

ADB Assists the PRC in Promoting Energy Efficiency and Clean Energy

亚洲开发银行协助中国促进能源效率和开发清洁能源

As an international financial institution for development in the Asia and Pacific region, the Asian Development Bank (ADB) supports the People's Republic of China's (PRC) efforts and provides lending and technical assistance in energy efficiency and clean energy development.

In recent years, ADB has been helping the PRC develop clean and renewable energy supplies through demonstration projects involving hydropower, biomass, wind, solar, landfill methane, geothermal,

advanced clean coal technologies such as integrated gasification combined cycle (IGCC) and carbon capture and storage (CCS), and coal mine methane (CMM) projects. ADB is financing the PRC's first coal-based IGCC power plant at Tianjin, set to be operational by 2012. In Shanxi province, the world's largest CMM power plant funded by ADB is now in operation.

To support the government's priority to reduce energy intensity and carbon intensity, ADB is also helping improve energy efficiency in Guangdong province through a \$100 million loan.

ADB's Clean Energy Financing Partnership Facility and its Asia Pacific Carbon Fund support innovative lending and non-lending projects in energy efficiency, renewable energy, and advanced climate change mitigation technologies, such as IGCC and CCS. ADB has also set up a dedicated CCS Fund, which is financing initial activities in the PRC.

ADB has also diversified its support for the transport sector by promoting

greener and more sustainable means of travel. In 2009, ADB financed its first urban mass transit project in Lanzhou, Gansu province that will contribute to better, more convenient, energy-efficient, and safer passenger transport. ADB has also started preparations on a project to develop inland waterway transport, another efficient and environment friendly mode of transport. Assistance for the first tranche of the Railway Energy Efficiency and Safety Investment Program was approved last year.

The Private Sector Operations Department of ADB established partnerships with commercial banks and enterprises for developing energy-efficient buildings, municipal waste to energy projects, district heating and cooling, wind power, and small hydropower. A second issuance of Panda bonds in 2009, worth CNY1 billion, will also support ADB private sector operations in this area.

The nation's commitment to reducing carbon dioxide emissions for 40%-45% of 2005 levels by 2020 highlights the



ASIA SOLAR ENERGY FORUM ADB President Haruhiko Kuroda calls for developing and developed countries to work together to help the Asia and Pacific region introduce large-scale solar energy projects

亚行行长黑田东彦在亚洲太阳能论坛上呼吁发达和发展中国家携手帮助亚太地区引入大型太阳能项目

challenge of reinforcing environmentally sustainable development through greening and decarbonizing the economy. ADB is striving to further enhance its responsiveness to these emerging issues and challenges, and to increase emphasis on regional cooperation and knowledge cooperation.

The PRC has been one of the fastest growing economies in the world over the past three decades. However, a consequence of the PRC's focus on economic growth has been pollution and environmental degradation.

The PRC is now the world's second largest consumer of energy. Its energy generation is heavily relying on coal. Coal mining degrades the environment and creates greenhouse gas emissions.

Improving energy efficiency and shifting to cleaner and non-carbon energy sources are important ways of protecting the country's environment and helping mitigate global climate change. The government is committed to addressing climate change by developing clean and renewable energy as an alternative to coal. The country's 11th Five-Year Plan (2006-2010) targets to cut pollution by 10% and energy intensity by 20%.

作为一家亚太地区的国际金融机构，亚洲开发银行（亚行）支持中华人民共和国（中国）提高能源效率和开发清洁能源的努力，并为此提供贷款和技术援助。

近年来，亚行一直通过试点项目帮助中国开发清洁和可再生能源供应，其中涉及水力发电、生物质能、风能、太阳能、垃圾填埋沼气、地热、诸如整体

煤气化联合循环发电（IGCC）和碳捕获及封存（CSS）这样的先进清洁煤炭技术，以及煤层气项目。亚行正在天津资助中国首家IGCC发电厂，并计划在2012年投入运营。在亚行的资助下，世界上最大的山西省煤层气发电厂现已投入运营。

为支持中国政府优先减少能源强度和碳浓度的行动，亚行为广东省提供了1亿美元的贷款，帮助其提高能源效率。

亚行的“清洁能源融资伙伴计划”和“亚太碳基金”支持有关能源效率、可再生能源和先进气候变化缓解技术的创新型借贷与非借贷项目，例如IGCC和CSS技术。亚行还专门建立了一个碳捕获及封存基金，资助中国的初期投资活动。

通过倡导更加绿色和更具可持续性的出行方式，亚行丰富了对交通部门的支持模式。2009年，亚行资助第一个城市公共交通项目，在甘肃省的兰州。该项目有助于创建更优质、更便捷、更节能和更安全的公交运输。此外，亚行开始筹备一个旨在开发内陆水上运输的项目。这是另一个既节能又环保的运输模式。去年，亚行还批准了首个铁路节能与安全投资规划项目。

亚行私营部门业务局与商业银行及企业建立了伙伴关系，共同开发节能建筑、城市垃圾发电、集中供热和供冷、风能与小型水力发电等项

目。亚行2009年发行了价值达10亿元人民币的第二期熊猫债券，将用于支持亚行在这些领域的私营业务。

中国承诺，到2020年实现二氧化碳排放量比2005年减少40%至45%。在承诺中，中国强调了通过发展绿色经济和低碳经济巩固环保可持续发展所面临的挑战。亚行正努力进一步加强应对这些新出现的问题和挑战，并逐渐强调区域合作与知识合作。

在过去三十年的时间里，中国是世界上发展最快的经济体之一。然而，中国注重经济发展的同时也带来了污染与环境恶化的负面影响。

中国目前是世界上第二大能源消费国。其电力生产主要依赖煤炭。煤炭开采促使环境恶化，并产生温室气体排放。

提高能源效率并转向更清洁和无碳能源资源是中国保护环境和缓解全球气候变化影响的重要途径。中国政府致力于通过开发替代煤炭的清洁、可再生能源的方式应对气候变化。中国第十一个五年规划（2006年至2010年）设定了污染减少10%和能源强度减少20%的目标。■



ZHANGBEI Wind Power Development Project is being funded by ADB
亚行资助的张北风电开发项目

Using Virtual Power Plants for Energy Efficiency

利用虚拟电厂解决能效问题

Halfway through the implementation of the 11th Five-Year Plan (2006-2010) of the People's Republic of China (PRC), the government of Guangdong and other provinces such as Hebei, Jiangsu, and Shandong are building virtual efficiency power plants (EPPs). This is to achieve energy efficiency targets and at the same time satisfy growing energy demand and promote stable economic growth.

