

ADB

East Asia Department 2011

Knowledge Management Initiatives

Asian Development Bank



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Knowledge Management Initiatives

Asian Development Bank

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Divisions and/or Offices in East Asia Department (EARD)

EAAE	= Environment, Natural Resources and Agriculture Division
EAEN	= Energy Division
EAOD	= Office of the Director General
EAPF	= Public Management, Financial Sector and Regional Cooperation Division
EASS	= Urban and Social Sectors Division
EATC	= Transport Division
MNRM	= Mongolia Resident Mission
PRCM	= People's Republic of China Resident Mission

ADB Departments

ERD	= Economic and Research Department
PSOD	= Private Sector Operations Department

Foreword

This annual publication, now in its fifth year, is a compendium of abstracts from 39 strategic knowledge products and services (KPS) prepared by the East Asia Department (EARD) in 2011 and provides web links to select full reports. It serves as a showcase of the outcomes of EARD knowledge management work for the year.

Knowledge management is an integral part of EARD operations in the People's Republic of China (PRC) and Mongolia, with increased emphasis on generating knowledge from lending and technical assistance operations and policy-related KPS support. KPS produced for the PRC and Mongolia are in response to country demand. Priority themes for the PRC are macroeconomic management, energy efficiency and environmental protection, poverty reduction, and interprovincial cooperation. In the PRC, core KPS were completed on the promotion of industrial transfer policies (from coastal to inland regions and from international to domestic markets) and the development of a secondary market for loans. The brief policy notes series, Observations and Suggestions, covered the 12th Five-Year Plan (FYP), middle income transition, natural resource taxation, electricity sector challenges, and provincial development strategies. A policy brief was prepared on the PRC environmental strategy for the 12th FYP.

In Mongolia, the focus of KPS is on economic growth, especially increasing productivity, and poverty reduction, including food security. Core KPS completed include good case studies for university–industry collaboration and livestock-based manufacturing. Other KPS completed included pension insurance in Mongolia and a policy brief on governance of the social health insurance system. In Mongolia, a research advisory team has been supporting policy work at the National Development and Innovation Committee (NDIC) of the Office of the Prime Minister since 2008. The team conducts policy studies, which helps to increase the capacity of NDIC staff in research methodologies and economic policy work.

The PRC and Mongolia KPS were widely disseminated through publications, 7 international workshops, 29 domestic workshops and 2 book launches. Knowledge sharing events on middle income transition and sustainable development were held to celebrate the 25th anniversary of the ADB–PRC partnership and the 20th anniversary of the ADB–Mongolia partnership, respectively. The publication *Partnership for Prosperity: Impact Stories from the People's Republic of China* was presented during the ADB–PRC anniversary forum while the publication *ADB–Mongolia Partnership: Building a Better Tomorrow* was launched by the ADB President and Mongolia Finance Minister at the ADB–Mongolia anniversary celebration. Both carried impact stories from ADB assistance.

Continuing the PRC–ADB knowledge-sharing platform (KSP), the 3rd Knowledge Sharing Workshop on Agriculture and Rural Development was organized on 7–10 November 2011 in Beijing with 13 developing member countries participating. The PRC–ADB KSP was presented as an innovative case study of South–South cooperation at the Fourth High Level Forum on Aid Effectiveness in November 2011 at Busan, Republic of Korea. At the 17th session of the Conference of the Parties to the United Nations Framework Convention on Climate Change on

Foreword

6 December 2011 in Durban, South Africa, ADB presented the early findings of the special study on the Economics of Climate Change in Northeast Asia covering the PRC, Japan, the Republic of Korea, and Mongolia.

Knowledge management and innovation will continue to underpin EARD's assistance to the PRC and Mongolia in the coming years.



Robert Wihtol
Director General
East Asia Department

Policy Notes Series



Natural Resource Taxation in the PRC (Observations and Suggestions)

[www.adb.org/publications/natural-resource-taxation-prc?](http://www.adb.org/publications/natural-resource-taxation-prc?ref=countries/prc/publications)
[ref=countries/prc/publications](http://www.adb.org/publications/natural-resource-taxation-prc?ref=countries/prc/publications)

In June 2010, the People's Republic of China (PRC) introduced a 5% ad valorem natural resource tax for oil and gas that was currently being piloted in the Xinjiang Uyghur Autonomous Region (Xinjiang). Xinjiang accounts for 13% of the country's oil production and almost 30% of its natural gas output. The government has announced that the scheme, if successful, would be implemented in all provinces.

Piloting the ad valorem resource tax is a commendable move toward a tax that is more neutral and better adaptable to value changes than a volume-based tax. An ad valorem tax offers robust tax stability for investors. However, this is facing implementation challenges that could lead to lower rents than should be realized from extraction, if not carefully implemented.

A number of these underlying issues that need scrutiny and attention are discussed in this *Policy Note*. These are (i) addressing segmentation issues to reduce transfer pricing risks, (ii) establishing a deemed sale indexing mechanism for ad valorem natural resource tax, (iii) introducing ad valorem natural resource taxation nationwide, (iv) determining the adequate natural resources tax rate, (v) considering inflation risks, and (vi) increasing local government revenue sharing.

An ad valorem natural resource tax that is being piloted in Xinjiang offers a welcome possibility of increasing a province's revenue share from oil and gas extraction projects. Its nationwide implementation is, therefore, recommended.

Resource-based taxes have to be analyzed in conjunction with all other oil and gas-related taxes especially in the PRC where the mineral sector is highly integrated and where just one company is often responsible for extraction, refining, and selling of the final products.

Thus, it is recommended that a deemed sale indexing mechanism for ad valorem natural resource taxes be established. Oil and gas are internationally traded and offer robust reference points that could be used when linked to the extracted natural resources.

Compared with other countries, the natural resources tax of 5% in Xinjiang is at the lower end. It is suggested that oil and gas taxation standards in other countries be examined to determine the extent to which the natural resource tax could be increased.



The 12th Five-Year Plan: Overview and Policy Recommendations (Observations and Suggestions)

www.adb.org/publications/12th-five-year-plan-overview-and-policy-recommendations?ref=countries/prc/publications

Among the critical objectives of the People's Republic of China's (PRC) 12th Five-Year Plan is changing the growth pattern toward a more services and consumption-driven model, away from the past emphasis on industrial production, capital investment, and exports—which is necessary to address the PRC's social, environmental, and external balances.

While the key objectives suggest a continuation of the previous plan's policies to rebalance the economy, new features include innovation-driven industrial policy and more determined steps toward a low-carbon economy.

Rebalancing is unlikely to occur in the absence of bolder policy adjustments. Some of the key policy areas requiring attention include (i) shifting the emphasis of public spending from investment to public services, (ii) further financial sector liberalization, (iii) greater private sector participation in the economy, and (iv) fiscal reform to reduce income inequality and strengthen local government finances.



The Challenges of Middle Income Transition in the People's Republic of China (Observations and Suggestions)

www.adb.org/publications/challenges-middle-income-transition-prc?ref=countries/prc/publications

International experiences suggest that moving up from middle-income to high-income status appears to be more complex than moving up from low-income to middle-income range. Further, growth strategies that proved successful in earlier stages of development are less effective when moving up to higher income levels.

Thirty years of successful reform has transformed the People's Republic of China (PRC) into the world's second-largest economy. Rapid growth allowed for a swift transition from a low-income to a middle-income country, but today the challenge lies in how to move up to higher-income status.

Some of the lessons learned from international experiences might be useful in designing a strategy for the PRC to sustain growth over the longer term. In this regard, most of the needed reforms are reflected in the 12th Five-Year Plan, and embedded in the context of economic rebalancing. Therefore, the full implementation of the plan will be a key factor in the ascent of the PRC to higher income levels.

Policy recommendations include ways to

- foster consumption as a source of growth by
 - increasing social spending and prioritizing public spending

- on health care, education, and pensions; and
- expanding consumer credit;
- diversify the sources of growth, services development, and urbanization by
 - developing services,
 - improving the allocation of capital, and
 - fostering urbanization;
- promote innovation-driven growth by
 - increasing research and development (R&D) allocations, and
 - reforming education to support innovation; and
- reduce inequality by
 - strengthening income distribution, and
 - strengthening fiscal transfers.



Effects and Impact of ADB's Technical Assistance on Provincial Development Strategies (Observations and Suggestions)

This policy note focuses on the impact of the Asian Development Bank's (ADB) technical assistance to the People's Republic of China (PRC) for provincial development strategies in recent years through studies in several provinces, autonomous regions, and municipalities, including Chongqing, Gansu, Guizhou, Heilongjiang, Hunan, Inner Mongolia, Jiangxi, Jilin, and Xinjiang Uyghur Autonomous Region.

