通了。”凯杰里瓦尔继续说道。

据德里政府称，为期两周的限行期间，污染物浓度下降了20-25%。尽管一开始90%的人都反对单双号限行，但是现在90%的人都支持这样的政策。

德里交通部长戈帕尔·拉伊表示，单双号限行有利于减少汽车尾气污染物排放。“12月，德里的PM2.5浓度超过600微克每立方米。而在限行的15天里，即使德里1月的气候条件较12月更为恶劣，但是平均PM2.5浓度维持在400微克每立方米左右。科学与环境中心（CSE）的报告也是如此。如果没有实行单双号限行，PM2.5浓度有可能超过600微克每立方米。”

按照世界卫生组织的标准，直径小于等于2.5微米的颗粒物即PM2.5的平均浓度应该保持在10微

克每立方米以下，而印度标准的上限是60微克每立方米。

限行带来的另一项好处发生在公共交通系统，特别是公共汽车的运输效率大大提高。德里政府表示，之前由于交通堵塞，原计划每天运行200公里的公共汽车只能跑160公里。而在1月1日到1月15日的两周里，公共汽车每天的运行里程达到220公里。此外，在这两周里，有6000辆公共汽车投入运营。乘坐公共汽车上下班的人数也由限行之前的470万增加到大约530万。

类似的政策之前在世界其他城市均收效甚微，但因为民众大力配合，德里取得了空前的成功。

德里现有280万辆私人小汽车和吉普车。单双号限行期间，只有9140人违规并接受罚单，占机动车保有量的0.5%。

专家们莫衷一是

即便如此，人们仍质疑限行对控制空气污染的成效。

尽管CSE发现汽车数量减少确实能对改善空气质量起到积极

作用，但能源、环境和水源理事会（CEEW）等机构的专家却表示，没有决定性的证据表明单双号限行政策能够改善德里的空气质量或者疏通交通堵塞。

CEEW的数据显示，与前一周相比，1月份第一周，德里的污染物平均浓度仍有所上升。第二周，空气质量虽稍有好转，但仍比12月份最后一周差。

CEEW表示：“就短期而言，诸如气温、风速、降雨量等气候变量会显著影响空气质量，所以我们很难找到决定性的证据证明单双号限行有利于改善空气质量。”

CEEW还发现，与12月份最后一周相比，1月份限行的两周里，路上私家车数量并没有下降。这可能是因为，从全年来看，12月最后一周的整体用车需求低于平均水平。最后CEEW表示，如果没有实行单双号限行，1月份路面汽车数量会更多。但是现在一切都只是推测，或许1月份第三周（限行结束的首周）的交通数据能为我们提供决定性的证据。

CEEW首席执行官阿努纳巴·古什说：“这并不意味着政策失败。它有助于提高人们的环保意识。我

们采取的措施不应仅限于交通管制，我们还需要解决其他污染源。”

古什还表示，在不同的地点进行精准监测以获得有说服力的数据对评估这项政策至关重要。

CSE研究与宣传部门的执行主任阿努米塔·罗伊·乔杜里表示，在空气质量下降时应继续实行限行。

她说：“我们获得的最宝贵的经验是，通过临时性措施能减少路面车流量。”她还表示在紧急情况下，政府还需要采取税收、增加市内停车费等其他中短期措施。

私家车出行减少

她援引了规划与建筑学院的一份研究称，通过监测德里11个站点的信息发现，驾驶私家车出行的人数减少了30-35%。

能源与资源研究所（TERI）表示，这次行动有许多好处，比如疏通道路、提高平均车速、以及减少油耗等。该智库组织的研究人员说：“就百分比来说，单双号限行可能对改善空气质量的影响很小，但对于基数如此之高的德里来说，PM2.5浓度的绝对降低幅度仍是非常可观的，

这将有助于减轻空气污染对人们健康的影响。”

绿色和平组织1月14日发布的一份报告显示，问题的严重性在于德里空气中砷、镍等致癌重金属浓度过高，令人担忧。

对健康的影响

在德里市内5所学校教室采集的样本的检测结果显示，样本PM2.5浓度是印度安全警戒值的6倍，WHO标准的12倍，从而更凸显了问题的严重性。

德里政府进行的一项现场肺功能检查得出了同样糟糕的结果。接受检查的3019人中，有35%的人肺功能受损，无法正常呼吸。

同时，印度其他城市可效仿德里的做法。

孟买高等法院已经发函要求马哈拉施特拉邦政府和马哈拉施特拉邦污染控制委员会报告在孟买实行私家车单双号限行政策的可行性。⑤

朱希·乔德哈里，印度气候对话和第三极特约记者。

New Delhi's traffic scheme inspires

Restrictions on car use in New Delhi eased congestion but failed to reduce the smog

Juhi Chaudhary

Beginning the New Year with a radical traffic plan to tackle air pollution, India's capital New Delhi defied the sceptics and passed its 'odd-even' traffic test with an unexpectedly high level of compliance.

After the curbs expired on January 15, opinion was divided on how effective the measures were at cleaning the air of the world's most polluted city. However, there was consensus among residents who agreed that increasing awareness was an important first step.

Following India's first traffic experiment, where private cars with even and odd number plates were only allowed on the road on alternate days, the New Delhi government expressed its satisfaction.

"Proud of U [you] Delhi. U give me confidence. Together, we can achieve anything. 1st phase of Odd Even ends today. Will do again in improved form," Delhi's chief minister Arvind Kejriwal said in a tweet.

Kejriwal also credited the citizens of Delhi for making it a success.

"The whole world was watching to see if the odd-even (scheme) would be successful and Delhiites have set an example. It wasn't because of the Rs.2,000 (194 yuan) fine, people cooperated because they understood it. Pollution came down but the major benefit that people got was that roads became congestion free," Kejriwal added.

According to the New Delhi government, pollution levels fell by up to a quarter during the two-week period, and an apparent easing of congestion appeared to win round an initially sceptical public. Around 90% people were opposed to the scheme before it was implemented, according to

government polling. But by the end an overwhelming majority of those surveyed expressed their support.

New Delhi Transport Minister Gopal Rai said the scheme had helped to cut down vehicle pollution. "In December, PM 2.5 particles were above 600 micrograms per cubic metre ($\mu\text{g}/\text{m}^3$), but in the last 15 days, average PM2.5 levels stayed at 400 even though weather conditions were worse in January. CSE (the Centre for Science and Environment) readings also says so. Had the scheme not been in place, the pollution level would have crossed 600."