EPP is a concept that makes aggregated savings in energy at par with the productivity of a physical power plant. An EPP is a bundle of investments in energy-saving technologies such that the magnitude of the energy saved obviates the need to install new power generation of equivalent capacity. It is virtual because it does not exist physically. It exists instead in the guise of the energy saved. Unlike conventional coal-fired power plants, an EPP burns no fuel, emits no pollution, involves no land acquisition, and costs much less.

Virtual Power Capabilities and Development Needs

The government of Guangdong, for example, helps local electricity end-users and energy service companies retrofit industrial equipment. This saves energy equivalent to a 100 MW coal-fired power plant, halves investment costs, and provides significant environmental benefits.

While virtual power plants work to achieve the energy efficiency goal of the 11th Five-Year Plan, their development is, however, more complex than the financing of coal-fired power plants. Continuous successful development of virtual power plants requires government intervention and the willingness of energy consumers to consider initiatives to improve energy efficiency as profitable investments.

Overcoming Barriers: Lessons Learned

- Learning from Guangdong's experience, incentives are necessary to encourage investments and participation in energy-saving practices.

By adjusting electricity tariffs, households and enterprises can be encouraged to invest in retrofits and new technologies in return for profits and lower electricity bills. In practice, energy consumers do not usually become collective investors in virtual power plants if electricity tariffs are very low or heavily subsidized. In the absence of tariff adjustments, tax incentives, subsidies, or rebates may be used to reward energy-saving practices. One example is the PRC's subsidies to encourage production and use of fluorescent lights instead of cheaper incandescent light bulbs. Incentive



DOMESTIC DEMAND for equipment using solar power sources is expected to rise as its costs fall

对太阳能设备的国内需求预计将随着成本的降低而提高

mechanisms are best institutionalized if performance and accountability measures are aligned.

- Operators of physical power plants will participate more actively in EPP initiatives if laws and regulations on energy efficiency are integrated into power sector reforms.

This would enable virtual power plants to compete with conventional power plants, particularly where tariffs and additional costs are low. The profits of power companies should be decoupled from the volume of energy sold. Tax rebates can encourage power companies to invest in efficient, clean coal technologies.

- Energy efficiency champions can intensify awareness of energy-saving practices and their long-term benefits. Senior government officials can champion energy saving.

They can campaign for tariff reforms, promote energy-saving services, and nurture development of EPPs. They can wage awareness campaigns about available energy-saving practices and disseminate information about potential benefits against upfront transaction costs.

- Lending and credit can support energy efficiency initiatives.

Funding to support energy efficiency initiatives is often scarce. High transaction costs are also associated with small loans, and assessing the creditworthiness of large numbers of small investors can be problematic. Judicious use of lending and credit instruments enables small and medium enterprises to access finance that supports energy efficiency initiatives.

A detailed project description is at <http://www.adb.org/Documents/RRPs/PRC/39653-PRC-RRP.pdf>

背景

在中国实施第十一个五年规划（2006-2010年）的过程中，广东省和河北省、江苏省和山东省开始兴建虚拟“能效电厂”。该项目旨在实现能效目



SOLAR CELLS A worker assembles PV cells in Zhuhai, Guangdong province. With the advent of solar energy use, market for residential and commercial buildings is expected to grow

广东珠海的一名工人在组装光伏电池，太阳能在住宅和商用建筑的应用市场有望增长

标的同时，满足日益增长的能源需求，并促进经济稳定增长。

能效电厂是一种节能概念，其节能总量相当于实际电厂的发电量。能效电厂是对一揽子节能技术的投资，这样节省出的电量可以省却建造一个生产相同电量的新发电厂的需要。能效电厂是虚拟的，因为能效电厂并非实际存在，而是以节能的形式存在。与传统的火力发电厂不同，能效电厂不需要消耗燃料、零污染、无需占用土地，而且成本大幅降低。

虚拟电厂能力与发展需求

例如，广东省帮助当地电力终端用户和能源服务公司改进工业设备。其节省的能源相当于10万千瓦的火力发电厂，不但节省了一半的投资成本，还带来了巨大的环境效益。

虽然虚拟电厂有助于实现第十一个五年规划中规定的能效目标，但虚拟电厂的发展却比火力电厂的融资更为复杂。虚拟电厂持续、成功的发展需要政府的干预以及能源消费者愿意将提高能效的倡议视为能够获利的投资。

克服障碍：总结经验教训

- 根据广东省的经验教训，必须制定刺激政策，鼓励投资和参与节能的行为。

调整电价可以鼓励居民和企业投资于先进的新技术，以回收利润和支付较低的电费。现实中，如果电价非常低或得到很高的补贴，能源消费者通常不会成为虚拟发电厂的集体投资者。在缺乏电价调整的情况下，可以通过税收刺激、补贴或返利等手段来奖励节能行为。其中一个典范是，中国实施补贴，鼓励生产和使用荧光灯，以取代廉价的白炽灯。如果既有绩效又



STREET LIGHTS Roads in Foshan uses LED lights
佛山市的道路采用了LED灯光照明

有问责措施，那么激励机制最好实现制度化。

- 如果将能效相关的法律和法规纳入到电力部门改革中，实体电厂的运营者将会更加积极地参与能效电厂的行动。

这样，虚拟电厂就能够与传统电厂进行竞争，尤其是在电价和其它成本较低的地方。电力公司的利润应当与所售能源量脱钩。退税可以鼓励电力公司投资于高效、清洁的煤炭技术。

- 评比节能冠军能够强化对节能行为和长期利益的认知。高层政府官员应该支持节能。

他们可以进行电价改革，倡导节能服务，并培育能效电厂的发展。他们还可以开展活动，提高人们对可以采用的节能做法的认识，并宣传推广预付交易成本可能带来的好处。

- 借款与信贷可以支持能效行动。

对能效行动的资助通常并不多见。小额贷款也意味着高交易成本，同时评估大量小额投资者的信誉度也是棘手的问题。审慎使用借款和信贷工具确保中小型企业获得支持能效行动的资金。

项目详情，请参见<http://www.adb.org/Documents/RRPs/PRC/39653-PRC-RRP.pdf>。■

ADB and the PRC Sign Loan, Grant for Power Plant that Uses New Coal Technology

亚行和中国签署采用新煤电技术发电厂的贷、赠款协议

On 28 May, officials from the Government of the People's Republic of China (PRC) and the Asian Development Bank (ADB) signed financing documents for the 250 megawatt (MW) coal-fired integrated gasification combined cycle (IGCC) power plant at Tianjin, which is the first of its kind in a developing nation.

ADB is providing a \$135 million loan, along with a grant of \$5 million, to help finance this IGCC plant that can generate up to 1,470 gigawatt-hours of electricity every year, while helping reduce greenhouse gas emissions (GHGs) and harmful air pollutants, such as sulfur dioxide and nitrogen oxide, which contribute to acid rain. ADB's loan has a 26-year term, including a grace period of 6 years, with the interest rate determined in accordance with ADB's LIBOR-based lending facility. The grant, from ADB's Climate Change Fund, will be used to help curb risks linked to the adoption of the new technology and to keep costs down.