The studies found the provincial development strategies to be well developed and offer successful support for provincial development. There is a high degree of relevance between ADB's provincial development strategies and the government's development strategies, as well as ADB's country strategy in the PRC. Many of the policy recommendations proposed were adopted as important components in the economic and social development planning devised by central and local governments.

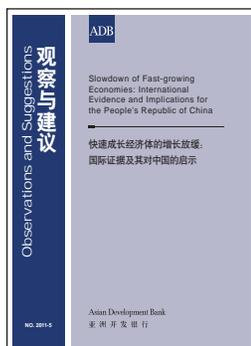
The most prominent feature of these studies on provincial development strategies is their grasp of the key issues in every province. Hebei's provincial development strategy focuses on how to integrate Hebei into the Beijing–Tianjin economies in a more effective way. Hebei is urged to devote more efforts to establishing a regional economic community with Beijing and Tianjin so as to complement each other's advantages—working in cooperation and pursuing coordinated development goals. In Hebei's development strategy, the innovative concept of “poverty belt around Beijing and Tianjin” proposes some measures on how to deal with Hebei's poverty-stricken population living in the areas surrounding Beijing and Tianjin, and to manage its ecological safety.

The study on Inner Mongolia development strategy aims to intensify efforts to build it as the national strategic energy base. In contrast, the study on Xinjiang Uyghur Autonomous Region's development strategy puts emphasis on strengthening its comparative advantage, which is its economic cooperation with Central Asia. The study suggests that Xinjiang Uyghur Autonomous Region be open to the west and extends its Central

Asian cooperation to Pan-Central-Asian regional cooperation—covering the Russian Federation in the north, and Afghanistan, India, Iran, and Pakistan in the south. The region’s development strategy raises a new concept of fan-shaped development. It suggests that a cross-border economic cooperation zone be established in Horgos, as well as a “golden triangle” of economic growth in the north slope of Tianshan Mountain, to encourage economic takeoff in both the south and north of the Xinjiang Uyghur Autonomous Region.

The study on Hunan’s development strategy considers local conditions and the design of the strategy, “three promotions and one establishment,” which encompasses promoting innovation, promoting green and low-carbon growth, and promoting industrial concentration and land saving. Its recommendation fosters core growth in the Changsha–Zhuzhou–Xiangtan region and supports a resource-saving and environment-friendly development strategy.

Jiangxi’s development strategy puts more emphasis on issues of agriculture, farmers, and rural development, formulating its long-term plan for agricultural and rural development, and suggesting ways to target farmers’ net income to reach RMB10,000 by 2020. The study provides specific policy recommendations to propel the development of food processing industries and other agriculture-related industry to enhance agriculture efficiency.



Slowdown of Fast-Growing Economies: International Evidence and Implications for the People’s Republic of China (Observations and Suggestions)

www.adb.org/publications/slowdown-fast-growing-economies-international-evidence-and-implications-prc?ref=countries/prc/publications

International historical experience indicates that rapidly growing developing countries eventually slow down as income levels rise. Analyses based on this experience suggest that the People’s Republic of China (PRC) is approaching per capita income levels at which growth typically slows down.

The facts that the PRC has grown at unprecedented levels, maintained a highly competitive exchange rate, sustained consumption at a small share of gross domestic product, and is now facing rapid population aging, suggest the possibility of a growth slowdown in the future and requires balancing measures.

Since growth slowdown is not a mechanical phenomenon, there are policy options to delay its impact. In this context, several recommendations are proposed to prolong the period of rapid growth in the PRC, focusing on reforms to address the three highest risk factors: exchange rate undervaluation, low consumption, and rapid population aging.



People's Republic of China Electricity Sector Challenges and Future Policy Directions (Observations and Suggestions)

<http://beta.adb.org/publications/peoples-republic-china-electricity-sector-challenges-and-future-policy-directions?ref=countries/prc/publications>

The electricity sector in the People's Republic of China (PRC) has come a long way from an estimated less than 2 gigawatt (GW) of installed capacity in 1949 to more than 900 GW by 2010. After an initial sluggish start, the sector has grown rapidly, particularly in the past 2 decades. During 2001–2010, it has almost tripled its capacity.

But even with the rapid growth, the electricity sector has been adjusting to the surging electricity demand. The summer peak and winter peak demands, combined with transport difficulty for coal, stress the fragile demand–supply balance, which has often resulted in seasonal shortages. The under capacity and overcapacity cycles—resulting in electricity shortages in 2003–2004 and 2010–2011, and electricity surplus in 2008–2009—are causing ripple effects throughout the economy.

The PRC's electricity sector has generally kept pace with the technological advancement and sophistication needed to plan, construct, operate, and manage such a complex infrastructure. While it had its share of stresses, it has performed remarkably well and managed to avoid catastrophic failures as experienced elsewhere by similar networks with comparable coverage and complexity.

Although significant achievements have been made in the electricity sector development through the previous and ongoing reforms, it has to confront new issues and challenges, such as optimization of resources, environmental constraints, and climate change and low-carbon imperatives. These issues have become or will become key drivers for change and put pressure for further reforms and innovations.

This policy note looks into major challenges and constraints in the electricity sector to provide suitable policy recommendations for meeting these new issues and challenges while ensuring its long-term sustainability. Policy recommendations include

- remunerative tariff for electricity generation,
- regulation and time-of-use tariff,
- public outreach and education program,
- structural adjustments,
- improved sector planning and oversight,
- negawatt rather than megawatt approach,
- improving sector investment environment,
- articulating sector vision from core stakeholders,
- building whole and retail electricity market, and
- mainstreaming innovations and research and development at the enterprise and government level.



Environmental Strategy for the 12th Five-Year Period: How the People's Republic of China Learned from the 11th Five-Year Plan? (ADB Brief No. 8)

www.adb.org/publications/environmental-strategy-12th-five-year-plan-period-what-can-peoples-republic-china-learn

The 11th Five-Year Plan (2006–2010) of the People's Republic of China registered remarkable environmental achievements compared with the previous plan; the goals of reducing sulfur dioxide, chemical oxygen demand, and energy intensity were achieved. Important factors considered to have contributed to the comparative success of the 11th Five-Year Plan are increased investment, greater focus, and strengthened accountability and enforcement, among others.

Despite these achievements, the mode of economic growth—which relies more on manufacturing than on services and more on investments than on consumption—still imposes substantial burdens on the country's environment. Fundamental changes in the current mode of growth will depend on how quickly the government can overcome the country's "rush to growth" approach to urbanization, the coal dominance in the energy structure, and the overdependence on administrative measures for environmental management.

Against this backdrop, this *ADB Brief* recommends that the 12th Five-Year Plan (2011–2015) consider the following measures: (i) changing the price of resources and removing disincentives, (ii) expanding the use of market-based instruments to control pollution, and (iii) developing legal reform to clarify responsibilities and trigger cooperation.



Improving Governance of the Social Health Insurance System in Mongolia (ADB Brief No. 4)

Despite remarkable achievements since the social health insurance (SHI) system was established in Mongolia in 1994, the reform process of the system is stalled for over 10 years, resulting in increasing levels of dissatisfaction of its members.

This policy brief aims to contribute to the ongoing debate in the reform of Mongolia's SHI. It focuses on the governance and institutional issues of the SHI system, which have stalled the reform process over the past decade.

Fragmented governance arrangements and poor institutional capacity weaken the accountability of the SHI system and prevent it from developing into a strong purchaser of health services to improve quality of care.

Establishing an autonomous purchaser of health services and reporting to a National (Health) Insurance Council will ensure the separation between purchaser and provider of health services, improve the health services purchasing capacity of social health insurance, and prevent inter-ministerial tension to own the social health insurance system.

To strengthen SHI in Mongolia, the following are recommended:

- Establish an autonomous health insurance organization.
- Separate purchaser from provider to strengthen the purchasing function of the SHI.
- Ensure that the SHI organization operates within the legal framework and is supervised by government authorities.
- Substantially strengthen the institutional capacity of the SHI.

Special Publications



A Time to Address Constraints

www.chinadaily.com.cn/opinion/2011-03/04/content_12113413.htm

This article, which appeared in the *China Daily* on 4 March 2011, cited the stronger need today than it was 5 years ago for the People's Republic of China (PRC) to transform its economic growth pattern. This is due in part to its external imbalances that have become more pronounced, and the recent global crisis that highlighted the risks of the export-led growth model.

Rebalancing, however, is not likely to occur in the absence of bolder policy adjustments. The article identified some key policy areas requiring attention. These include (i) shifting the emphasis of public spending from investment to public services, (ii) developing capital markets to help small and medium-sized enterprises and the self-employed to access credit, (iii) facilitating greater private sector participation in the economy, and (iv) fiscal reform to strengthen local governments' sources of revenue.