According to World Health Organisation (WHO) standards, the average level of particulate matter below 2.5 microns (PM2.5) should not exceed 10 micrograms per cubic metre. The upper limit in India is 60.



buses with a target to cover 200 kilometres of ground a day typically average only 160 kilometres due to traffic congestion

Another benefit of the policy was that the public transport system, especially buses, became more efficient. According to the government, buses with a target to cover 200 kilometres of ground a day typically average only 160 kilometres due to traffic congestion. In the January 1-15 period, however, they covered 220 kilometres a day. An estimated 5.3 million people commuted by bus during the first two weeks of the year, up from 4.7 million in previous weeks.

The city government said that the scheme's success was down to the scale of cooperation among the people.

A total of 9,140 fines were issued for violating the odd-even rule during the period. Given that New Delhi has 2.8 million private cars and jeeps, non-compliance amounted to less than 0.5%.

Experts divided

However, the impact of the traffic experiment on air pollution has been questioned.

While CSE found that the drop in the number of vehicles did have a positive impact on the quality of air, some experts, such as the Council on Energy Environment and Water (CEEW), said there was no conclusive evidence to prove that the odd-even policy improved New Delhi's air or reduced traffic congestion.

CEEW's measurements showed that average air pollution levels had increased in the first week of January compared to the previous week.

In the second week of January, air quality was marginally better, but still worse than the last week of December.

"In the short-term, meteorological variables such as temperature, wind speed and precipitation have a significant impact, and as a result it is hard to provide conclusive evidence on the impact of the odd-even policy on air quality," CEEW said.

CEEW also found that the number of private cars on the road did not fall during the two-week period compared to the final week of December.

One possible explanation is that the overall travel demand in the last week of December was lower than in an average week (across the year). But without the odd-even policy, the numbers of cars on the road in January could have been higher, CEEW concluded.

A traffic count in the third week of January (after the restrictions were lifted) might be able to provide more information.

Arunabha Ghosh chief executive of CEEW said: "It doesn't mean that the policy has failed. It has helped generate awareness. But we shouldn't restrict our response to just traffic, other sources of pollution also need to be tackled."

Ghosh added that obtaining conclusive data is hugely important in measuring the success of such schemes, and recommended installing monitoring systems at different locations.

Anumita Roy Chowdhury, executive director of research and advocacy at CSE, said the curbs could be repeated during days when air quality is expected to worsen.

"The big lesson is that through a temporary measure, we can bring down the volume of vehicles on the road," she said, adding that the government needs to roll out short-term and medium-term actions such as introducing tax penalties and increased parking fees for cars.

Impact on health

That the samples were collected and tested inside the classrooms of five schools across the city underscores the gravity of the health crisis prompted by the city's foul air. According to the Greenpeace study, PM2.5 concentrations were five times above the Indian safety limit and 11 times above the limit prescribed by WHO.

An on-the-spot lung test conducted by the New Delhi government threw up equally dismal results – 35% of the 3,019 residents tested were found to have impaired lung function and could not breathe properly.

As the capital weighs up the extent to which the curbs were successful, other Indian cities are discussing whether to follow New Delhi's example.

The Bombay High Court has issued notices to the Maharashtra state government and the Maharashtra Pollution Control Board to report on the feasibility of an odd-even scheme for private cars in Mumbai.

Juhi Chaudhary is Special Correspondent of The Third Pole and India Climate Dialogue.

英国金融部门将加强绿色信贷

各个国家都在计划履行巴黎气候协议，伦敦的金融机构也将推进绿色金融的拓展。

约翰·麦克加里蒂 夏·洛婷

英国主要金融机构已经同意借助本周启动的“绿色融资倡议”(GFI)，在今年的工作中将环境融资摆在更为重要的位置。

大型银行、资产管理公司和保险公司将增加对适用绿色债券项目的投资，为更清洁能源和更低碳的基础设施建设提供资金支持。

GFI 还将致力于提升绿色投资信息的质量和可用性。

绿色债券市场的规模去年翻了一番，发行金额达到约 420 亿美元。为了落实联合国可持续发展目标以及巴黎气候协定，绿色债券市场还需以更快的速度扩张。

联合国环境署执行主任阿希姆·施泰纳在伦敦举行的“绿色金融年”活动上说：“2016 年注定将是绿色金融年。在全世界范围内，我们看到越来越多的国家都在按照可持续发展的目标调整其金融体系。”

一份本周发布的联合国环境署报告指出，据智库机构新气候经济估计，未来 15 年中全球基础设施建设开支将达到 90 万亿美元，而英国的金融产业可以在推动提高低碳或者可持续基础设施投资比重的工作



伦敦的金融机构也将推进绿色金融的拓展

中发挥更为重要的作用。

作为 2016 年 G20 的轮值主席国，中国今年很可能也将在环境贷款方面实现更快的发展，提升其国内和国际投资的绿色水平。

中国、联合国、G20 以及全球金融机构今年将努力拓展绿色债券系统，为总计 50 万亿美元的投资项目提供融资支持，以达到巴黎气候峰会确定的将全球平均气温升高幅度

控制在 2 摄氏度之内的目标。

绿色债券，或称环境债券，是一种相对新兴的资产类别，旨在为可再生能源、大规模运输系统以及抗旱种子等低碳投资项目筹资。

绿色债券市场预计今年内会增长至大约 1000 亿美元的规模。与之相比，全球债券市场总值据估算在 80 万亿美元左右。

在全球经历几十年快速经济增

长的情况下，绿色债券还将用于为大规模环境清理项目——特别是大型发展中国家的此类项目提供资金。

作为今年 G20 集团的轮值主席国，中国的任务之一便是推动绿色金融以更快速度发展，以便引导全球走上环境友好型发展的道路。

中国、联合国、G20 集团以及全球金融机构今年计划拓展全球绿色债券系统，为落实去年 12 月巴黎气候峰会上达成的全球平均气温上升 2 摄氏度目标所必需的 50 万亿美元投资提供资金。

1 月 24 日，由联合国环境署组织、中国人民银行和英格兰银行担任主席的绿色金融研究小组(GFSG)将在北京正式启动。

该委员会将致力于鼓励私营部门向低碳基础设施建设和发展输送资金，并在今年九月的杭州会议上向 G20 集团提出政策建议。

2015 年 12 月，中国发布了新的绿色债券指引，迈出了扩大低碳投资的关键一步。

绿色债券

绿色债券，或称环境债券，是相对新兴的资产类别，为气候变化解决方案以及缓解和适应项目而设计。2015 年，全球绿色债券需求显著增长，当年发行总额达到 420 亿美元。不过，相对于年 80 万亿美元左右的全球债券市场来说，绿色债券市场只是很小的一部分。