The documents were signed at the Westin Hotel in Beijing by Klaus Gerhaeusser, Director General, ADB East Asia Department and Wu Jinkang, Deputy Director General, International Department, PRC's Ministry of Finance.

Also present were Paul J. Heytens, ADB's Country Director for the PRC; Guo Junming, Chief Accountant, China Huaneng Group; Zhu Xinqiang, Vice-President, EXIM Bank of China; Su Wenbin, President, Greengene Company; Mao Wei, General Manager of the project firm, Huaneng Tianjin IGCC Company; and Ashok Bhargava, Director, Energy Division, ADB East Asia Department.

"This project will demonstrate the most efficient and least polluting technology currently available commercially for coal-fired power plants in the PRC by not only cutting carbon dioxide emissions by 10%-20% but also generating only a fraction of the sulfur dioxide and nitrogen oxide produced by conventional power plants," said Mr. Gerhaeusser at the signing ceremony.

Plants using IGCC technology turn coal into a synthetic gas, removing impurities before the gas is burned in a turbine, but its adoption has been slow due to high costs and

some perceived technological complexity and risks. However in conjunction with a carbon dioxide capture and storage function, it is now seen as the least-cost option to cut carbon dioxide emissions from coal-fired power plants by up to 90%.

The PRC is the world's largest coal producer and consumer, but this usage is contributing to rising levels of GHGs and air pollutants. In response, the government has launched a clean coal power generation program, GreenGen, to sharply reduce emissions, with the Tianjin project as the cornerstone of the first phase. China Huaneng Group, the managing partner of the government's GreenGen program, is the executing agency for the project.



LOAN AND GRANT AGREEMENT Klaus Gerhaeusser (right), Director General, ADB East Asia Department and Wu Jinkang (left), Deputy Director General, International Department, PRC's Ministry of Finance sign the financing documents

亚行东亚局局长克劳斯·盖尔豪瑟(右)和中国财政部国际司司长吴晋康(左)在融资文件上签字

5月28日，来自中华人民共和国（中国）政府和亚洲开发银行（亚行）的官员今天共同签署融资协议，支持在天津市建设一座采用整体煤气化联合循环发电技术（IGCC）的电厂。这是在发展中国家建设的首例该类电厂。

亚行将提供1.35亿美元贷款和500万美元赠款，用于建设这座年发电能力高达1,470千兆瓦时的IGCC发电厂。同时，该电厂的建成将有助于减少温室气体和有害空气污染物（如导致酸雨的二氧化硫和氮氧化物等）的排放。亚行



IGCC POWER PLANT ADB Vice-President C. Lawrence Greenwood, Jr. visits developing Asia's first integrated gasification combined cycle power plant project in Tianjin
亚行副行长格林伍德在天津参观亚洲发展中国家第一座IGCC发电厂

贷款期限为26年，其中包括6年的宽限期，利率按照亚行基于伦敦银行同业拆借利率的贷款工具执行。赠款来自亚行的“气候变化基金”，将用于减少采用新技术带来的风险并降低成本。

签字仪式在北京的威斯汀酒店举行。亚行东亚局局长克劳斯·盖尔豪瑟（Klaus Gerhaeuser）和中国财政部国际司副司长吴晋康分别在协议上签字。出席签字仪式的还有：亚行驻中国代表处首席代表保罗·海登斯（Paul Heytens），华能集团公司总会计师郭珺明，中国进出口银行副行长诸鑫强、绿色煤电公司总经理苏文斌、项目单位华能绿色煤电天津IGCC电厂总经理毛巍和亚行东亚局能源处处长阿绍克·巴嘎瓦（Ashok Bhargava）。

盖尔豪瑟先生在签字仪式上表示：“这个项目将向中国的燃煤发电厂示范一种现有最高效、污染最少的商业化技术。它不仅能使二氧化碳排放量减

少10-20%，而且，二氧化硫和氮氧化物等污染物排放量也比常规发电厂要少得多。

使用IGCC技术的电厂是将煤炭转化为合成气，去除其中杂质，然后送入燃汽轮机内燃烧。但该技术的普及一直很缓慢，原因是其成本较高，而且一些人认为IGCC技术复杂，存在一定风险。不过，在集成了碳捕捉和封存功能后，该技术目前是燃煤发电厂减少二氧化碳排放成本最低的技术，其减排量可高达90%。

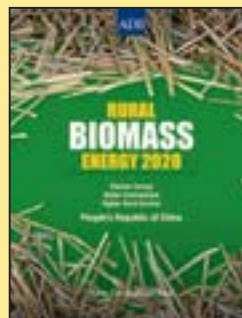
中国是世界上最大的煤炭生产国和消费国，大量使用煤炭也导致温室气体排放和空气污染物不断增加。鉴于此，中国推出了一项清洁煤发电计划（即“绿色煤电”计划），旨在大幅度减少污染和温室气体排放。

中国华能集团公司天津IGCC项目是该计划第一阶段的重要组成部分。中国华能集团是本项目的执行机构。该集团是中国政府“绿色煤电”计划的合作伙伴。中国华能集团作为中国最大的发电集团、世界500强企业，是“绿色煤电”计划的倡导者和实施者。■

Rural Biomass Energy 2020 in the People's Republic of China **《中国农村生物质能2020》**

(<http://www.adb.org/Documents/Books/Rural-Biomass-Energy-2020/default.asp?p=prepubs>)

This publication explores the potential of biomass energy to close the urban-rural energy gap, raise farmer incomes, and address environmental concerns in the PRC. Its findings are useful for other developing and middle-



income countries currently in the process of drawing up their respective Energy for All strategies. The report examines the promises and limitations of leading biomass energy technologies and resources for various distribution scales. The Chinese translation of

the book is now also available.

该出版物探索了生物质能源在拉近城乡能源差距和提高农民收入方面的潜力，并讲述了一些中国的环境忧虑。报告中的发现对目前正在拟定各自能源战略的发展中国家和中等收入的国家大有裨益。该报告还调查了领先生物质能源技术的前景和局限及可用于各种分配比例的资源。此书的中文版现在也已出版。■

Methane: From Pollution to Solution

瓦斯气：变污染为解决方案

JINCHENG, PRC - Wei Jiusheng drives a methane-powered taxi and earns about CNY3,000 (\$440) a month, substantially more than what most drivers earn in his city.

When Wei drove on gasoline, he said, filling the fuel tank was so costly—he was barely able to support his wife and child. When he learned that he could save money by using methane gas, Wei, 27, converted his old car.