These complex reforms are reflected, to some degree, in the new 12th Five-Year Development Plan, and so the challenge lies in how to successfully implement them. Thirty years of successful reform and opening up has transformed the PRC into the world's second-largest economy, which allowed for a swift transition from low-income to middle-income status. The challenge now lies in how to move up to the level of a high-income country. In pursuit of this, a more determined stance toward inclusive growth and environmental sustainability is needed to secure long-term growth and avoid the middle income trap.



How We Can Protect the Elixir of Life

www.adb.org/news/op-ed/how-we-can-protect-elixir-life

This article, which appeared in *China Daily* on 15 November 2011, highlights the challenges to the People's Republic of China (PRC) in protecting its groundwater supplies and maintaining groundwater quality.

The central and local governments face enormous challenges in protecting the country's groundwater resources. The scale of the problem and the general lack of awareness are both key concerns. Groundwater is often referred to as a "hidden" resource, and many people do not immediately link their activities with the risk of polluting this "hidden"

resource. The process of deterioration of groundwater resources is difficult to reverse, and cleaning up at a later stage is not a realistic option. Effective groundwater protection and management requires tackling the problem at regional and local levels.

The PRC draws groundwater heavily, a large proportion of which is used to irrigate more than 40% of the country's farmlands. The country has been suffering from increasing extensive contamination of its water resources and the effects of climate change, while about 70% of its people in the northern regions are using groundwater for drinking. In urban and industrial areas, the risks of groundwater contamination are due to poor wastewater treatment and disposal infrastructure and the leakage of chemical and heavy metal pollutants. In rural areas, overuse of fertilizer and large numbers of livestock are major sources of nitrate and bacteriological contamination, which make groundwater unsuitable for direct human consumption.

As part of its PRC Country Partnership Strategy, the Asian Development Bank (ADB) supports the central and local governments' efforts to improve water resources management, emphasizing on the importance of good groundwater management. ADB's country partnership strategy promotes (i) increased efficiency in the use of groundwater in conjunction with surface water; (ii) recognition that water, including groundwater, has an economic value; (iii) improved monitoring of groundwater quality and use; (iv) technical solution to recharge groundwater resources; and (v) empowerment of local communities to manage and protect their groundwater resources.

There is, therefore, an urgent need to increase the awareness and capacity of the central and local governments in collecting and managing information, assessing the scale and priorities of the problem, and enforcing legislation. Addressing non-point pollution, such as fertilizer overuse, will require additional efforts as straightforward technical or regulatory solutions are not applicable. Governments will also need to work with farmers and farmers' associations to reduce the use of agrochemicals and improve overall agricultural practices, which requires a long-term, participatory approach.



Design and Application of Evaluation System for Energy Conservation

The People's Republic of China (PRC) is now considered the world's largest energy consumer. Its economy is heavily dependent on coal, which accounts for about 80% of the total electricity produced in 2009 and about 50% of total carbon dioxide (CO₂) emissions in the country. Clearly, the PRC needs a more sustainable and cleaner energy supply to sustain its future economic growth.

The government has made strong efforts to improve energy efficiency and reduce CO₂ emissions over the past decade. It has launched many energy conservation policies, regulations, and programs that cover all aspects of the economy. Its 11th Five-Year-Plan (FYP) mandated a firm

target of 20% reduction in the energy intensity¹ of its gross domestic product (GDP) between 2006 and 2010. Energy conservation is a high priority area in the PRC's strategies to develop the energy sector and mitigate climate change.

To realize its vast energy conservation potential, the PRC needs both administrative and market-based measures. Energy production and consumption entails considerable environmental and energy security externalities that are not fully addressed by the private sector in a market-based economy. Reliance on market forces could take considerably longer time to change investment behavior and eliminate inefficient capital stock, and may also pose difficulties in capturing the full potential of energy conservation gains. Administrative measures under the 11th FYP—such as mandatory provincial energy efficiency targets, government–enterprise agreements on energy savings, and energy efficiency standards to achieve minimum performance requirements—played key roles in the energy conservation gains achieved so far. This indicates that governmental guidance may still be important in the PRC in the foreseeable future.

Overall, much work remains to be done. A existing plans and programs are already extensive, future efforts need to focus more on improving the quality of implementation. This creates a new role for external assistance to play. To date, ADB's lending and non-lending projects in the PRC have not only achieved remarkable energy savings and emissions reduction, but also strengthened the PRC's capacity of delivering a more reliable and sustainable energy system. Since 2007, ADB has been working with the National Development and Reform Commission (NDRC), and its Department of Resource Conservation and Environmental Protection, to explore methods that will guide industrial enterprises and publicly funded offices to build sound energy conservation evaluation systems (ECES). An ECES includes a set of procedures an enterprise can use to evaluate its energy-efficiency performance, set specific improvement targets, and make detailed operational and investment plans for future improvement. The proper application of ECES can help energy consumers achieve steady energy savings in the long term.

This publication presents the main findings and recommendations of a project jointly implemented by ADB and the NDRC (TA4948-PRC: Promoting Resource Conservation and Energy Efficiency in the PRC), and introduces the basic principles for setting up a sound ECES, using the cement industry and a publicly funded office as examples.

¹ Energy consumed per unit of GDP.



Film Documentary on the Songhua River

www.youtube.com/watch?v=VO-CGYu2z-I

This film documentary is intended to raise awareness among various river basin stakeholders, water resource practitioners, donors, the private sector and the general public on the issues and successful approaches to improving water resources management and pollution control of the Songhua River Basin. This film highlights the necessity of a comprehensive, coordinated, and basin-wide approach to improve water resources management and to restore the polluted Songhua River. It also highlights the importance of balancing economic development and environmental protection to promote sustainable development. The film was shown at international events, such as the World Water Week in August 2011 in Stockholm, Sweden and the 14th International River Symposium in Brisbane in September 2011.

The Songhua River Basin is the third-largest river basin in the People's Republic of China (PRC). Almost the entire northeast region of the country lies within this basin. One of the PRC's four most polluted rivers, the Songhua River was burdened, until recently, by untreated urban wastewater, industrial wastewater, and agricultural non-point sources of pollution, exacerbated by old rust-belt industries from the 1950s.

The Asian Development Bank's assistance to northeast PRC started in 2001. While the nature and extent of Songhua River's pollution was not yet well understood, both chronic and acute pollution challenges became evident while preparing the Harbin Water Supply project, at the onset of ADB involvement. Realizing that the river may have serious water quality issues that need careful assessment, the government supported ADB's initiative to start a comprehensive, long-term study, the Songhua River Basin Water Quality and Pollution Control, in early 2002. The study addressed the need to accrue technical knowledge, assess and improve the basin's institutional management set-up, and support the government in identifying long-term, basin-wide investment program. While ADB studied environmental challenges, it continued to provide pollution control assistance based on study results.

A benzene chemical spill in the basin in 2005 caught major international attention, highlighted the need for a basin-wide technical and institutional analysis, supported by a concerted investment program to clean up the river. The long-term priority pollution control plan and investment program in the ADB-supported study helped to reduce water pollution, protect water resources, address water shortages through recycling effluents, control agricultural non-point source pollution, and effectively managed solid waste. The earlier decision to use an alternate water supply for Harbin helped the city to cope with the 2005 Songhua River chemical spill.

In partnership with the central and provincial governments, ADB's long-term engagement and commitment in the basin-wide water pollution management proved to be very successful, having been perceived as an agent of change while creating an enabling environment and assisting basin development in each sector it supports. In 2011, the PRC and

the Russian Federation agreed to work together in the further clean-up of the Songhua River.

The development approach adopted in Songhua River is being offered as an example for other polluted river basins in Asia. Similar attempts shall be comprehensive, backed with sufficient technical analysis and support.



Impacts of Climate Change on the People's Republic of China's Grain Output—Regional and Crop Perspective (ADB Economics Working Paper Series No. 243)

www.adb.org/publications/impacts-climate-change-peoples-republic-chinas-grain-output-regional-and-crop-perspecti

This paper looks into the impacts of climate change on the People's Republic of China's (PRC) grain output using rural household survey data. The paper highlights the regional differences of these impacts by estimating output elasticities for different grain crops and different regions. Results indicate that the overall negative climate impacts on the PRC's grain output range from -0.31% to -2.69% in 2030 and from -1.93% to -3.07% in 2050, under different emission scenarios.

The impacts, however, differ substantially for different grain crops and different regions. From the grain crops perspective, for example, the results suggest a decrease in rice output by 15.62% – 24.26% in 2030 and by 25.95% – 45.09% in 2050. Conversely, positive impacts of climate change are reported for both corn and soybean, with corn output increasing by 18.59% – 24.27% in 2030 and 32.77% – 49.58% in 2050, and soybean output increasing by 0.48% – 5.53% in 2030 and 3.96% – 6.48% in 2050.

The impacts on wheat output are relatively small. From the regional perspective, modeling results reveal that the impacts of climate change in the northern and central regions of the PRC are positive. Specifically, climate change in northern PRC is calculated to increase the country's grain output by 2.85% – 4.80% in 2030, and 5.30% – 8.49% in 2050; while in central PRC, the increases will be 3.53% – 4.97% in 2030, and 8.91% – 13.43% in 2050.