“我们需要施以正确的财务激励，缩小(基础设施建设的)融资缺口。”安联全球资产管理全球首席执行官伊丽莎白·柯里表示。

绿色金融倡议组织主席罗杰·吉福德认为，许多环境融资项目仍处于初始阶段，不仅受到市场不确定性的影响，而且与其他投资产品市场相比，无论是规模还是发展时间都存在劣势。绿色金融倡议项目重点关注联合国可持续发展目标以及巴黎气候协议实施过程中的融资问题。

“五十度绿”

绿绿色债券市场要发展壮大，主要经济体的金融机构需要尽早就什么是绿色投资达成统一的标准。

“什么是绿色，什么是质量控制，这都是经常会出现的问题。对于绿色的定义我们最后是不是只能达到‘五十度绿’(各种各样不同的定义)?”吉福德问道。

英国保险公司英杰华首席投资官史蒂夫·韦古德认为，新的金融工具不仅必须具有环境可信度，同时还可以为投资者提供具有足够吸引力的回报。英杰华具有丰富的亚洲地区业务经验。

虽然中国一直努力提升环境融资标准的严谨性，但中国国内发布的新的指南所支持的经营活动中，有不少在许多西方金融机构看来尚达不到绿色债券发行标准，比如煤炭清洁化利用。

呼吁披露

金融业人士认为，有必要鼓励企业披露温室气体排放以及对水资源等自然资源使用数据。

2015 年 12 月，英格兰银行行长马克·卡尼和面向金融机构的咨

询和数据服务商彭博集团创始人迈克·布隆伯格表示，他们将联手成立一个工作组，研究收集并展示全球企业可比环境数据的方法。

“巴黎协定将绿色融资放在全球市场的核心位置，现在我们可以在投资者资产组合中加入一些特定的资产(比如可再生能源)以及排除一些其他的资产(比如石油和煤炭)。”来自安联的柯里表示。

目前，英国富时 100 指数上市公司中有超过 90% 的企业披露了二氧化碳排放数据。虽然这在一定程度上拜英国公司法的规定所赐。但与此同时，根据英杰华和企业骑士资本联合收集的数据显示，深圳证券交易所进行披露的上市公司比例仍然停留在个位数。

Trucost 公司亚洲商业开发部主管黄超妮(音)指出，低水平的公司信息披露使中国银行和其他投资者面临评估环境成本的巨大挑战。

中国人民银行去年已经建议推出企业环境数据强制披露制度，如果中央政府支持央行的建议，那么上述情况可能会改变。这将使资金贷出方得以评估哪些企业在降低二氧化碳排放方面并未努力。

黄女士通过邮件告诉中外对话：“虽然不可能一夜之间就停止对特定行业或者企业的贷款，但我们希望看到中国的银行和其他投资者开始在传统的财务和风险评估体系中加入有效的环境指标。”

约翰·麦克加里蒂，中外对话副总编
夏·洛婷，中外对话执行编辑

UK and China bolster green lending

As countries prepare to implement the Paris climate agreement, London-based financial institutions make new push to expand green finance

John McGarrity and Charlotte Middlehurst

The UK's major financial institutions have agreed to give environmental finance greater priority this year through the 'Green Finance Initiative' (GFI) launched this week.

Major banks, asset managers and insurance companies will be among those aiming to increase the flow of projects eligible for green bonds that will fund cleaner energy and lower carbon infrastructure.

The GFI will also work to increase the quality and availability of information on green investments.

The green bond market doubled in size last year to around US\$42 billion of issuance, but needs to expand at a much quicker pace if the world is to implement both the UN's Sustainable Development Goals and the Paris climate change agreement.

Achim Steiner, Executive Director of the United Nations Environment Programme, told the 'Year of Green Finance' event in London: "2016 is set to be the year of green finance. Across the world, we are seeing a growing number of countries aligning their financial systems with the sustainability imperative."

A UNEP report launched this week said the UK's financial sector could play a major role in giving low carbon or sustainable investments a much bigger share of the US\$90 trillion that the New Climate Economy think tank estimates will need to be spent on the world's infrastructure over the next 15 years.

This year will also likely see efforts by China, as leader of the G20 in 2016, to deliver faster progress on environmental lending so that domestic and international investments can be made greener.

China, the UN, G20 and global financial institutions will this year aim to expand a system of green bonds to pay for the US\$50 trillion of investment required to meet a 2C climate goal agreed at the Paris climate summit.

Green bonds, or climate bonds, are a relatively new asset class designed to raise finance for lower carbon investments such as renewable energy, mass transit systems and drought-resistant seeds.

The green bond market is forecast to grow to around US\$100 billion this year. This would compare with an overall value of bond market estimated to be around US\$80 trillion.

Green bonds will also be needed to fund a huge environmental clean-up following decades of rapid economic growth, particularly in large developing countries.

On January 24, the Green Finance Study Group (GFSG), which is chaired by the People's Bank of China and the Bank of England, and includes the UNEP as an organiser, will launch in Beijing.

The new committee will focus on encouraging the private sector to funnel funds for low carbon infrastructure and development. It will also make policy recommendations to the G20 when it meets in Hangzhou in September.

In December 2015, China issued new guidelines for green bonds, a critically-important step in increasing the flows needed to lower carbon investments.

According to experts, the green bond guidelines will help Chinese issuers reach out to a more diversified group of international institutional investors that can provide low-cost, long-term capital. In addition, China's domestic

issuances of green bonds would become increasingly relevant to international investors.

Green bonds

China needs 2 trillion - 4 trillion yuan (US\$300 - 600 billion) a year of finance for new, lower carbon infrastructure and cleaner air, water and soil, and these sums need to start flowing quickly, said Ma Jun, chief economist at the People's Bank of China via a webcast.

"China has a huge environmental challenge, for instance, our levels of PM2.5 pollution are 20 times that seen in Australia, 75% of China's water is polluted and a fifth of its arable land is contaminated," Ma said.

Around 85% of the vast sums needed to tackle these problems, and make big cuts in carbon emissions, will need to come from the private sector, Ma added. At the same time, the policy agenda must focus on expanding the green bond market, green insurance and supporting financial disclosure.

"We need the right financial incentives to close the funding gap (for infrastructure)," said Elizabeth Corley, global chief executive officer at Allianz Global Investors.

Many environmental finance initiatives are in their early stages, held back by market uncertainty, and the size and age of other competitive markets, said Roger Gifford, chair of the GFI.

'Fifty shades of green'

For the green bond market to mature, major economies and financial institutions will need to deliver clear progress on common standards on what constitutes a green investment.

"The questions that arise are, what is green and what is the quality control. Will we end up with 50 shades of green?" Gifford asked.