To reduce air pollution and promote the use of methane gas, the municipal government later made it mandatory for all taxis and buses in Jincheng to be converted to bi-fueled vehicles, with gasoline to be used only as a backup fuel.

Many owners of private vehicles have also switched to bi-fueled cars because this cuts their fuel expenses in half.

Transforming Methane

The People's Republic of China (PRC) is the largest coal producer and consumer in the world, getting more than 70% of its energy from coal. Coal is the dirtiest fossil fuel and a major cause of methane gas emissions, a greenhouse gas 21 times more potent than carbon dioxide.

In the PRC, more than 13 billion cubic meters of methane are released into the atmosphere each year. As a result, about 60% of cities do not meet minimum standards for air quality, and acid rain falls on about a third of the country.

Methane gas is found naturally in coal beds. But it is highly explosive—every year at least 5,000 miners die from mining accidents in the PRC, mainly caused by methane explosions. To keep working conditions safe, methane needs to be drained during, and sometimes before, underground coal mining operations.

When captured, methane is a clean energy source: its use does not produce soot or lead to acid rain; it has the highest energy content of all fossil fuels; it is the main constituent of natural gas, one of the cleaner energy sources; and its use can replace the burning of coal, wood fuel, synthetic waste gas (a low-energy mixture of coal and biomass or municipal waste) and petroleum-based fuels.

The removal of methane from coal mines

increases coal mine safety and efficiency, reduces greenhouse gas emissions, and improves air quality.

Using Methane Efficiently

To meet the government's commitment to address climate change by developing clean and renewable energy as an alternative to coal, the country's 11th Five-Year Plan (2006-2010) aims to cut pollution by 10% and reduce energy intensity by 20%.

But the question is—what will be the most efficient way to do so?

In 2004, the Asian Development Bank (ADB) approved a \$117.4 million loan for the Coal Mine Methane Development Project in Jincheng to demonstrate how new



METHANE-POWERED TAXI Wei Jiusheng is able to earn more by using methane gas for his taxi
司机魏久盛开了燃气出租车后挣得比以前多了



COAL-BED METHANE is being captured through a drilling equipment
瓦斯抽取机在抽采煤田气

technologies can increase the production and use of methane.

Jincheng is one of the major "coal cities" in Shanxi Province, and its coal mines are rich in methane. This is called coal mine methane (CMM) when released into mine shafts by underground coal seams during mining operations, and coal bed methane when released through bore holes drilled from the surface into underground coal seams.

The ADB-supported project captures and produces CMM for a 120-megawatt power plant—the world's largest methane power plant, and transmits and distributes CMM to residential, commercial, and industrial consumers in Jincheng. Coal bed methane is produced mostly for transport fuel supply.

By capturing methane, the project will reduce methane emissions by 265 million cubic meters, which is equivalent to 4.4

million tons of carbon dioxide emissions, and will save more than 430,000 tons of coal per year, experts say.

The project will benefit from the sale of carbon credits under the Clean Development Mechanism—an agreement under the Kyoto Protocol that allows industrialized countries with a greenhouse gas reduction commitment to invest in ventures that reduce emissions in developing countries as an alternative to more expensive emission reductions in their own countries. The sale of carbon credits under this mechanism will bring in an estimated total revenue of more than \$100 million by 2012, which can offset the cost of the power plant.

Consistent, Even Supply

Jincheng East Glassware Company, one of the industrial users which benefits from the project, upgraded their four furnaces in 2008 from coal to methane gas. Each furnace saves the company about CNY1,000 (\$147.05) per day, compared to the cost of burning coal.

"More importantly, the production quality has improved as the temperature of furnaces has stabilized with consistent gas supply," said Li Yuqing, general manager of the company.

The temperature of the methane gas-fueled furnaces fluctuates by only 10°C, while coal-fueled ovens fluctuate much more. As a result, said Li, methane gas ensures that the glass melts evenly, without creating imperfections, such as bubbles in

the glass. Also, due to the even burning of the methane gas, Jincheng East Glassware Company uses its raw materials 20% more efficiently, wasting less in the glassmaking process.

In addition, switching from coal to gas has improved air quality in the workshops, greatly reducing the incidence of respiratory disease.

The three-star Grant Guesthouse at the main street of Jincheng has replaced its coal-burning boiler for heating and cooling with a gas-fueled boiler. It upgraded its kitchen equipment at the same time. These changes reduced costs, increased efficiency, and improved working conditions. Also, because they are better able to control temperatures, chefs do not have to worry about over or undercooking their dishes.

According to Wang Keping, director of Jincheng Finance Bureau, CMM has been distributed to 80% of Jincheng households since the end of 2008.

The average annual cost for gas supply is CNY350 (\$51.47) per family, instead of CNY2,000 (\$294.11) for coal. "It not only reduced households' expenses, but also liberated women from time-consuming cooking," Wang said.

Energy Impact: Taking the First Steps

According to the China Coal Information Institute, a government think tank, 4.3 billion cubic meters of methane were captured by coal mines in the PRC in

2007. Government incentives helped bring about this 26% annual increase in capture.

The Jincheng municipal government plans to cover the whole city with CMM distribution pipelines to supply more than 60,000 households with gas for heating and cooking by 2011. It will also provide compressed gas products to other places as far as Shenzhen and Hong Kong in southern PRC.

"The success of this project in Jincheng will not only have significant impact on climate change and improvement of miners' safety and energy security, but demonstrates the great effort of the central and local governments along with corporate partnerships to work effectively together toward a common goal," said Merlita Pajarillo, Energy Specialist, Energy Division, ADB East Asia Department.

This effort is only the first step. It will establish a model for thousands of coal mines across the country, leading to cleaner air and a better environment for all the people of the PRC.

如今，魏久盛开着他那辆以瓦斯为动力的出租车，每月能挣大约3,000元人民币（合440美元），与他所在的晋城市绝大多数出租车司机的收入相比，他的收入明显要高许多。

魏师傅今年27岁。他说，以前开使用汽油的出租车时，由于汽油费用过高，他几乎无力供养自己的妻儿。当他听说用瓦斯可以省时，便立即将原来的燃油车改装成了燃气车。

后来，为了减少空气污染和推广瓦斯的使用，晋城市政府要求该市所有的出租车和公共汽车改装成双燃料车辆，汽油仅用于备用燃料。

由于双燃料汽车燃油费用能节省一半，很多私家车主也开始对自己的车辆进行改装。

将瓦斯变废为宝

中国是全世界最大的煤炭生产国和消费国，其能耗的70%以上来自于煤炭。然而，煤炭也是污染最为严重的化石燃料和主要的瓦斯排放源，而瓦斯的温室效应是二氧化碳的21倍。

目前，中国每年排放到大气中的瓦斯气超过130亿立方米。因此，大约60%的城市无法达到空气质量的最低标准，此外，还有大约三分之一的国土面积受到酸雨影响。

瓦斯以自由气体的状态存在于煤层中。但瓦斯气是一种易爆气体，中国每年至少有5,000名矿工死于主要因瓦斯爆炸引发的矿难事故。为了确保煤矿工作环境安全，在地下采煤作业过程中、甚至有时要在事前将瓦斯气抽出。