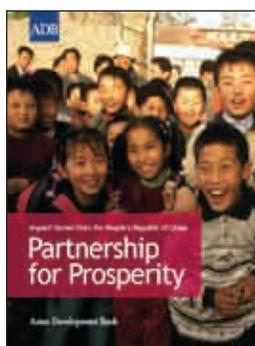
Climate change in southern PRC and northwest PRC is projected to have small positive impacts on the country's grain output. On the other hand, the impacts of climate change on grain outputs are negative in the remaining regions, with reductions in 2030 of 4.10% – 8.58% in east PRC, 2.29% – 4.05% in southwest PRC, and 2.58% – 2.66% in northeast PRC.



Climate Change and Agricultural Interregional Trade Flows in the People's Republic of China (ADB Economics Working Paper Series No. 244)

www.adb.org/publications/climate-change-and-agricultural-interregional-trade-flows-peoples-republic-china

The impacts of climate change on agricultural production in the People's Republic of China (PRC) are significant, and differ across regions and crops. The substantial regional differences will induce changes in the agricultural interregional trade pattern. In this paper, the climate change impacts on this trade pattern is investigated using a computable general equilibrium model of multiple regions and multiple sectors. Results indicate that Northwest, South, Central, and Northeast PRC will see increases in the outflows of agricultural products in 2030 and 2050. Conversely, outflows from East, North, and Southwest PRC will decrease. Grain handling and transport facilities need to be repositioned to address the changes in agricultural trade flows.



Partnership for Prosperity: Impact Stories from the People's Republic of China

www.adb.org/publications/impact-stories-peoples-republic-china-partnership-prosperity

This publication commemorates the 25th anniversary celebration of the Asian Development Bank (ADB)–People's Republic of China (PRC) partnership. The publication was launched at the High-Level Forum on Challenges and Opportunities of Middle Income Transition in March 2011 held in Beijing and attended by Nobel Laureate Joseph E. Stiglitz as keynote speaker.

The PRC has achieved remarkable growth and development since initiating economic reforms in 1978. Sustained growth has fuelled reduction in poverty. ADB is proud to have contributed to these achievements since starting its operations in the PRC in 1986 by providing expertise and funding for development projects. This publication is a retrospective collection of impact stories that highlight some of the successful development projects supported by ADB during this period and describe the people and places benefiting from them. The stories illustrate the range and diversity of the projects supported by ADB and underscore the many important dimensions of the 25 years of ADB–PRC partnership.

ADB's operations have evolved in response to the PRC's changing development needs, and the ADB–PRC partnership has broadened and deepened as the country has undergone its remarkable transformation. The PRC now stands as one of ADB's largest clients. In addition to financing, ADB's support to the soft sectors—knowledge, advisory support, and capacity building—has significantly increased in recent

years in view of the PRC's rapid development and strong capacity to internalize and replicate best practices and policy advice.

ADB is committed to continue to support the PRC in its development agenda. The next 5-year country partnership strategy coincides with the PRC's 12th Five-Year Plan and is aligned with the plan's priorities.



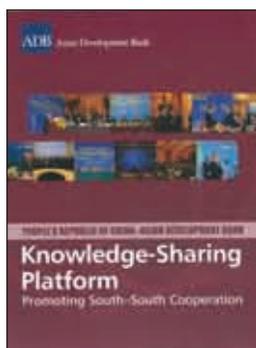
ADB–Mongolia Partnership: Building a Better Tomorrow

<http://adb.org/publications/adb-mongolia-partnership-building-better-tomorrow>

This publication marks the 20th anniversary celebration of the Asian Development Bank (ADB)–Mongolia partnership. It was launched by ADB President Haruhiko Kuroda and Mongolia President Elbegdorj Tsakhia at the High-Level Forum on The Roadmap to a Happy, Healthy, and Prosperous Mongolia in October 2011 in Ulaanbaatar.

The partnership of ADB with Mongolia began in 1991 when the country was making the transition from a centrally planned to a market economy. ADB was among the first international financial organizations to start operations in Mongolia. Through the years, ADB's work in critical areas has led to lasting changes in the lives of the people of Mongolia. As of 2011, ADB is Mongolia's largest multilateral partner, with a broad-based portfolio that continues to expand with the country's needs.

As Mongolia approaches the middle income level, ADB commits to build on its successes to establish a strong foundation for growth for the country. ADB expects to play a catalytic role by bringing in new financing; creating an enabling environment for private sector participation; and addressing policy, regulatory, and capacity constraints. To achieve this vision, ADB has defined its priority work areas to include infrastructure, regional cooperation, and education, which closely intersect with the Government of Mongolia's priorities and strategies. As these are pursued, ADB will ensure that regional cooperation, environmental sustainability, and gender equality are mainstreamed into its operations.



People's Republic of China–Asian Development Bank: Knowledge-Sharing Platform: Promoting South–South Cooperation

This publication, which showcases the People's Republic of China (PRC) and Asian Development Bank (ADB) knowledge-sharing platform (KSP) as an innovative case study of South–South cooperation, was launched at the Fourth High-Level Forum on Aid Effectiveness in November 2011 in Busan, Republic of Korea.

This publication traces the history of the knowledge cooperation between the PRC and ADB, objectives, and key milestones. In conclusion,

it presents directions and priorities for future knowledge cooperation and partnership.

The PRC's Ministry of Finance and ADB established a KSP in 2009 to promote South–South cooperation. The platform is a vehicle to share solutions for key emerging development issues and challenges faced by developing countries in Asia and the Pacific, contribute to sound development management and policy making, and promote regionally inclusive development. ADB acts as facilitator to promote evidence-based learning between the PRC and other ADB developing member countries (DMCs), and contributes to the conceptualization, design, and financing of KSP activities.

The KSP has proven to be an effective country-led platform for sharing experiences in addressing the region's challenges in different sectors. It also promotes networking and creates a community of policy makers across the region. The KSP has the potential to facilitate regional cooperation and policy dialogue around specific sector topics. With greater resources and effort, it can achieve that potential by serving as a platform to facilitate exchanges between countries.

Given the KSP's unique role as a knowledge broker in the region, the PRC and ADB are well placed to use the KSP to support South–South cooperation so that this knowledge may translate to relevant projects with meaningful impacts on the lives of people. As its facilitator, ADB is in the best position to evolve the KSP-led dialogue into high-impact policy recommendations and outcomes for all participants.



The Economics of Climate Change in Northeast Asia

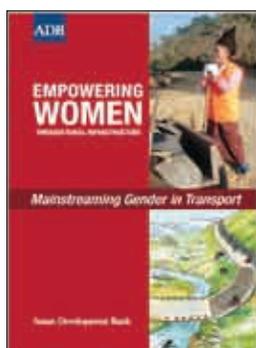
<http://beta.adb.org/publications/economics-climate-change-northeast-asia?ref=themes/environment/publications>

This publication presents the preliminary findings of the study on the economics of climate change and low-carbon growth strategies in Northeast Asia covering the People's Republic of China (PRC), Japan, the Republic of Korea, and Mongolia. This publication was presented at the 17th session of the Conference of the Parties to the United Nations Framework Convention on Climate Change in Durban, South Africa on 6 December 2011.

Key findings of the study include the following:

- Northeast Asia has clearly experienced warming over the last 50 years.
- Preliminary analyses suggest that coastal protection costs are likely to be the largest adaptation costs across sectors in the region. In infrastructure, Mongolia will probably have the largest adaptation cost in percentage terms. In the PRC, large "adaptation deficit" to extreme events (e.g., flooding and cyclones) in the infrastructure sector may be experienced, which should be addressed now.

- There is a large mitigation potential in Northeast Asia—at least 7,000 gigatons of carbon dioxide (CO₂) equivalent in 2030. Much of the potential is at negative cost. This means these are economically justified, regardless of their emission benefits.
- Regional cooperation is important as it can help reduce the total costs of implementing mitigation in Northeast Asia. In the PRC, the abatement potential at negative costs is more than double that of Japan and the Republic of Korea combined. This has important implications for regional cooperation as a regional carbon trading scheme could be more cost-effective for reducing emissions, for Japan and the Republic of Korea.
- There are compelling reasons why the PRC should mitigate climate change, and that includes the co-benefits of air pollution reduction and energy security.
- If the PRC fails to realize its mitigation goals, global mean annual temperature will almost certainly exceed 2°C.



Empowering Women Through Rural Infrastructure: Mainstreaming Gender in Transport

www.adb.org/publications/empowering-women-through-rural-infrastructure

This publication presents the outcomes of a pilot project—Community-Based Rural Road Maintenance by Women Ethnic Minority Groups in Western Yunnan—which was financed by the Gender and Development Cooperation Fund of the Asian Development Bank. The pilot project was carried out in the two counties of Luxi and Lianghe in Dehong Dai and Jingpo Ethnic Autonomous Prefecture, Yunnan Province in the People's Republic of China.