To be worthwhile, green bonds and other methods of environmental finance must have environmental credibility and provide decent returns for investors, said Steve Waygood, chief responsible investment officer of UK insurance company Aviva, which has a major presence in Asia.

But while China has tried to make its criteria for environmental finance more rigorous, the guidelines announced late

last year will support some activities – such as cleaner coal generation – that would not be eligible for green bond status in many western financial institutions.

Calls for disclosure

Encouraging companies to disclose figures on greenhouse gas emissions and use of natural resources, such as water, is also needed besides green bonds, say financial institutions.

In December, Mark Carney, Bank of England governor and Michael Bloomberg, whose media company of the same name sells news and data to financial institutions, said they would head up a task force that would look at ways of compiling and presenting comparable environmental data on companies across the world.

"The Paris agreement put green finance at the core of markets around the world, and we now have greater opportunity to include particular assets (such as renewable energy) as well as excluding others (such as oil and coal), in investor portfolios," said Allianz's Corley.

At present, over 90% of companies listed on the UK's FTSE 100 index disclose CO₂ data, aided in part by UK company law, but in the Shenzhen stock exchange for example, the figure is still in single digits, according to figures compiled by Aviva and Corporate Knights Capital.

Poor corporate disclosure is making the assessment of environmental costs a challenging task for both Chinese banks and other investors, points out Chaoni Huang, a business development manager in Asia for Trucost, a data provider.

That may change if the government heeds the country's central bank, which last year recommended that companies be forced to disclose environmental data. This would allow lenders to assess which companies are taking the least action to cut CO₂.

Huang told chinadialogue in an email: "While it is not viable to stop lending to one particular sector or company overnight, we do hope to see that banks and other type of investors in China start to incorporate meaningful environmental metrics into traditional financial and risk assessment." ☞

John McGarrity is chinadialogue's deputy editor based in London.

Charlotte Middlehurst is managing editor at chinadialogue's London office.

衰落中的世界核工业

中国的核计划无法在全球核工业萎靡的状况下独善其身。

迈克尔·施奈德 弗罗加·安东尼

2016年1月27日，国有法国电力集团董事会投票决定近几十年来欧洲最大的核项目的最终命运。一旦投票通过，法方就将与中方中广核集团一同开发欣克立角C项目的两个EPR反应堆，累计投资额约为245亿英镑。但决议过程被再次推迟。【麦克·施耐德认为在这个时候出现这种延迟十分正常。】法国公司在英国开发的这个项目如同全球核工业的一个缩影——向前一步，又

后退两步。中国是否会特例？

乍看之下，2015无疑是全球核工业的利好年。全球共有10座新核反应堆成功并网发电，创1990年以来新高；只有两个核电机组关闭，一个位于德国，另一个位于英国。截至2016年1月1日，全球31个国家正在运营的核反应堆数目达到398个，比去年增加了8个。同时，7个核电机组已开工建设。日本开始重建两个核反应堆，这是该国在2011年遭

遇沿海地区地震—海啸—核泄漏三重打击后的首次行动。此外，英、法、中三国签署了框架协议，将共同建设英国欣克立角核电项目。南非也准备招标新建核电站。然而，仔细观察后我们不难发现，主要的建设进度仍然集中在中国，相比较而言，世界其他地方的核电建设总体呈低迷态势。更糟糕的是，在巴黎协议签署之后不到两个月，法国核电行业就已陷入企业危机。

10个新投入运行的核反应堆中，8个来自中国；剩余的两个分别来自韩国和俄罗斯，二者都经历了近31年的建设。全球7个新建核电站中，6个来自中国。日本方面证实已关闭了五座自2011年福岛核事故发生之后就停止发电作业的核反应堆。瑞典决定永久性关闭一个核电机组，该机组最早于2013年曾暂时关闭，目前正接受升级改造工作，有数据测算显示，该机组已无经济性可言。

瑞典关闭某些获得运营许可的核反应堆的做法绝非首例，也绝非最后一个。瑞典最大电力企业瓦腾福电力部门负责人在圣诞节前表示：“目前的形势对核能并不乐观。我们

现在投资的主要动力是期望将来电价可以有所上涨。但目前看来，这个愿望实现的可能性不大。”瓦腾福集团首席执行官马格努斯·哈尔（Magnus Hall）宣布：“我们正面临着—场模式转变，曾经的大规模发电和配电方式已经落伍，终端用户更青睐分散化和个体化的能源解决方案。”该集团计划在2020年前向可再生能源领域投资500亿瑞典克朗（约合59亿美元）。2020年前，瓦腾福将再永久性关闭三座核反应堆。如此一来，不大可能开展核设施新建工作。类似的情况也出现在其他国家。目前，美国关闭了两座本应运行到2030年左右的核反应堆，并计划在2017年再关闭两个反应堆，考虑到以上设备的产能效率已经跟不上能源市场的步调。基本来看，除了在建的五个反应堆项目外，其他新建核设施项目已经全部被无限期推迟。除中国外，2015年只有韩国在阿联酋开工建设了新的核电项目。

2016年伊始，全球14个国家在建的62个核电厂总装机容量将达到6000万千瓦。这些项目中，24个位于中国。2013年，全球在建核电厂项目达到67个，是25年以来最高位。相较于这一数字，2016年已经下滑。

2015年核电站并网数量相对较高与中国在福岛核事故之前的决策有直接关系。2009年，全球9个开工建设的核项目中有7个来自中国；2010年全球15个在建核项目中有10个位

于中国。福岛核事故爆发之后，2014年全球核电建设项目迅速缩减到3个，其中没有一个来自中国。事实上，中国已经大幅降低了核反应堆建设速度。2011年到2015年，中国只比2010年多推出了三个核电机组项目。那么反应堆项目建设速度是否会出现反弹？未来年份是否会保持这一速度？从官方数据来看，2015年中国政府批复了8个核反应堆项目，这也是核电建设经历四年冷冻期后首次回暖。其中两个核电机组位于广西壮族自治区的防城港，另两个是位于华东地区的江苏省连云港田湾核电站的扩建项目。根据国务院文件要求，两个核电项目将分别在2015年12月16日前开工建设。

一个一直被热议问题是，核电站是否只能建在沿海地区（目前所有项目都遵循这一规律），是否可以扩建到内陆地区。从目前来看，我们还无法得知相关经验和能力的积累能否满足运营、促进和维系快速增加的核反应堆的需求。与此同时，中国核工业正在信心满满地走向国际市场。能源巨头中广核以及中国核工业集团公司已经推出了所谓的第三代反应堆设计“华龙一号”，项目目前尚未投产，但已经开始向阿根廷、巴基斯坦、南非、英国甚至肯尼亚等国进行推广。