然而，如果被收集利用，瓦斯是一种清洁能源。它具有如下特点：使用过程中不会产生煤烟或造成酸雨危害；在所有化石燃料中，瓦斯的单位能量值最高；它是构成更为清洁的天然气能源的主要成份；瓦斯的使用可以

替代煤炭、薪柴、合成废气（一种由煤炭和生物质或者城市垃圾合成的低能量气体）以及石油基燃料。

将瓦斯气从煤矿中抽取出来，不仅可以提高煤矿的安全水平和工作效率，而且有助于减少温室气体排放量，从而改善空气质量。

有效地利用瓦斯气

为了实现其承诺，即通过开发可替代煤炭的清洁和可再生能源应对气候变化，中国政府在其“十一五”规划（2006-2010年）中制定了将污染物排放总量减少10%和能源消耗降低20%的目标。

但问题是：实现这一目标最为有效的方式是什么？

2004年，亚洲开发银行（“亚行”）批准向晋城市煤层气开发项目提供1.174亿美元贷款，用于示范如何利用新技术提高煤矿瓦斯气的产量和使用范围。

晋城是山西省的主要“煤城”之一，其煤矿中蕴藏着丰富的瓦斯气资源。在地下采煤作业过程中释放到矿井



WORLD'S LARGEST The CMM fired power plant in Jincheng is currently the world's largest power plant fueled by methane gas
晋城瓦斯发电厂是目前世界上最大的以瓦斯为动力的发电厂

的瓦斯气被称为煤田气（CMM），由地表向地下煤层钻孔抽采的瓦斯气被称为煤层气。

亚行贷款支持的项目包括为目前世界上最大的、装机容量120兆瓦（MW）的瓦斯发电厂抽采和生产煤田气；通过管线传输，将煤田气输送给晋城的居民、商业和工业用户使用；而煤层气主要用于交通运输业的燃料供应。

专家表示，通过抽采利用瓦斯气，该项目每年可减少2.65亿立方米的瓦斯排放，相当于减少了440万吨的二氧化碳排放，而且每年将节约超过43万吨煤炭。

同时，该项目还将受益于在“清洁发展机制（CDM）”框架下出售碳减排额。CDM是《京都议定书》的协议之一，它允许承担温室气体减排义务的工业化国家通过在发展中国家投资温室气体减排项目，作为替代在本国进行成本更高减排项目的一种方式。据估算，到2012年前，根据CDM机制出售的碳减排额将为该项目带来约1亿多美元的收益，从而弥补了瓦斯发电厂的投资成本。

持续稳定的供气

晋城东方玻璃制品有限公司是从该项目中受益的工业用户之一。2008年，该公司将其4座锅炉由以前的燃煤炉改造为瓦斯气炉。与原来烧煤相比，改造后每座锅炉每天可为该公司节约1,000元左右人民币（合147.05美元）的燃料成本。

该公司总经理李玉庆说：“更为重要的是，由于持续稳定的供气，锅炉温度也保持稳定，从而提高了生产质量。”

通常情况下，燃气锅炉的温度波动范围仅为10摄氏度，而燃煤锅炉温度波动范围则要大得多。李总介绍说，使用瓦斯气可确保玻璃原料熔化均匀，不会在玻璃制品上产生气泡等瑕疵。同时，由于瓦斯气有燃烧稳定的优点，晋城东方玻璃制品有限公司的原材料利用率也因此提高了20%，从而减少了生产过程中的原材料浪费。

此外，“以气代煤”还改善了车间内空气质量，并大幅降低了员工患呼吸道疾病的几率。

位于晋城主要街道上的三星级饭店晋城大酒店也对其供暖和制冷锅炉进行了改造。由以前的燃煤锅炉换成了燃气锅炉，并对厨房设施也进行了相应改造。改造后不仅降低了运营成本，提高了效率，还改善了工作环境。另外，由于厨师们现在可以更好地控制炉火温度，所

以再也不必担心菜肴会烹调过度或半生不熟了。

据晋城市财政局王克平局长介绍，自2008年底以来，晋城市已有80%的家庭用上了煤层气。

每户家庭每年的平均用气成本为350元人民币（合51.47美元），远远低于用煤的平均成本2,000元人民币（合294.11美元）。“使用瓦斯气不仅降低了每个家庭的费用，而且也将妇女们从过去费时劳神的烧火做饭中解脱了出来。”王局长说。

能源影响：迈出第一步

根据政府智库机构中国煤炭信息研究院的数据；2007年，中国煤矿瓦斯的抽采量共为43亿立方米，同比增长高达26%，其主要原因是受惠于政府的激励措施。

晋城市政府计划，2011年前在全市范围内铺设煤层气输送管道，使全市6万多户家庭都能使用煤层气取暖和做饭。同时，该市还将向远至华南地区的深圳和中国香港等其它地区供应压缩煤层气产品。

亚行东亚局能源处能源专家Merlita Pajarillo认为：“晋城市项目的成功，不仅对应对气候变化、提高矿工生命安全和能源安全具有重大影响，同时也表明，中央和地方政府与企业携手、为实现一个共同目标而努力，是一种非常有效的方式。”

不过，这仅仅是第一步。该项目将为各地成千上万的其它煤矿提供一种发展模式，为全中国的老百姓带来更洁净的空气和更宜人的生活工作环境。■



METHANE GAS Glassware is being made with gas-fueled fire
晋城瓦斯发电厂是目前世界上最大的以瓦斯为动力的发电厂

Events

活动简讯

- **Senior-level workshop on urbanization strategy for the PRC, 20 April, Beijing.** Klaus Gerhaeuser, Director General, ADB East Asia Department (EARD), opened the workshop organized by ADB and PRC's National Development and Reform Commission. The workshop prepared a national urbanization strategy for the 12th Five-Year Plan for Social and Economic Development 2011-2015. Senior officials from ministries, local governments, and experts on urban development issues in the PRC participated.



中国城镇化发展战略研讨会，4月20日，北京。亚行东亚局局长克劳斯·盖尔豪瑟致开幕辞。研讨会由亚行和中国国家发展和改革委员会共同主办，为社会经济发展第十二个五年规划（2011-2015）的国家城镇化战略做准备。中国政府各部委和地方政府的高级官员以及城市发展问题专家出席了会议。

- **International Cooperation Conference on Green Economy and Climate Change, 8 May, Beijing.** ADB Vice-President Xiaoyu Zhao delivered a keynote speech. He elaborated ADB's strong commitment and operational priorities in assisting its

developing member countries to improve energy efficiency, reduce greenhouse gas emissions, develop renewable energy, conserve resources, control pollution, and protect the environment. Mr. Zhao also emphasized the urgent need for knowledge sharing, transfer of clean technologies, promotion of public-private partnerships, capacity building, and financial innovation to meet the double challenge of sustaining inclusive development and mitigating adverse impacts of climate change.