The project aimed to assist maintenance groups in western Yunnan Province in organizing and carrying out the routine maintenance of unpaved township and village roads. It involved women and other vulnerable groups (such as indigenous minorities) in rural road maintenance projects, both to undertake badly needed road improvements and to create employment opportunities for them. Women—particularly those from indigenous minority groups—have been empowered as a result of the training and new job and livelihood opportunities.

The physical condition of roads is critical in any transport network. Unless roads are adequately maintained, they inevitably deteriorate, leading to higher road user costs and longer travel times. When simple routine maintenance is postponed for long periods, this often results in more extensive, costly rehabilitation. Routine maintenance is often delayed due to lack of funds or insufficient technical knowledge.

The pilot project demonstrated a suitable system for the routine maintenance of rural roads, thus ensuring better road conditions, lower transport costs, and continuous access to townships and villages in the province. The project also generated employment opportunities for women in ethnic minority groups in rural areas, allowing them to earn steady income and have an improved means of livelihood.



Scaling Up Shallow-Ground Geo-Energy Utilization in the People's Republic of China

This publication provides a comprehensive assessment of shallow-ground geo-energy (SGGE) technology development and resource distribution in the People's Republic of China (PRC), and proposes some business models that could overcome existing barriers to SGGE development and its large-scale utilization in the future.

The PRC has been one of the world's fastest-growing energy consumers in recent years. Soaring energy demand is both a driver and a consequence of the rapid economic growth in the PRC's economy. The energy mix in the PRC is dominated by fossil fuel, especially carbon-intensive coal, which supplied more than 80% of the electricity and heating demand. Concerned with the rising energy consumption and associated environmental impacts, the government announced targets to reduce its energy consumption per unit of gross domestic product by 20% during the 11th Five-Year Plan period (2006–2010), and to promote a diversified energy mix with higher percentage of renewable energy.

Since late 1990s, considerable research and development have been carried out to utilize SGGE, which is abundant and widely spread within 30–200 meters deep from the earth's surface, can be economically utilized to provide heating and cooling services, and supply hot water to end users. SGGE can substitute for coal and natural gas thus reduce emissions of greenhouse gas and local air pollutants, such as sulfur dioxide, nitrogen oxides, particulate matters, and other pollutants. Being an immature and unproven technology, however, the cost of harnessing SGGE was high, limiting its large-scale utilization. It is expected that SGGE cost will be reduced due to economies of scale and technological progress, but at its early stage, it needs targeted policy support.

The large-scale use and deployment of SGGE is still in its early stage in the PRC. The central government has prioritized the use of SGGE and many local governments have also issued incentive policies. Some SGGE pilot and demonstration projects have already been implemented in Beijing, Shenyang, Tianjin, and other cities. Wider deployment of SGGE is constrained by various factors, such as hydrogeological conditions, technology maturity, industrial policies, and suitable business models.

Sector and Thematic Paper Series



Research into the PRC's General Mentality and Policies for the Promotion of Industry Transfer

This paper presents the summary policy recommendations of a special study on boosting industrial transfer in the People's Republic of China (PRC), prepared in conjunction with the preparation of the 12th Five-Year Plan under the leadership of the National Development and Reform Commission.

The study examined new trends in international and domestic industry transfer, the unique characteristics of the different regions' stages of development combined with regional development advantages, the role of market mechanisms, and the high-end international and domestic industrial transfer.

The study concluded that the promotion of industrial transfer should follow the following principles:

- Combine guidance by markets and the government, with markets playing the main role and government the secondary role;
- Combine industrial transfer with industrial structural adjustments; and
- Combine international industrial transfer with domestic industrial transfer.

Specific recommendations include the following:

- Hasten the reform and removal of irrational policies that impede industrial transfer.
 - Streamline cumbersome approval policies.
- Improve policies that guide industrial transfer and improve basic infrastructure conditions to ensure industrial transfer.
 - Formulate new policies that promote further upgrading of the industries in the eastern region.
 - Expand support for the central and western regions.
 - Improve basic infrastructure conditions that are beneficial to industrial transfer.
- Establish intra-regional coordination advantages and promote horizontal linkages between industries.
 - Establish communication and coordination mechanisms at the state level.
 - Encourage and support intra-regional exploration of new models of directly linked cooperation.

- Use regional comparative advantages for industrial clustering.
 - Strengthen the establishment of industrial parks.
- Guide the integration of industrial transfer and the pursuit of sustainable development.



Good Cases for University–Industry Collaboration

This report was prepared for the National Development and Innovation Committee, Office of the Prime Minister in Mongolia, as support to its policy research requirements. This report is based on the framework that universities produce knowledge and industries implement that knowledge. Modern entrepreneurial universities first produce knowledge in the basic research area, develop it into technology through applied research, and after this is selectively applied by a company, this knowledge is sold as products and services. Depending on its needs, the industry either uses the knowledge through a license agreement or directly buys one of the knowledge, technology, or the company.

To establish such an industry, universities need to recognize the current trends in industrial development, identify the necessary knowledge, choose an example technology, and collaborate to start a company and acquire financing through listing in the international stock exchange, or through direct funding from government, nongovernment funds, venture capital funds, equity funds, among others. This will give university–industry collaboration the chance to materialize. University–industry collaboration is now moving from licensing to equity ownership.

This report includes an assessment of Mongolia’s current situation of university–industry collaboration and international experience, and based on these, the report identified and proposed university–industry collaboration methods in four areas: (i) improve the legal environment, (ii) develop the infrastructure, (iii) establish funding mechanisms, and (iv) undertake human resource development.



Secondary Market of Loans in the People’s Republic of China

In many developed financial systems, the trading of different types of loans takes place in secondary markets. Among these markets, the syndicated loan market is the most organized due to industry efforts in recent years to standardize documentation and trading procedures. Secondary markets for mortgages and for whole loans are less organized, with more diversified standards and practices among private parties and individual loan aggregators.

This report summarizes the experiences of the United States and European markets as background materials in considering the issues and options for the loans market of the People’s Republic of China.

It also provides an overview of the establishment and growth of syndicated loan markets in both the United States and Europe. It lays out the development of primary and secondary markets, the types of products and market segments, and market participants. The review describes loan ratings, forms of transfer for loan interests, and provides significant details on trading and settlement. The legal, regulatory, and accounting issues are also discussed. Further research, however, may be necessary to better understand the characteristics and trading process of secondary mortgage and whole loan markets and the feasibility of developing a single, centralized market for different types of loan sales.



Overview of the Financial Sector Assessment for the People's Republic of China Country Partnership and Strategy, 2011–2015

Since its transition process to a socialist market economy during 1978–1979, the People's Republic of China (PRC) has worked steadily to build a market-based financial system to support its economic growth and balanced development. Marked progress has been achieved in addressing overhangs from the previous system of central planning and in the transformation and development of financial institutions and markets.

During the past 3 decades, the PRC has created many of the institutions needed to support a modern financial system and has successfully mobilized savings to achieve significant financial depth. However, significant structural weaknesses remain. During the past 3 years, financial sector development in the PRC—in common with most countries of the world—has been heavily influenced by the global financial and economic crisis of 2008. In the wake of the crisis, the PRC has redirected its focus toward rebalancing its economy domestically and internationally, with major emphasis on continuing financial reform in support of a more balanced and sustainable growth and development.

This Outline Financial Sector Assessment provides background information for the Summary Financial Sector Assessment, which is a core appendix of the Country Partnership Strategy (CPS). The last Financial Sector Assessment (FSA) and Financial Sector Roadmap (FSR) were completed in 2006.

This paper begins by providing a brief assessment of key developments since 2006 in the PRC's financial sector and continues with (i) a summary of the current and proposed government financial sector strategy; (ii) Asian Development Bank's (ADB) current assistance program and those of major development partners, especially the World Bank; and (iii) proposed ADB interventions.

Three main areas appear to require and merit support from ADB. These are (i) access to finance that includes rural finance and small and medium-scale enterprises, including green finance; (ii) rural pension development; and (iii) financial stability. These are areas where interventions will both support government strategies in the financial sector and build on previous and ongoing ADB interventions.

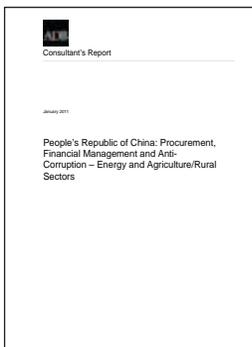


Private Sector Assessment for the People's Republic of China

The phenomenal increase in private sector activity has been one of the main engines of increased per capita income in the People's Republic of China (PRC) and of its overall economic activity. Currently, the private sector accounts for over two-thirds of gross domestic product. Nearly three-quarters of all enterprises are in the private sector and the number of private firms has increased from 4.3 million in the early period of the 11th Five-Year Plan (FYP) to more than 8.4 million at the end of 2010.² Although the government still retains an important role in a number of key sectors, it has steadily promoted private sector engagement in core strategic sectors, such as infrastructure, energy, natural resources exploitation, education, medicine, and finance.