上述这些项目技术上是否可行，是否能够产生经济效益还有待考验。中广核集团股价于2015年上半年在港交所实现了迅速攀升，在

随后六个月内企业市值却损失了近一半。相关评级机构表示，参与英国欣克立角核能C项目（目前已搁置）为中广核、中国核工业集团以及法国电力集团的评级状况都带来了负面影响。法国电力集团雇员—股东联合组织EAS将欣克立角核能C项目称为“一场已预言的金融灾难”，并要求集团管理层迅速放弃这一项目。法国电力集团是法国重量级企业，世界几大核能巨头之一，同时也是巴黎证券交易所的支柱。2015年12月7日，欧洲证券交易所将法国电力集团从法国核心证券市场指数CAC40中除名。鉴于这种严重的情况，法国电力集团中央企业委员会的工会代表于两天后首次一致推出了一份官方的“经济预警流程说明”。2016年第三周，法国电力集团与阿海珉集团股票均创出历史新低，相比于八年前分别下跌了87%和95%。在此轮全球经济下滑过程中，中国股市也出现了巨大动荡。这说明，一旦中国经济遇冷，法国核能企业也将迎来寒冬。如今这些核能巨头身陷危机，这样的经济大环境无疑又遭—记重击。☹

迈克尔·施奈德，独立能源和环境政策顾问
安东尼·弗罗加，英国皇家国际事务研究所（查塔姆研究所）的能源、环境与发展项目高级研究员



位于广东省的澳岭核电站

World nuclear industry in decline

China's nuclear programme isn't immune to the woes ailing the global nuclear sector

Mycele Schneider and Antony Froggatt

In February, the board, the board of French state-controlled utility EDF postponed a vote on what would be the largest nuclear project in Europe in decades.

A thumbs-up from the directors would have prompted EDF to deepen cooperation with Chinese counterpart CGN in the Hinkley Point C project, a plan to build two European pressurised water reactors (EPRs) in Somerset, England. The estimated cost is £24.5 billion.

The delayed decision, along with the huge cost of the project and major doubts about the reactor design, has increased expectations that the power station will not go ahead.

The saga of the French project in the UK is symptomatic of the state of the world nuclear industry—one step forward, two steps back. Is it now less certain that China is the exception to the rule? In a surprise move the Chinese government just stopped the construction of two EPRs in Guangdong province due to safety concerns.

At first sight, 2015 was a good year for the world nuclear industry. A total of ten new nuclear reactors were connected to the grid, more than in any other year since 1990, while only two units were shut down, one in Germany and one in the UK. At the start of this year, a total of 398 reactors—eight more than a year ago—were operating in 31 countries.

Construction began on seven units. Two reactors were restarted in Japan, the first ones after the country's nuclear fleet was shut down in the wake of the 2011 Tsunami and earthquake that prompted a meltdown at the Fukushima nuclear plant.

A framework investment agreement was signed between

British, French and Chinese partners for the launch of a new power plant at Hinkley Point in the UK. And also last year, preparations for a call for tender for the construction of new nuclear plants were initiated in South Africa.

However, a closer look shows that the future potential for nuclear is mainly focused on China, whereas the situation of the nuclear industry in the rest of the world remains gloomy. Worse, less than two months after the signature of the Paris Agreement on climate change, the French nuclear industry is facing corporate meltdown.

China represents eight out of the ten new reactors started up, and six of the seven new building sites. One reactor started up in South Korea, and another in Russia, after 31 years of construction. Japan confirmed the final closure of five reactors that had not generated power since the aftermath of the Fukushima accident.

Sweden decided to permanently close a unit that initially shut down in 2013 for upgrade work because the operator had calculated that it was no longer economically viable.

The Swedish move was not the first and certainly not the last utility decision to withdraw licensed reactors from the grid. "Things are tough for nuclear power at the moment",

“Credit-rating agencies have made it clear that involvement in the Hinkley Point C project in the UK, now delayed again, is “credit negative”

head of generation at the Swedish utility Vattenfall, said last month.

“So far, a good many of our investments have been made in the hope that electricity prices will start to rise. But clearly there are fewer and fewer signs that this will actually happen. We don't expect to see higher market prices for electricity over the next five or ten years.”

Vattenfall's CEO Magnus Hall has added: “We are going through a paradigm shift, which is challenging the model of large-scale energy generation and distribution to end users in favour of decentralised and individualised energy solutions.” The company intends to spend SEK50 billion (US\$5.9 billion) on renewables until 2020. At the same time, Vattenfall has announced that it will prematurely retire three additional reactors before 2020.

Consequently, nuclear new-build for Vattenfall is a non-starter. A similar situation is observed in other countries, particularly the US, where two reactors, licensed to operate into the 2030s, have been closed, while two more will be shut down until 2017, because they cannot compete in the power markets.

In effect, all of the nuclear new-build projects beyond the five reactors currently under construction have been delayed indefinitely. Outside China, only one construction site broke ground in 2015, in the United Arab Emirates, which had asked South Korean firms to build the country's first nuclear power plant.

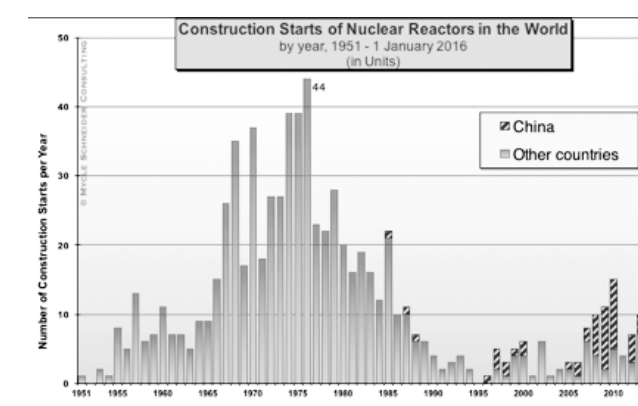
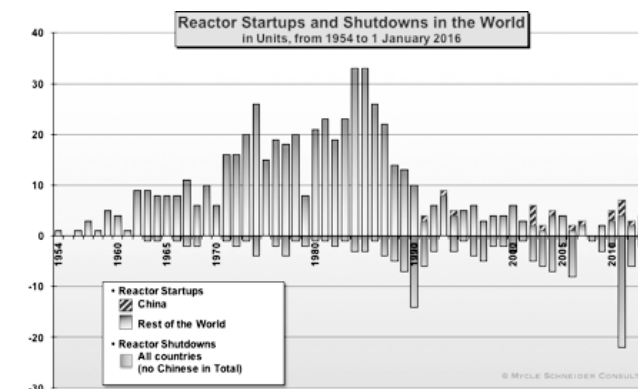
At the beginning of this year, of the 62 nuclear power plants with a combined capacity of 60 gigawatts (GW) under construction in 14 countries, 24 were located in China. The world total is down from a 25-year high of 67 in 2013.