绿色经济和气候变化国际合作大会，5月8日，北京。亚行副行长赵晓宇做了主题演讲。他阐述了亚行在帮助发展中成员体提高能源效率、减少温室气体排放、开发可再生能源、节约能源、控制污染和保护环境方面的有力承诺和业务优先重点。赵副行长还强调了知识共享、清洁技术转让、公私合作关系的推广、机构能力建设和金融改革的迫切需要，以应对可持续共享式发展与减轻气候变化负面影响的双重挑战。

- **Training workshop of executing agencies of delegated technical assistance, 17-19 May, Beijing.** The 3-day training addressed specific issues and requirements in relation to enhanced partnership on technical assistance delegation, including procedures and guidelines on the use of consultants and capacity assessment of executing agencies. Paul J. Heytens, Country Director, ADB's PRC Resident

Mission (PRCM) and Wu Jinkang, Deputy Director General, International Department, PRC's Ministry of Finance (MOF), opened the workshop.



授权技援项目执行机构培训研讨会，5月17-19日，北京。为期3天的培训旨在解决与加强技援授权合作伙伴关系相关的具体问题和需求，包括使用咨询专家的程序和指南及对授权技援执行机构的能力评估。亚行驻中国代表处首席代表保罗·海登斯和财政部国际司副司长吴晋康致开幕辞。

- **Establishing global research alliances: Inception workshop, 31 May-1 June, Beijing.** ADB's Economics and Research Department, led by Chief Economist Jong-Wha Lee, has partnered with the PRC's National School of Development of Beijing University and international experts to discuss the research framework and plans for a study on Rebalancing and Sustaining Growth in PRC: Challenges and Policy Options.

建立全球研究联盟：启动研讨会，5月31日-6月1日，北京。由首席经济学家李钟和博士带领的亚行经济和研究局与中国北京大学国家发展研究院及国际专家一起讨论《中国经济重新平衡与持续增长：挑战与政策选择》的研究框架和计划。

- **ADB Vice-President for Private Sector and Cofinancing Operations assumes office, 7 June, ADB headquarters.**

ADB Vice-President Lakshmi Venkatachalam is responsible for ADB's private sector and cofinancing operations.



Related to this, Xiaoyu Zhao, ADB Vice-President for Operations is now in charge of the Central and West Asia Department and the South Asia Department, and Ursula Schaefer-Preuss, ADB Vice-President for Knowledge Management and Sustainable Development is in charge of the Regional and Sustainable Development Department and the Economics and Research Department.

负责私营部门和联合融资业务的副行长就职，6月7日，亚行总部。亚行副行长拉克什米·万卡塔查兰将负责亚行私营部门和联合融资业务。就此，负责业务一部的副行长赵晓宇将主管中亚局和南亚局，而负责知识管理和可持续发展的副行长乌苏拉·谢菲尔-普罗伊斯将主管区域与可持续发展局和经济和研究局。

- **2010 PRC country programming mid-term review, 8-9 June, Beijing.**

The meeting reviewed and discussed ADB's 2010 lending and technical assistance programs to the PRC, private sector operations, knowledge products and services, and ongoing initiatives to enhance the responsiveness of the country program. EARD Director General Klaus Gerhaeuser and MOF Deputy Director General Wu Jinkang opened the meeting.

中国2010年国别规划中期回顾，6月8-9日，北京。各方共同回顾并讨论了2010年亚行向中国提供的贷款和技术援助规划、私营部门业务、知识产品和服务，以及正在审议的关于加强国别规划响应度的倡议。亚行经济研究局局长克劳斯·盖尔豪瑟和财政部国际司副司长吴晋康致开幕辞。

- **21st Harbin International Economic and Trade Fair, 15 June, Harbin.**

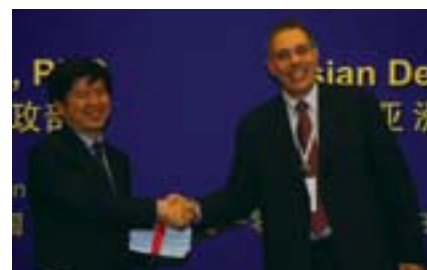
PRCM Country Director Paul J. Heytens spoke at an investment promotion conference and signed a memorandum on strengthening cooperation in urban wastewater treatment and emissions reduction through public-private partnerships in the PRC. He stressed that private sector participation in services usually provided by government can enhance efficiency and lead to the use of newer technologies for better service delivery. The events were organized by the Heilongjiang Provincial Government.



第21届哈尔滨国际经济和贸易洽谈会，6月15日，哈尔滨。亚行驻中国代表处首席代表保罗·海登斯在投资项目说明会上发言并签署了有关在中国通过公私伙伴关系加强城市污水处理和减少排放合作的备忘录。他强调，私营部门参与到通常由政府提供的服务当中，可以提高效率并引导更新技术的使用，带来更好的服务。黑龙江省政府主办了此次洽谈会。

- **Wrap-up and dissemination workshop on technical assistance facility for reforms support and capacity building, 18 June, Beijing.**

PRCM Country Director Paul J. Heytens and Zheng Xiaosong, Director General, MOF International Department, opened the workshop for a technical assistance designed to support the implementation of the PRC's 11th Five-Year Plan, 2006-2010. Representatives from seven ministries shared their findings on their respective studies.



亚行技术援助“中国政策改革和能力建设支持”总结暨成果发布会，6月18日，北京。亚行驻中国代表处首席代表保罗·海登斯（Paul J. Heytens）和财政部国际司司长郑晓松在支持中国第十一个五年规划（2006-2010）的技术援助TA4790总结暨成果发布会上致开幕辞。来自7个部委的代表在会上分享了他们各自的研究成果。

- **5th Asia Clean Energy Forum, 21-25 June, ADB headquarters.**

Organized by ADB and the United States Agency for International Development (USAID)—with assistance from the World Resources Institute and sponsorship from the governments of Australia, Japan, Norway, Spain, and Sweden—this forum explored clean energy policy and finance with three events. The first event drew Asian and international policymakers and regulators to share clean energy regulatory successes and challenges and chart a way forward; a workshop discussed how to achieve a quantum leap in wind power development; and USAID hosted a session on greenhouse gas accounting.