Three main reforms catalyzed the growth of the private sector. These are (i) the initial corporatization and privatization of state-owned enterprises after the 15th Party Congress in 1997; (ii) the move to put the private sector on an equal legal footing with the state sector, also at the 15th Party Congress, which continued through the early part of the next decade; and (iii) accession to the World Trade Organization in 2001, which liberalized foreign investment in many sectors of the economy.

In a short span of 3 decades, substantial progress has been made in opening up the economy and establishing a market-oriented business environment. As the PRC continues to be in transition toward a market economy, there is scope for further improving its business environment. The Organisation for Economic Co-operation and Development's (OECD) benchmarking of the PRC's entrepreneurial environment found that the country's regulatory and administrative system merited improvement in several areas.³ The World Economic Forum's Global Competitiveness Index in 2010 also gave the PRC high marks for the size of market (2nd) and macroeconomic stability (8th), but assigned lower rankings at the micro level, with sub-indices for total tax rate (124th), number of procedures required to start a business (117th), and time required to start a business (99th)—signaling areas for further improvement.



Sector Risk Assessment for the People's Republic of China

This is a study of the procurement, financial management (risk), and anticorruption projects financed by the Asian Development Bank (ADB) in the People's Republic of China (PRC). This was prepared as background for the preparation of ADB's new *Country Partnership Strategy 2011–2015* for the PRC. It follows the approach set out in the Guidelines of ADB's *Second Governance and Anticorruption Action Plan* (GACAP II).

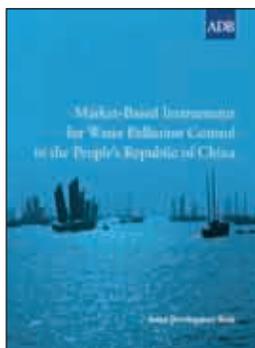
² All-China Federation of Industry and Commerce.

³ OECD Economic Surveys: [People's Republic of] China, 2010.

The study included four case studies—two from the agriculture and/or rural sector and two from the energy sector.

The analytical framework of this study considers the value chains in the energy and agriculture and/or rural sectors. The methodology included a literature review and web search to identify relevant documents including reports on financial and corruption risks in the energy and agriculture sectors in the PRC; and documents on financial risk management by ADB's development partners that include multilateral and bilateral aid donors and nongovernment organizations. The research included interviews with PRC public servants at the national level and at various agencies, project staff, development partners, companies, nongovernment organizations representatives, and other stakeholders.

An important aspect of this study is ADB's commitment, under the Paris Declaration, to country ownership and use of country financial management and procurement systems as soon as practical. Hence, it becomes ripe for ADB to take an initiative similar to the new direction and strategy that is recommended, given that positive improvements in procurement systems and practices, financial risk management, and anticorruption policy and practice are already well established in the PRC, although some constraints and obstacles remain. The assessment section provides several recommendations on future directions.



Market-Based Instruments for Water Pollution Control in the People's Republic of China

<http://developmentasia.org/documents/reports/instruments-water-pollution-control-prc/default.asp>

This publication reviews the current state of water pollution and water pollution management strategies in the People's Republic of China (PRC) and provides specific recommendations on how to improve them by applying market-based policy instruments.

Market-based instruments—such as water quality trading, fees and taxation, and private–public partnerships—have been tested internationally and in the PRC. The lessons and experiences of their application, both in this country and abroad, have been examined in the context of the newly strengthened water pollution control system in the PRC.

The experiences gained and policy recommendations made for the PRC can also be relevant to practitioners in other developing countries.



Sustainable Urban Development in the People's Republic of China: Eco-City Development—A New and Sustainable Way Forward?

www.adb.org/publications/eco-city-development-new-and-sustainable-way-forward?ref=themes/environment/publications

Urbanization in the People's Republic of China (PRC) reflects the pace of development and progress in the country. However, the rapid rate and sheer scale of urbanization are associated with pressing problems. Widespread eco-city development that adopts low-carbon concepts are evolving at a time when the PRC's urbanization rates are peaking. The term "eco-city" has become a catch-all phrase for the variety of new urban development models, contributing to variations of the eco-city model observed in the PRC, including a low-carbon eco-city model and a livable city model.

This paper is a case study of the Sino–Singapore Tianjin Eco-City (SSTEC) project. Launched in November 2007, the SSTEC project is a collaboration between the Government of Singapore and the Tianjin Municipal Government, backed by the Government of the PRC. The project is managed through a joint-venture corporation, the Sino-Singapore Tianjin Eco-City Investment and Development Company. The master plan was jointly developed by PRC and Singapore urban planners. The start-up area for the SSTEC is expected to be completed by 2013, while project completion is targeted for 2020. When completed, the SSTEC is expected to house 350,000 people.

The SSTEC site covers an area 34.2 square kilometers (km²) and is located 40 kilometers (km) from Tianjin City and 150 km from Beijing. Tianjin is the third-largest city in the PRC with a population of 11.8 million. The site is largely a salty, nonarable land along the Tianjin Binhai New Area (TBNA), with the southern tip of the site close to the Tianjin Economic-Technological Development Area (TEDA). Set up in 1984, the TEDA was designated for further development in 2006 with the extension of TBNA as special economic zone.

Eco-city development in the PRC is still very much at the experimental stage. Based on the case study, appropriate policy and management frameworks to drive eco-city development are as important as—if not more important than—technology or financing factors.

At present, eco-city projects in the PRC are largely stand-alone new developments situated near existing cities or industrial developments. They need to be integrated with surrounding areas. It is also necessary to consider how elements of eco-cities can be replicated in existing cities through a process of retrofitting. It is also important to explore how a geographically and functionally smaller eco-city project will contribute to the environmental and social sustainability of larger industrial and urban zones. Ways to harmonize monitoring indicators and benchmarking of eco-cities may need to be improved so that the effectiveness of different eco-cities and different approaches can be evaluated and compared.

Eco-city development in the PRC is a novel approach to rapid urbanization, which is a challenge shared by many developing countries. Many good practices and lessons are expected from the PRC pilot projects.

As with eco-city models in other countries, it is still to be seen if these practices can be shared and replicated in other cities, and in different country contexts. The principles and approaches are certainly moving urbanization in the right direction and if harnessed, the eco-city model will help toward building more sustainable and livable cities.



Sludge Strategy for the People's Republic of China: Promoting Sustainable Solutions

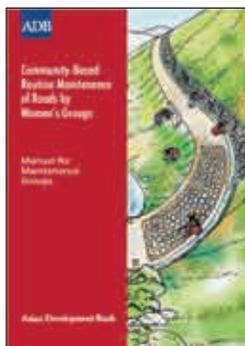
www.iwapublishing.com/template.cfm?name=w21_dec11_feats
(English version for those with subscription)

www.iwapublishing.com/pdf/Water21Chinese_Issue5_Dec2011.pdf?bcsi_scan_97e98328e2b67804=1 (Chinese version)

This article, which appeared in a *Water21* journal, December 2011 issue, explores the sludge management challenge faced by the People's Republic of China's (PRC) wastewater industry. Over the last 15 years, the PRC has made rapid and sustained progress in constructing and operating state-of-the-art urban wastewater treatment plants (WWTP). However, this success has brought with it a new challenge of how to manage the ever increasing volumes of WWTP sludge that is produced every day in a way that does not create secondary pollution.

Sludge is a resource as it is typically rich in nutrients (nitrogen and phosphorus) and high in organic content for energy recovery. If not properly managed, however, it can create uncontrolled greenhouse gas emissions, contamination of land and groundwater, and odor nuisance.

This article examines best international practices in sludge management, analyzes the current PRC situation relative to this best practice, and suggests a pathway for the PRC to modernize its approach to sludge management.



Community-Based Routine Road Maintenance by Women's Groups—Manual for Maintenance Groups

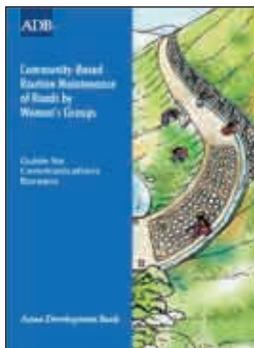
www.adb.org/publications/community-based-routine-maintenance-roads-womens-groups-manual-maintenance-groups?ref=themes/gender/publications

This manual aims to assist maintenance groups in Yunnan Province, People's Republic of China, in organizing and carrying out the routine maintenance of unpaved township and village roads.