Three quarters of the projects have been delayed, many by several years. Four EPRs under construction in Finland, France and China are years behind schedule. And, for the nuclear industry, it might still get worse.

The Chinese government stated on 27 January 2016 that following safety concerns, construction of two EPRs that a Franco-Chinese consortium is building at Taishan in Guangdong had been delayed.

Fabrication faults have been identified in the reactor pressure vessel of the EPR built at Flamanville in France. The same fabrication process has been used for the Taishan vessels.

The French nuclear safety authorities said they will take until the end of the year to decide whether the material used in the reactor pressure vessel—which are clearly below



Source: World Nuclear Industry Status Report (or simply WNISR), MSC, 2016

technical specifications—is acceptable from a safety point of view. The Chinese authorities' attitude towards this issue will be under close international scrutiny.

The relatively high number of grid connections in 2015 is clearly a result of decisions taken in China pre-Fukushima. In 2009, China launched seven of the nine new nuclear construction projects in the world that year, and in 2010, ten out of 15.

Since the Fukushima disaster, the number of construction starts plunged to three in 2014, of which none were in China. In fact, China has slowed the pace of reactor building.

China's new nuclear

Between 2011–2015, China launched only three more units. Will the rhythm of reactor building pick up again? Can it be sustained over the years to come?

Officially, during 2015, the Chinese government granted permission for the building of eight more reactors, the first ones to get the go-head after a four-year freeze. These include licences for two units in Fangchenggang of south

China's Guangxi Zhuang Autonomous Region, and a two-reactor expansion of the Tianwan nuclear power station in Lianyungang of east China's Jiangsu province.

Construction started on one unit at each site within days of the 16 December 2015 announcement by the State Council. It's a highly contested topic, whether nuclear power plants should be built not only in coastal areas—as are practically all of the current projects—but also inland.

China's nuclear exports

It is also too early to say whether the build-up of expertise and competence can be accelerated to the level needed to operate, fuel and maintain a rapidly growing nuclear reactor fleet. At the same time, the Chinese nuclear industry is aspiring to expand into foreign markets.

Industrial giants China General Nuclear Power Group (CGN) and China National Nuclear Corporation (CNNC) have proposed their yet-to-be-built Hualong One, a so-called Third Generation reactor design, to Argentina, Pakistan, South Africa, the UK, and even Kenya.

It remains to be seen whether these projects can be technically implemented and proven commercially viable. After a rapid rise in the first half of 2015 on the Hong Kong stock exchange, CGN shares lost 60% of their value in six months.

Credit-rating agencies have made it clear that involvement in the Hinkley Point C project in the UK, now delayed again, is “credit negative” for CGN, CNNC and the French EDF.

“Financial catastrophe”

The association of EDF employee-shareholders (EAS) called the Hinkley Point C project “a financial catastrophe foretold” and asked the management to abandon the project. On 7 December 2015, Euronext ejected the French heavy weight Électricité de France (EDF), the largest nuclear utility in the world and “pillar of the Paris Stock Exchange”, from France's key stock market index, known as CAC40.

Two days later, the trade union representatives at the Central Enterprise Committee of EDF—unanimously and for the first time—launched an official “economic alert procedure” considering the “seriousness of the situation”.

In the third week of 2016, EDF and Areva shares hit a historic low, a drop of 87% and 95% respectively from their values eight years ago. The French government's January 27 decision to inject €5 billion into the bleeding Areva Group will likely only provide short-term pain relief.

While the Chinese stock-market plunge clearly played a role in the latest downward trend, it is clear that when the Chinese economy sneezes, the French nuclear industry catches a cold. That is all the more dangerous as the atomic giants were already sick.

Mycale Schneider is the lead author and publisher of the annual World Nuclear Industry Status Report. ☺

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攀登珠峰的风险与日俱增

由于气候变化和山难频发，攀登世界最高峰变得越来越危险。这对担任登山队向导的夏尔巴人来说，更是险象环生，朝不虑夕。

夏·洛婷 拉梅什·布尚

2014年4月18日，珠穆朗玛峰南坡发生雪崩，大本营被埋，16名尼泊尔夏尔巴向导遇难。这是人类攀登珠峰有史以来最严重的事件，并激起了夏尔巴人对登山运动前所未有的抵触情绪。登山季还没有结束，夏尔巴人却拒绝回到珠穆朗玛峰。

夏尔巴人要求增加遇难者赔偿金，提高向导人寿保险，并且用登山费成立登山救助基金以帮助事故中受伤的向导。尼泊尔旅游部部长布希姆·阿查里雅（Bhim Acharya）搭乘直升机赶到大本营后便立即与等在那里的数百名夏尔巴人展开了紧急会谈。

两年过去了，夏尔巴人的某些要求仍然没有得到满足。

去年，尼泊尔发生8.1级地震灾害，造成9000余人死亡，50多万人无家可归。尼泊尔当局随即再次取消了当年的登山季。今年的登山季即将于4月开始，夏尔巴人正在为此做准备，但政府的回应依然令他们倍感失望。

许多登山者开始对珠峰敬而远之。一部分人是出于对事故遇难者

的敬意，还有一些人则是考虑到随着气候变化和人多拥挤，攀登珠峰变得越来越危险。

纪录片《夏尔巴人》

获得第69届英国电影学院奖（Bafta）最佳纪录片奖提名的澳大利亚导演詹妮弗·皮登（Jennifer Peedom）的新作《夏尔巴人》（Sherpa）再次将夏尔巴人的困境带入公众视野。影片取材于2013年的珠峰斗殴事件。3名欧洲登山者在攀登珠峰时引起了夏尔巴人向导的不满，随后双方发生冲突。该事件引起全球广泛关注。皮登则用影片的方式记录了斗殴事件的后续余波。

2014年4月，皮登和她的团队来到尼泊尔，计划拍摄一部有关夏尔巴人和外国登山者之间冲突的影片。由于双方在财富、权力和对于珠峰的信念等方面存在巨大差异，这一冲突不断加剧。

国外登山者攀登一次珠峰的开销可高达10万美元，而夏尔巴人在为期两个月的登山季中，总共只能挣到3000-8000美元。他们还得靠着

这笔钱度过一年里余下的日子。

与收入相比，攀登时夏尔巴人所担的风险也有失比例。登山季期间，一名付费登山者顶多4次穿过以危险著称的昆布冰瀑，而夏尔巴向导们却会往返穿梭30-40次，不断地往高海拔营地运送氧气瓶、帐篷、食物、水、还有燃料。