第5届亚洲清洁能源论坛，6月21-25日，亚行总部。此次论坛由亚行和美国国际开发署主办，世界资源研究所协办，澳大利亚、日本、挪威、西班牙和瑞典政府赞助。论坛通过三个活动探讨了清洁能源政策和融资问题。第一个活动为组织亚洲和国际政策制定者和监管者分享清洁能源监管的成功和挑战，指明前进的方向；第二个活动是为讨论如何在风能开发方面取得飞跃式重大进展而举办的研讨会；第三个是美国国际开发署主办的温室气体计算方面的小组讨论。

- **Final review workshop on Jiangxi Rural Development Strategy Study, 27 June, Nanchang.** The study focuses on the development of a rural development strategy for the period up to 2020 in the context of the new countryside concept in central Jiangxi province. PRCM Country Director Paul J. Heytens and Hu Youtao, Vice-Chairman, Jiangxi Provincial Committee of Chinese People's Political Consultative Conference, opened the workshop. Around 70 participants including government officials, experts, and media attended.



“江西农村发展战略研究”终期报告评审会，6月27日，南昌。在江西省中部推广新农村发展理念的背景下，该研究着重于开发截止2020年的农村发展战略。亚行驻中国代表处首席代表保罗·海登斯和中国人民政治协商会议江西委员会副主席胡幼桃宣布了审查会的召开，约有70位参会者，其中包括政府官员、专家和媒体。

- **EU-China Smart City Forum at Shanghai Expo 2010, 5 July, Shanghai.** PRCM Country Director Paul J. Heytens spoke on fund raising for a low-carbon society and shared ADB's initiatives in financing innovative clean energy projects in urban PRC. The forum, which aims to enhance cooperation in urban development, brought together high-level European and PRC representatives.

中国—欧盟智能城市论坛，7月5日，上海世博会。亚行驻中国代表处首席代表保罗·海登斯在中国—欧盟智能城市论坛上发言。他介绍了为建设低碳社会进行的资金募集经验，并分享了亚行为中国城市创新性清洁能源项目提供融资而采取的举措。此次论坛旨在加强城市发展合作，来自欧洲和中国的高层代表汇聚一堂。

- **Public Communications Policy review consultation, 6 July, Beijing.** Stakeholders from the Government of the PRC, nongovernment organizations, academe, media, and international organizations participated in the PCP review consultation. Principal Director Ann Quon and Public Information and Disclosure Specialist Delphine Roch of ADB Department of External Relations and PRCM OIC Jeffrey Liang led the workshop and received feedback on the draft PCP. Comments raised include a clearly defined exceptions list, more engagement of civil society in ADB's operations, and wider dissemination of information through translation and multimedia technologies.

公共信息交流政策复审研讨会，7月6日，北京。来自中国政府、非政府组织、学术界、媒体以及国际组织的利益相关方参加了公共信息交流政策复审研讨会。亚行对外关系局（DER）

高级主任关玉慈以及亚行驻中国代表处代理首席代表梁雪峰和DER公共信息和披露专家罗氏女士主持了此次审查会，并征集了与会者对公共信息交流政策修改草案的反馈。大家提出评论意见包括一份内容明确的期望列表、在亚行业务中应让社会团体更多地参与进来、通过翻译和多媒体技术等对信息进行更广泛的宣传。



- **Showcase workshop on people-oriented expressway in Yunnan, 7-9 July, Tengchong.** PRCM Country Director Paul J. Heytens opened the event, together with senior government officials. The workshop, organized by ADB and the PRC's ministries of finance and transport, shared experiences on implementing the ADB-financed Western Yunnan Roads Development Project and discussed measures to build expressways that are in harmony with the people and the environment.



云南以人为本和谐高速：高速公路建设示范研讨会，7月7-9日，腾冲。亚行驻中国代表处保罗·海登斯和政府高级官员宣布了研讨会的召开。此次研讨会由亚行与中国财政部和交通运输部共同主办，分享了由亚行资助的

西部云南公路发展项目的实施经验，并讨论了如何建造与人和自然保持和谐的高速公路。

- **Bank of China officials visit ADB, 9 July, ADB headquarters.** A delegation from Bank of China (BOC) met with Vice-Presidents C. Lawrence Greenwood, Jr., Xiaoyu Zhao, and Lakshmi Venkatachalam, and other senior staff to discuss opportunities for future collaboration. The delegation included BOC Executive Vice-President Zhou Zaiqun and Deputy General Manager for Strategic Development Chen Weidong. ADB, a BOC shareholder providing technical assistance, is looking at increasing cooperation in several areas, including trade finance, clean energy, and infrastructure.



中国银行官员访问亚行，7月9日，亚行总部。中国银行代表团会见了亚行副行长格林伍德、赵晓宇、万卡塔查兰及其他高级职员，并讨论了未来的合作机遇。代表团成员包括中国银行执行副总裁周载群，战略发展的副总经理陈卫东。作为中国银行的股东，亚行为中国银行提供了技术援助，希望在更多领域合作，包括贸易融资，清洁能源和基础设施。

- **ADB chief economist holds consultations with PRC government officials, 13-14 July, Beijing.** Chief Economist Jong-Wha Lee met with senior officials of the Ministry of Finance and People's Bank of China, and was

interviewed by the Xinhua news agency during his 2-day visit to the PRC. The global economic outlook, economic trends in the Asian region, and prospects and challenges for the PRC's economy were discussed.



亚行首席经济学家与中国政府官员举行磋商会晤，7月13-14日，北京。亚行首席经济学家李钟和对中国进行了为期两天的访问。其间，他会见了财政部和中国人民银行的高级官员，并接受了新华社的采访。探讨的议题包括全球的经济前景、亚洲区域的经济趋势以及中国的经济预期和面临的挑战。

- **MDG Forum for East and Southeast Asia, 13-15 July, Shanghai.** ADB Vice-President Ursula Schaefer-Preuss highlighted the need to strengthen regional efforts to accelerate progress in attaining the Millennium Development Goals in her opening address at the forum. More than 70 high-level government officials from 10 countries and representatives from the academe, the United Nations, and other international organizations participated.



东亚和东南亚的千年发展目标论坛，7月13-14日，上海。亚行副行长乌苏

拉·谢菲尔-普罗伊斯在论坛开幕致辞上强调，为了加快实现“千年发展目标”的进程，有必要加强区域努力。来自10个国家的70多位政府官员以及学术界、联合国系统和其它国际组织的代表参加了该论坛。

- **3rd ASEAN+3 Forum on Biomass Energy, 13-15 July, Suzhou.** PRCM Country Director Paul J. Heytens opened the forum, which showcased rural biomass development, including lessons learned and experiences in the PRC and selected ASEAN countries, and discussed future prospects on biomass development in Asia. The forum was jointly sponsored by PRC's Ministry of Agriculture and ADB. It attracted more than 120 participants. During the forum, the Chinese version of ADB publication on *Rural Biomass Energy 2020 in PRC* was launched.