This manual is the outcome of a pilot project on Community-Based Routine Road Maintenance by Women's Groups, financed by the Gender and Development Cooperation Fund of the Asian Development Bank.

The pilot project involved women and other vulnerable groups (such as indigenous minorities) in rural road maintenance projects—both to undertake badly needed improvements in rural roads and to provide employment opportunities for women and ethnic minority groups.

This manual guides the workforce at the operational level in the use of appropriate tools and techniques in their work. It teaches women technical and managerial skills for routine maintenance of rural roads, based on the experience gained from the maintenance work carried out by women's groups under the pilot project in Dehong Prefecture, Yunnan Province.



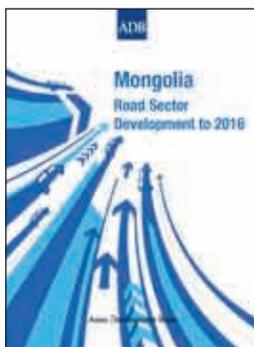
Community-Based Routine Road Maintenance by Women's Groups—Guide for Communications Bureaus

www.adb.org/publications/community-based-routine-maintenance-roads-womens-groups-guide-communications-bureaus

This publication serves as guide to the prefecture and county communications bureaus in Yunnan Province, People's Republic of China, in managing and implementing the routine maintenance of unpaved township and village roads.

This guide is the outcome of a pilot project on Community-Based Routine Road Maintenance by Women's Groups, financed by the Gender and Development Cooperation Fund of the Asian Development Bank. The pilot project involved women and other vulnerable groups (such as indigenous peoples) in rural road maintenance projects—both to undertake badly needed improvements in rural roads and to provide employment opportunities for women and ethnic minority groups.

This guide explains how to organize, train, and contract community-based groups for routine maintenance of roads in rural areas, using as an example the maintenance work carried out by women's groups under the pilot project in Dehong Prefecture, Yunnan Province.



Mongolia: Road Sector Development to 2016

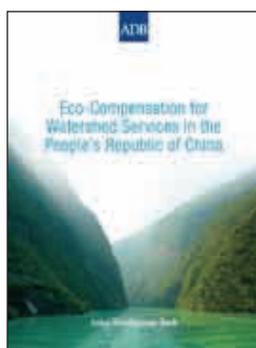
www.adb.org/publications/mongolia-road-sector-development-2016

The economic growth of Mongolia is set to accelerate in the next decade as its vast mining resources start to be put into large-scale production. This has greatly improved its prospects for prosperity and poverty reduction. However, to realize its full potential, Mongolia will need to transform its society, economy, and administration.

This report discusses how the context of road sector policy and road infrastructure investments will change, and the ways the sector can best

prepare to fulfill its new role. Given the country's road infrastructure needs, the road sector will be expected to implement massive highway investments in a short time and then to consistently maintain these new highways at a high standard. With Mongolia's current small-scale road sector, it is unlikely to have the capacity to scale up and deliver these expectations without extensively modernizing its financing mechanisms, business processes, organization, and education systems. This report, therefore, recommends that the Government of Mongolia implements a comprehensive capacity development program for the road sector in the next 5 years.

This report also looks into the sector's financial dimension, the techniques and processes followed for road maintenance and construction, and the roles of human resources management and education. It tries to understand why sector performance improvement has been slow, although many sector issues and perceived solutions have been considered in the past. Reflecting on lessons from international experience, this report outlines a range of policy options for decision makers and proposes an agenda until 2016.



Eco-Compensation for Watershed Services in the People's Republic of China

www.adb.org/publications/eco-compensation-watershed-services-peoples-republic-china

Water is possibly the single most pressing resource bottleneck to the ongoing economic growth of the People's Republic of China (PRC) over the next 10–15 years. For a large country like the PRC, annual per capita freshwater resources are among the lowest, and availability is further reduced by widespread pollution. According to the country's Macro Strategic Research Report on the PRC's Environment, released in April 2011, drinking water for one in seven Chinese does not meet national pollution standards, while 300 million Chinese in rural areas lack access to safe drinking water. A recent report by the World Bank estimated that the PRC's water crisis is already costing the country 2.3% of its gross domestic product, of which 1.3% is attributable to water scarcity and 1.0% from the direct impacts of water pollution.

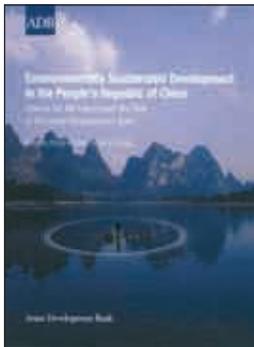
In the face of these challenges, the central and the provincial governments have been investing in and seeking new ideas and methods for improving both supply-side and demand-side management of water resources. Numerous national, provincial, and local experiments over the past decade in market-based environmental policy tools under the broad heading of "eco-compensation" has led the central government to task the National Development and Reform Commission (NDRC) with developing a national eco-compensation ordinance.

Eco-compensation not only shares characteristics with payments for ecological services, it also encompasses fiscal transfer schemes between provincial governments to improve the apportioning of funding and

clarify environmental management responsibilities and tasks, especially on ecological service flows that cross administrative and regional boundaries, such as watershed ecological services. The success of these innovations are not only critical for the PRC but also for other countries as these have major global ramifications, impacting directly on world food and fuel markets, and having repercussions throughout international commodity and production chains.

This paper looks into the progress of the PRC's national Eco-Compensation Ordinance, and highlights the institutional challenges faced by policy makers in developing an effective ordinance. Water management in the PRC is scattered across multiple central government and provincial agencies, resulting in poorly defined water use rights and artificially low water prices, leading to de facto open access, conflict, and inefficient distribution of resources. Combined with relatively weak central government enforcement capacity, these challenges have hindered effective watershed and water resource protection and management.

For the design of the Eco-Compensation Ordinance, this paper recommends (i) considering eco-compensation as a potential tool for integrated river basin management, (ii) balancing firmness with flexibility and focusing on outcomes, and (iii) taking account of the scale of actors.



Environmentally Sustainable Development in the People's Republic of China: Visions for the Future and the Role of the Asian Development Bank

The People's Republic of China (PRC) has just completed its third decade of sustained economic growth at rates exceeding 9% per annum. This is a historically unprecedented achievement, which has made the PRC's economy the second largest in the world. These achievements, however, have not been without adverse environmental consequences. An equally compelling story has been the government's record in developing laws, regulations, institutions, and human resources necessary to sustainably manage the environmental consequences of economic growth, thereby helping to create a public constituency for environmentally sustainable development within the PRC, and playing an increasingly prominent international role on issues of global environmental significance.

The rapid pace of economic growth, the sectoral structure of the economy, the sources of energy used to drive the economy, and increased urbanization are the four large-scale drivers behind the country's complex environmental agenda. To improve the quality of the ambient environment, the recently released Macro Strategic Research Report on the PRC's Environment recognized the need for changing the momentum of these four driving forces, and included a vision throughout 2050 for long-term environmentally sustainable development.

In revisiting this vision for the future, this paper examines the key elements needed by the government toward an environmentally sustainable development. To change the course of the unsustainable growth mode, the

paper recommends that the environmental agenda for the next 10 years will include the following: (i) restructure economic and fiscal systems to reflect environmental externalities, (ii) adopt a more programmatic approach to environmental investment and enhance investment efficiency, (iii) focus on the quality of urban development, (iv) expand the use of market-based instruments to control pollution, and (v) amend the environmental protection law to clarify responsibilities and encourage cooperation .

The paper also articulates the contribution of the Asian Development Bank (ADB) in the government's environmental agenda in the next decade, and identifies four areas for future ADB interventions. These are (i) enhancing natural resources management and protecting ecological services; (ii) strengthening environmental pollution management; (iii) mitigating climate change impacts and promoting adaptation measures; and (iv) supporting knowledge sharing, capacity building, and policy reforms.



Pension Insurance in Mongolia

This paper was prepared for the National Development and Innovation Committee of the Office of the Prime Minister in Mongolia. It examines the current situation and future trends of the pension insurance system in Mongolia, with focus on required improvements.

Social insurance remains one of the key issues driving social and economic development during Mongolia's transition period to market economy. Pension insurance has become a fundamental concern in Mongolia as social protection is seen as a means to protect its citizens from the effects of poverty and risks resulting from natural, economic, and social adversities.

Mongolia's population is relatively young and aging has not yet been identified as a priority problem, but people have become increasingly aware of the pension insurance issue. A former pension scheme that was fully funded by state budget was modified in 1995, a package of "laws on social insurance" was approved, and the principle to distribute pensions with premiums paid by employers and insurers was adopted. Such a scheme is seen to be more appropriate where unemployment is low. Mongolia's pension insurance fund has operated without being able to cover its expenses from its income and has been receiving subsidies from the state.

Hence, this paper recommends the following:

- The average reference salary to pay premiums for the pension insurance barely covers minimum wage, thus the social insurance authority should monitor the effectiveness of payment and calculation of premiums.