拍摄中期，剧组遭遇严重雪崩，拍摄不得不暂停。这时，皮登意识到“引爆双方之间矛盾的导火索已经被点燃。”

然而，拍摄这样一部纪录片的想法最早萌芽于10年前。那时，皮登还只是一名摄影师。

皮登在接受中外对话采访时表示：“那是我第一次去尼泊尔。我仍然记得，当时我很同情夏尔巴人，很想知道他们怎么能容忍那些外国游客。因为不论是从他们的信仰来看，还是从他们对权力的观点来看，这些外国人的行为都是极其荒谬的。”

夏尔巴人是虔诚的佛教徒，他们相信喜马拉雅山脉上的许多山峰都是神圣的。而据一些新闻报道，2013年珠峰斗殴事件正是源于外国登山者触碰了盖着经幡的登山绳。

失望情绪弥漫

近年来，社交媒体的发展唤起了夏尔巴人的自我意识。比如通过 facebook，夏尔巴人可以了解外国登山者在国外的生活，掌握他们每次攀登支付的登山费，看到他们登顶下山之后受到的吹捧。实际上，如果没有夏尔巴人搬运工具箱，搭建帐篷，补给食物，这些外国登山者根本不可能登上珠峰，享受这份荣耀。

同样是通过社交媒体，皮登与几位夏尔巴人成为了亲密的朋友。他们邀请她去村子拍摄，普巴塔西(Phurba Tashi)就是其中最著名的一位。

塔西曾 22 次登顶珠峰，是世界上最令人敬佩的高海拔登山家之一，可现在他却一贫如洗。2014 年雪崩之后，他便向家人承诺止步于大本营，再也不登顶珠峰。

塔西这么做也是无奈之举，要知道给人当向导是很多夏尔巴家庭的主要收入来源。

另一位夏尔巴人叫昂·普巴(Ang Phurba)，今年 47 岁。他曾 5 次登顶珠峰，并且给许多登山队当过向导。他首次尝试登顶是在 1990 年，那年他才 20 岁。

普巴在接受第三极采访时表示：“很多夏尔巴人把登山看作工作，但是他们这么做并不仅仅是为了赚钱。”

“(2014 年雪崩之前)攀登珠穆朗玛峰的人数急剧增加。这对于夏尔巴人来说是件好事，因为我们会更多工作机会，但是每次下山后，我的心情都很低落。那些成功登顶的外国人在接受采访的时候侃侃而谈，就像刚刚是在攀岩一样，可攀登

珠穆朗玛峰比那难多了。其中的艰难险阻也只有像我们这样每秒都在搏命的人才能体会。”

他说：“另外，我们觉得夏尔巴人需要得到外界更多的认同。他们不应仅仅被视作帮助外国人征服珠峰的动力引擎或者运输工具。他们扮演着如此重要的角色，值得受到更多的尊重。”

商业时代，攀登珠峰的人越来越多。即便在海拔 25000 英尺(约 7620 米)处也是人满为患。专家表示，登山人数激增会使本来就存在巨大风险的攀登变得更加危险。

现年 38 岁的夏尔巴人普尔那(Purna)曾于 2010 年和 2011 年两次登顶珠峰。他还加入过许多其他山脉的探险队。

普尔那表示：“必须改善基础设施(升级装备)。显然，这涉及到各个方面，需要大家广泛讨论。”

气候风险

随着气候变化加剧，攀登喜马拉雅山脉地区的山峰变得越来越危险。安全问题引起了越来越多的关注。

近年来，珠穆朗玛峰雪崩和冰瀑频发。科学家们将之归结为全球变暖。皮登也在她的纪录片中提到了这一点。

皮登说：“雪崩和气候息息相关。近两年，大本营遭遇雪崩的次数创历年之最。人们开始讨论是否将大本营搬到珠峰上海拔更高的地区。但这又将引起另一系列环境污染问题，而且目前珠峰南坡的地形也在不断变化。”

喜马拉雅山脉上冰川融化的速度已经引起了激烈的讨论。2007 年，联合国政府间气候变化专门委员会(IPCC)第四份评估报告曾错误地指出，喜马拉雅山脉的冰川最早有可能在 2035 年消失。

而去年《欧洲地球科学联合会》(EGU)期刊上刊登的一份新的研究报告显示，到本世纪末，珠穆朗玛峰地区的 99% 的冰川将会消失。

夏尔巴人村庄中的长者很久之前就呼吁采取措施应对气候变化。

普尔那表示：“由于融冰和难以预测的天气，攀登珠峰越来越难。五月份回来的登山者称，如今雪量很少，许多岩石都裸露在外，在 10 年之前，则很难看到这样的光景。”

“冰块形状变化得越来越快。每年我们都要为登山者探寻新的路径。”

他说：“我们正在为今年 4 月即将到来的登山季做准备，但是人们都惶惶不安。”

普尔那说，(4.25 尼泊尔)地震后，珠峰上的冰块移动，地形变得更加危险，更易发生雪崩。

在 2014 年雪崩发生之前，受雇为国际探险队搬运设备的夏尔巴人得不到任何政府补贴。今年，虽然获得了更多保障，但还远不能满足他们的需要。

《夏尔巴人》入围英国电影学院奖最佳纪录片。2016 年，探索频道将在全球范围内播放该影片。—— Sherpafilm.com

夏·洛婷，中外对话执行编辑
拉梅什·布尚，驻尼泊尔加德满都记者

The dangers of Everest

Climate change has made climbing the world's highest mountains increasingly deadly

Charlotte Middlehurst and Ramesh Bhushal

On 18 April 2014, an avalanche ripped through the base camp of Mount Everest killing 16 Nepalese Sherpa guides. The accident, the most deadly in the mountain's history, triggered an unprecedented boycott among the Sherpas, who refused to return to the mountain for the rest of the climbing season.

The Sherpas demanded better compensation and life insurance, and a relief fund for injured guides be set up funded by the climbers fees. Emergency talks began when Nepal's tourism minister Bhim Acharya landed by helicopter at Base Camp, where hundreds of Sherpas were waiting.

Two years on and some of the Sherpa demands remain unmet.

Last year, the climbing season was cancelled again following the devastating earthquake, which killed up to 9,000 people and displaced over half a million. This year, Sherpas are planning for the upcoming climbing season that begins in April, but communities remain frustrated by the government's response.

Some climbers are staying away out of respect for the dead, others for fear of the mountain, which is more perilous to climb as a result of overcrowding and climate change.