第三届东盟与中日韩生物质能源论坛，7月13-15日，苏州。亚行驻中国代表处首席代表保罗·海登斯致开幕辞。论坛展示了农村生物质能源的发展，包括中国和东南亚联盟国家获得的教训和经验，并讨论了生物质能源在亚洲的发展前景。本次大会由中国农业部 and 亚行联合主办，吸引了120多位参会者。在会上，亚行发行了《中国农村生物质能2020》的中文版。

- **ADB-Chinese Academy of Social Sciences joint consultation seminar on institutions for integration: Toward an Asian economic**

community, 15 July, Beijing. The seminar was organized to seek feedback from the PRC in finalizing ADB's flagship study on institutions for regionalism. PRCM Country Director Paul J. Heytens and Zhang Wencai, Deputy Director General, MOF International Department, gave opening remarks. Srinivasa Madhur, Senior Director, ADB Office of Regional



Economic Integration presented the main findings and recommendations of the study.

亚行—中国社会科学院联合咨询研讨会“亚洲经济一体化机构，7月15日，北京。该论坛旨在为亚行的旗舰研究“区域主义制度”定稿在中国征集反馈意见。亚行驻中国代表处首席代表保罗·海登斯和财政部国际司副司长张文才致开幕辞。亚行区域一体化办公室高级主任S·马杜尔介绍了此研究的主要结论及政策建议。

● **CAREC Business Development Forum, 29-30 July, Urumqi.** More than 300 senior government and business

leaders attended the forum, showcasing investment opportunities and public-private partnerships (PPPs) in the CAREC region. ADB Vice-President C. Lawrence Greenwood, Jr. gave the welcome remarks, and Vice-President Xiaoyu Zhao delivered a keynote address on business opportunities and PPPs in regional development.

中亚区域经济合作商业发展论坛，7月29-30日，乌鲁木齐。超过300位政府要员及商业领袖出席论坛，展示在该地区的投资机会和公私合作伙伴关系。亚行副行长格林伍德致欢迎辞，副行长赵晓宇就地区发展中的商业机会和公私合作发表主旨演讲。■

ADB Publications 亚行出版物

Sustainable Transport Initiative Operational Plan

《可持续交通举措——业务计划》

(<http://www.adb.org/documents/policies/sustainable-transport-initiative/default.asp>)



Strategy 2020 sets the long-term strategic framework of ADB for 2008-2020. During this period, ADB's

lending and technical assistance operations in Asia and the Pacific will emphasize inclusive economic growth, environmentally sustainable

development, and regional integration. The Sustainable Transport Initiative Operational Plan provides details of how ADB will update its operations in the transport sector in line with Strategy 2020. ADB will focus on creating transport systems that are accessible, safe, affordable, and environment friendly.

《2020战略》制定了亚行2008-2020年的长期战略框架。在此期间，亚行在亚太地区的贷款和技术援助业务将强调共享式经济增长、环境可持续发展以及区域一体化。为了实现《2020战略》，本书详细说明了亚行应如何更新其交通运输部门的业务。亚行将致力于创建便捷、安全、经济和环

Partnering for Development: Donor Report 2009

《为实现发展，结为合作伙伴——2009捐资方报告》

(<http://www.adb.org/documents/reports/donor-reports/2009/default.asp>)



This publication is targeted at current and prospective official financiers of ADB's grant and loan operations. It explains the wide

range of financing options available to partners seeking to expand their commitment to develop

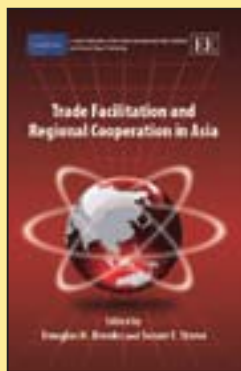
the Asia and Pacific region. It also provides case studies showing how donor contributions make service delivery more effective and how they improve the lives of poor people. Finally, this publication outlines where donor funds can best support ADB's core areas of operation under Strategy 2020.

本报告的目标读者是亚行赠款和贷款业务目前和预期的官方融资人。它解释了可供致力于扩大其发展亚太地区承诺的合作伙伴选择的一系列融资渠道。本报告还提供了案例研究，展示了捐赠款项如何提高服务效率及如何改善穷人的生活。最后，本书概括了捐助资金在哪些方面能给《2020战略》项下的亚行核心领域业务带来最大支持。

ADB book: Trade Facilitation and Regional Cooperation in Asia

亚行学院出版物《亚洲的贸易便利化和区域合作》

(<http://www.adbi.org/book/2010/07/05/3924.trade.facilitation.regional.cooperation.asia/>)



This new book—copublished with Edward Elgar Publishing and edited by Douglas Brooks of ADB Economics and Research Department and Susan Stone of Organisation for Economic Co-operation and Development (OECD)—looks at how regional trade facilitation, including investment in infrastructure, promotes and supports trade growth. While the findings focus on Asia, they are also relevant to other regions.

这本新书是与Edward Elgar出版公司联合出版的，由亚行经济和研究局的道格拉斯·布鲁克斯和经合组织的苏珊·斯通编辑。本书探索了包括基础设施投资在内的区域贸易便利化是如何促进和支持贸易增长的。尽管其中的发现侧重于亚洲，但对其它国家也具有相关性。

This new book—copublished with Edward Elgar Publishing and edited by Douglas Brooks of ADB Economics and Research

ADB Review, July 2010 issue

《亚行回顾》2010年7月刊

(http://www.adb.org/Documents/Periodicals/ADB_Review/2010/7/ADB-Review-July-2010.pdf)



Read about the recent Clean Energy Forum hosted by ADB, the ongoing reform of the global

reserve system, and ICT's role in improving the quality of education in Uzbekistan

阅读了解如下信息：最近由亚行主办的清洁能源论坛、正在进行的全球储备体系改革及信息和通信技术在乌兹别克斯坦提高教育质量过程中所发挥的作用。■

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*In this publication, \$ refers to US dollar
此刊中，“\$”表示美元*

The quarterly newsletter of the People's Republic of China Resident Mission (PRCM) of the Asian Development Bank (ADB) aims to enhance communications between ADB and its client groups. News from the PRC disseminates information on ADB activities and provides a forum on development issues in the People's Republic of China. Articles in the newsletter, however, do not necessarily reflect the official ADB view. We welcome comments and suggestions from readers.

亚行驻中国代表处每季发布的《简报》旨在加强亚行和客户之间的交流。《亚行中国简报》报道亚行在中国的活动，并提供一个讨论中国发展事务平台。但《简报》中的文章并不完全反映亚行的官方立场。我们欢迎广大读者的评论和建议。