- Provide training to insurers to reinforce the understanding that premiums paid today are security for their future. Employers need to accurately report their workers' salaries so that premiums collected are based on appropriate salary levels.
- Introduce a tax-funded universal pension scheme as income security during retirement for all citizens above a certain age.
- Extend the coverage nationally to provide income security during retirement and introduce a multi-stage system to address the needs of citizens with different financial capabilities.
- Formulate policies on pensions where workers and employers are both contributors of premiums and recipients of benefits.
- Establish an official framework and mechanism to oversee social protection issues and to regularly inform partners about changes occurring within the social protection sector.

Good Practice Series

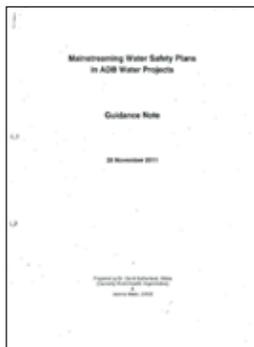


Good Practice in Technical and Vocational Education and Training

www.adb.org/publications/good-practice-technical-and-vocational-education-and-training

Many developing member countries (DMCs) of the Asian Development Bank (ADB) suffer from a shortage of qualified workers. This booklet on good practice supports ADB's operations in technical and vocational education and training (TVET) and guides the conduct of dialogue among stakeholders in the DMCs on the TVET sector and its directions.

The booklet highlights strategic questions and discusses investment design issues, including the strengths and weaknesses of different forms of training and financing. Lessons learned from ADB's experiences in the sector and their implications for future TVET projects are presented. Checklists provide a practical tool for evaluating proposed TVET investments. This Chinese version was completed in 2011.



Guidance Note: Mainstreaming Water Safety Plans in ADB Water Projects

This guidance note provides Asian Development Bank (ADB) project teams with the needed guide as they incorporate water safety plans (WSPs) into their project planning and implementation work. It describes WSPs and explains their importance in improving water quality for consumers and the longer-term performance of ADB's investments. Although this guidance note applies primarily to urban and rural water supply and sanitation projects, this could also be used for any project with impact on water supply sources and systems.

This guidance note is useful at three key points in a project cycle with WSP, as follows:

- when preparing the terms of references in project preparation technical assistance (PPTA) documents to ensure that WSPs are developed and incorporated into project design and implementation;

- during project implementation as it serves as an instrument to monitor compliance with the agreed WSP implementation; and
- at the close of a project, by providing guidance in the evaluation of the WSP.

The World Health Organization (WHO) promotes WSPs so it could effectively apply the guideline values and best practice contained in its Drinking-Water Quality Guidelines, based on the following premise:

The most effective means of consistently ensuring the safety of a drinking-water supply is through the use of a comprehensive risk assessment and risk management approach that encompasses all steps in water supply from catchment to consumer. [...] such approaches are called WSPs.

The initial purpose of WSPs was to move away from relying solely on water quality monitoring— which was deemed flawed, expensive, and did not prevent waterborne disease outbreaks—toward the surveillance of water safety by monitoring the water supply system itself. Water quality testing serves only to confirm the effectiveness of the WSP.

A WSP represents a continuous process of system assessment, monitoring, and improvement and is based on risk assessment and management principles. It is a document created and used by any organization that supplies water—it shows who will oversee the development and implementation of the WSP and who is responsible for particular activities identified under the WSP. A WSP starts with a thorough system assessment that includes the following:

- (i) A description of the water supply system from source through treatment, storage, transmission, distribution, and finally, to consumption;
- (ii) A list of hazards (agents and events) that can affect the safety of the water supplied;
- (iii) An assessment of the risks associated with each hazard and hazardous event;
- (iv) A review of controls or barriers to the reduction or elimination of each significant risk and, if these are effective, an operational monitoring schedule;
- (v) A verification process to validate the effectiveness of controls and barriers;
- (vi) An implementation plan for improvements where necessary;
- (vii) A list of supporting documentation and ongoing record-keeping;
- (viii) A demonstration that the system is consistently safe; and
- (ix) A schedule for iterative water safety planning processes.

Technical Notes Series



Financing Carbon Capture and Storage in Emerging Economies

Carbon capture and storage (CCS) technologies are crucial for the cost-effective mitigation of carbon dioxide (CO₂) emissions globally. Yet, very few countries have envisioned CCS in their energy portfolio and established supporting policies. The price of CO₂ is inadequate and the future international carbon regime is uncertain, leading to a large economic and commercial and/or financing gap and high risks in financing CCS.

Multibillion dollar direct public funding support is being provided in some developed countries to overcome the economic gap and incentivize first-generation CCS demonstration projects. However, no such mechanism exists for emerging economies.

Use of captured CO₂ and potential future carbon offset revenues may mitigate some of the higher incremental costs and risks. These alone, however, are inadequate to fill the large economic gap for CCS demonstration in emerging economies.

The continuing surge in demand for fossil fuels (especially carbon-intensive coal) in emerging economies, but unsatisfactory CCS progress so far, generates a compelling reason to fast-track CCS demonstration projects in emerging economies. A CCS-dedicated fund, large enough to offset the higher incremental capital cost and energy penalty in emerging economies, could kick-start CCS demonstration projects, fast-tracking its uptake much earlier than otherwise possible.



Incorporating Undesirable Outputs into Malmquist TFP Indices with an Unbalanced Data Panel of Chinese Power Plants

www.tandfonline.com/doi/abs/10.1080/13504851.2011.572843#preview

This journal article was published in *Applied Economics Letters* on 9 June 2011. The article examines the effects of undesirable outputs (i.e., emissions) on Malmquist Total Factor Productivity (TFP) indices. The empirical work

uses an unbalanced panel of 1,626 real observations on coal-fired power plants in the People's Republic of China (PRC) during 1996–2002. To meet the required balanced panel for calculating the Malmquist indices, an innovative fake unit approach has been introduced. No other published papers on TFP change have used this method before. The final results show that (i) the original growth path of electricity in the PRC until 2002 heavily depended upon an increase of resource input; and (ii) the environmental TFP change of coal-fired power plants in the PRC was about 2%–3% (at least with respect to SO₂), which mainly comes from technical change rather than efficiency change during the review period.

This article makes three methodological contributions. First, it defines a new emissions-incorporated Malmquist index to measure the overall TFP change of coal-fired power plants in the PRC. Second, it defines a pure environmental performance index, which can measure the environmental performance change of any decision-making unit. Third, the innovative fake unit approach introduced enables the calculation of Malmquist TFP indices with an unbalanced data panel. The methodology used could easily be extended to incorporate more emissions, such as CO₂, as data allow.

Besides contributing to research methodology, this article also has policy implications. The results show that, first, during 1996–2002, the environmentally adjusted TFP change was about 2.2% per annum (p.a.). This result confirms the government's efforts to build a more efficient electricity industry and is consistent with the fact that since the early 1980s, many small and inefficient generating units have been replaced by larger and more energy-efficient units. However, it also indicates that the development of the coal-fired power sector in the PRC still heavily relied on an increase of inputs. This is evident from the comparison between approximately 2.0% p.a. environmental TFP growth and the 6.8% p.a. capacity growth, and the 10.3% p.a. generation growth in the same period.⁴

Second, the main source of environmental TFP growth is technical change rather than management efficiency change during 1996–2002. From a policy perspective, the separability of TFP index into efficiency change and technical change is extremely useful. For example, the prescription would be very different if the TFP change were caused by an adverse shift in the best practice frontier, rather than mismanagement. In the former case, government agency might put more resources to promote technology innovation, and in the latter case, regulators could focus on the elimination of waste.

Third, the article finds no apparent efficiency catch-up or improved environmental performance effects in the coal-fired power plants during 1996–2002. This suggests that a big potential remains with regard to the improvement of efficiency and control of emissions in the coal-fired power plants of the PRC.

⁴ Data for calculation are from the *[People's Republic of] China Energy Databook* (2004).

East Asia Department 2011 Knowledge Management Initiatives

This annual publication showcases the results of knowledge management initiatives of the East Asia Department (EARD) of the Asian Development Bank in 2011. Knowledge management is an integral part of EARD's operations in the People's Republic of China and Mongolia. This publication is a compendium of abstracts of 39 strategic knowledge products and services completed in 2011 and provides web links to select full reports.

About the Asian Development Bank

ADB's vision is an Asia and Pacific region free of poverty. Its mission is to help its developing member countries reduce poverty and improve the quality of life of their people. Despite the region's many successes, it remains home to two-thirds of the world's poor: 1.8 billion people who live on less than \$2 a day, with 903 million struggling on less than \$1.25 a day. ADB is committed to reducing poverty through inclusive economic growth, environmentally sustainable growth, and regional integration.

Based in Manila, ADB is owned by 67 members, including 48 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.

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