Documentary account

A new Bafta-nominated documentary, Sherpa, by Australian director Jennifer Peedom, has put the Sherpas plight back in the spotlight. Following the infamous 2013 brawl on Everest, where European climbers fled a mob of angry Sherpas and which subsequently went viral, Peedom set out to document its aftermath.

She and her crew arrived in April 2014 to make a film about the growing tensions between Sherpas and foreign climbers, which have risen from a gross disparity in wealth, power and values on the mountain.

Sherpas are paid US\$3,000 – US\$8,000 over the two month climbing season, a salary that must last the whole year, while foreign climbers will spend up to US\$100,000 on a summit expedition.

Sherpas also carry a disproportionate burden of risk on the climb. A paying climber will pass through the treacherous Khumbu icefall as few as four times, whereas Sherpa guides might make 30 or 40 journeys, carrying loads of oxygen, tents, food, water and fuel to the higher camps.

When the fatal avalanche unexpectedly struck midway through filming, Peedom knew “the spark had been lit”.

However, the idea for the documentary had first been hatched a decade before when Peedom was working as camera operator.

“On that first trip, I remember being moved by the Sherpa story and wondering just how they stomach this idea of having to observe this often very grotesque behaviour by foreigners, from a spiritual point of view but also a power perspective,” the director told chinadialogue.

Sherpas are devout Buddhists and consider many Himalayan mountains sacred. According to some reports, the 2013 brawl broke out when foreigners touched guide ropes covered in prayer flags.

Growing frustration

In the years since, social media has brought about a new

self-awareness within the Sherpa community. Facebook has allowed Sherpa communities to see how foreign climbers live at home, how much they paid per expedition and observe the adulation they received following summit – a feat that would be impossible without a team of Sherpas carrying the kit, setting up tents and feeding the group.

Social media also allowed Peedom to develop closer friendships with the Sherpas who invited her to film in their villages. Most notably, Sherpa Phurba Tashi.

Tashi has climbed the mountain 22 times but despite being one of the world's most well-respected and high-altitude climbers, he is penniless. Since the avalanche, he has honoured a promise to his family not to go higher than base camp.

This decision not to climb is never made lightly as tourism is often the main source of income for Sherpa families.

Ang Phurba Sherpa, a 47-year-old, has reached the summit of Everest five times and led many climbing expeditions. His first summit attempt was in 1990 when he was just 20.

“Climbing has become profession for many Sherpas but it's not all about money only,” Phurba Sherpa told thethirdpole.net.

“[Before 2014] the number of people climbing Everest has increased drastically. This is good for Sherpas who have more opportunities [to work] but when I come back from every expedition I feel bad...How easily they give interviews, as if it was just a rock climbing. It not easy to climb Everest, the hardness could only be explained by people like us who put our lives at risk every second.”

“We also feel that Sherpas need more recognition and they shouldn't be just treated as engines or vehicles to conquer the mountains but should be duly credited for their role,” he said.

In the commercial era, overcrowding on Everest has led to ‘human traffic jams’ at 25,000 feet (7,620 metres). Experts say the sheer numbers exacerbate the already substantial dangers of climbing.

Purna Sherpa, 38 year-old, climbed the Everest in 2010 and 2011 and has taken part in many other expeditions.

“Facilities [and equipment] must be improved, which is definitely an issue that has to be discussed widely,” said Purna Sherpa.

Climate risks

Safety concerns have become more acute in the face of

climate change, which is making mountains in the region riskier to climb.

Scientists have connected the growing pattern of increasing avalanches and ice falls on Everest with global warming, an issue which Peedom raises in the film.

“The avalanche was climate related. There have been more accidents at base camp in the last two years than ever before. These concerns have led to a discussion about whether base camp should be moved higher up the mountain. But this raises a different set of environmental concerns about pollution on Everest, which currently has no fixed structures on the south side” said the director.

The speed of glacier melt in the Himalayas has been fiercely debated. In 2007, the Intergovernmental Panel on Climate Change (IPCC) fourth assessment report, erroneously reported that Himalayan glaciers could disappear as early as 2035.

However, new research published by the European Geosciences Union(EGU) journal last year, showed that the 99% of glaciers on the Mount Everest region will disappear by the end of the century.

Older members of the Sherpa community have been advocating climate action for some time.

“Climbing Everest has been harder because of unpredictability of weather and melting of ice. For instance, most climbers returning in May see many bare rocks with less ice now, which many say wasn't the case more than a decade ago,” said Purna Sherpa.

“Shapes of ice masses are changing faster and every year we have to search alternative options while preparing the way for the climbers.”

“Preparation for the climbing season in coming April is underway but fear is high,” he said.

Purna says the earthquake has caused dangerous changes to the landscape and moved large blocks of ice, increasing the risk of avalanches.

Before the avalanche, there was no provision for government compensation for Sherpas hired by international expeditions to carry gear. This year, they have greater protections but there is still as long way to go. ☺

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Sherpa climbing Everest

Sherpas training in the treacherous Khumbu Icefall



Phurba Tashi's mother. He has promised his family he will not climb to Everest's summit again



Phurba Tashi with his father



Prayer flags at Everest Base Camp

数读“十三五” 3大 环境治理目标

13th Five-Year Plan highlights **three** major environmental objectives

大气 The atmosphere

地级及以上城市重污染天数减少 **25%** 替代燃煤锅炉 **18.9万** 蒸吨
推进重点地区“煤改气”工程，新增用气 **450亿** 立方米

Reduce the number of heavy pollution days by **25%** in cities at prefectural level and above
Replace coal-fired boilers with an output of **189,000** tons of steam.
Promote coal to gas conversion in key areas and increase natural gas consumption by an additional **45 billion** cubic meters

水 The water

主要江河湖泊水功能区水质达标率 **80%** 以上
推进长江、黄河、珠江、松花江、淮河、海河、辽河等 **7大** 重点流域综合治理，基本消除劣V类水体

At least **80%** of major rivers, lakes and water function zones reach basic water quality standards.
Promote comprehensive treatment in the river valleys of China's **seven** major rivers: the Yangtze River, the Yellow River, the Pearl River, the Songhua River, the Huai River, the Hai River, and the Liao River.
Eliminate water body containing Class-V contaminated water, the worst water quality defined by China's national standards.

土壤 The soil

建设 **6个** 土壤污染防治先行示范区 完成**100个**农用地和 **100个** 建设用地污染治理试点
开展 **1000万** 亩受污染耕地治理修复和 **4000万** 亩受污染耕地风险管控

Build **six** pilot areas of soil pollution prevention and control.
Complete pollution control pilot projects at **100** pieces of farmland and **100** construction sites.
Restore **10 million** mous of contaminated farmland and carry out risk management on an additional **40 million** mous of contaminated farmland.

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