



Climate Change and Development in China

3 Decades of UNDP Support

UNDP China



Empowered lives.
Resilient nations.

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UNDP China

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ACRONYMS

ACCA21 – Administrative Centre for China’s Agenda 21

BRESL – Barrier Removal to the Cost-effective Development and Implementation of Energy Efficiency Standards and Labelling (UNDP China Programme)

CCICED – China Council for International Cooperation on Environment and Development

CCPF – United Nations Climate Change Partnership Framework Programme

C&R – Commercial and Residential

CDM – Clean Development Mechanism

CER – Certified Emission Reduction

CICETE – China International Center for Economic & Technical Exchanges

CFL – Compact Fluorescent Lamp

CNIS – China National Institution of Standardization

CPIC – China Power Investment Corporation

CO₂ – Carbon Dioxide

COP – UNFCCC Conference of the Parties

CSC – China Standard Certification

CSO – Civil Society Organisation

ECDC-TCDC – Economic and Technical Cooperation among Developing Countries

ES&L – Energy Efficiency Standards and Labels

ESL – Energy Saving Lamps

EUEEP – End-Use Energy Efficiency Project (UNDP China Programme)

FECO – Foreign Economic Cooperation

FYP – Fiver Year Plan of the Chinese Government

GDP – Gross Domestic Product

GEF – Global Environment Facility

GHG – Greenhouse Gases

GSP – United Nations High-Level Panel on Global Sustainability

HDI – Human Development Index

HDR – UNDP Human Development Report

ICT – Information Communication Technology

IL – Incandescent Lamp

IPCC – Intergovernmental Panel on Climate Change

IPR – Intellectual Property Protection

MDGs – Millennium Development Goals

MOF – Ministry of Finance

MOFA – Ministry of Foreign Affairs

MOST – Ministry of Science and Technology

MOU – Memorandum of Understanding

MP – Montreal Protocol

NAS – China’s National Adaptation Strategy

NCCCC – China’s National Coordination Committee on Climate Change

NCCCLSG – China’s National Climate Change Coordinating Leading Small Group

NCCP – China’s National Climate Change Programme

NDRC – China’s National Development and Reform Commission

NEPA – National Environmental Protection Agency

NGO – Non-Governmental Organization

NLCCC – China's National Leading Committee on Climate Change

PEERAC – Promoting Energy Efficient Room Air Conditioners (UNDP China Programme)

PILESLAMP – Phasing-out of Incandescent Lamps and Energy Saving Lamps Promotion in China (UNDP China Programme)

RAC – Room Air Conditioners

SDN – China’s Sustainable Development Network

SHD – Sustainable Human Development

SMA – China’s State Meteorological Administration

SPC – China’s State Planning Commission

SSC – South-South Cooperation

SSTC – China’s State Science and Technology Commission

TCDC – Technical Cooperation among Developing Countries

UN – United Nations

UNDESA – United Nations Department of Economic and Social Affairs

UNDP – United Nations Development Programme

UNIDO – United Nations Industrial Development Organization

UNFCCC – Unite Nations Framework Convention on Climate Change

WTO – World Trade Organisation

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Energy efficient buildings: A future
being built by China (Dangdai MOMA,
in Beijing)

FOREWORD

Climate change is undoubtedly one of the key challenges confronting humankind and – as UN Secretary-General Ban Ki-moon has put it – the “defining issue of our generation”. UNDP is working on the front lines of climate change, where the world’s poorest populations are hit the hardest. Given more than 15% of the world’s poor are currently residing in China (based on the US\$ 2 per day poverty line), along with the fact that China is now the biggest greenhouse gas emitter in the world, it is therefore natural that much of UNDP’s focus has been on tackling climate challenges in the country.

Over the past three decades, China has made remarkable achievements in its development. On average, the economy has grown by an annual rate of around 10% over the course of the past 30 years. Per-capita income has increased fiftyfold and it is estimated that more than 600 million people have been lifted out of poverty. The country’s achievement in advancing human development is also very impressive. With its human development index (HDI) leaping from 0.404 in 1980 to 0.687 in 2011, China is among the countries with the fastest HDI growth in the world.

Unfortunately, China’s development was accompanied by rapid degradation of the environment and high greenhouse gas emissions. China has become the largest greenhouse gas emitter in absolute terms in recent years. While per-capita emissions remain modest by global standards, they are also rising quickly. The need to act and act fast was recognized by the authorities in 2007 when China set up the National Leading Group to Address Climate Change headed by Premier Wen Jiabao, indicating that climate change had become a priority at the highest level. Since then, China has become a champion in national policy measures to reduce greenhouse gas emissions. It has among the broadest and deepest set of

national policies, regulations, targets, etc. for climate change mitigation. This is all the more laudable given that China is still very much a developing country.

UNDP has been working closely with the Chinese government in the area of climate change, right from the start of national efforts to tackle it. UNDP’s climate change programme in China constitutes one of the organization’s largest and most diversified climate change portfolios globally, with a total budget of US\$ 245 million (2006-2010) and US\$ 422 million (2011-2015). UNDP has thus been well-equipped to provide substantive support to China throughout the different phases of its path to a low-carbon and green future.

UNDP’s collaboration with China in this area started far before climate change became a heatedly-discussed issue worldwide. As early as the 1980s, the UNDP Country Programme (1982-1986) in China had already identified energy development and conservation as a priority area of the organization’s work. With coal being the main source of China’s energy, and also an important source of air pollution and greenhouse gas emissions, the focus on energy was critical. From there, UNDP progressed from assisting China in gaining access to modern technology and developing human capital, to focusing on sustainable development. And as China moved up the development ladder, UNDP was quick to evolve its strategy to assist China, concentrating increasingly on high-level technical and policy support.

The purpose of this publication is to showcase UNDP’s partnership with China on climate change-related works over the years. It serves two purposes. First, it provides insights into the evolution of China’s needs tackling climate-related challenges. It should be particularly helpful for those who seek to

work with China on addressing its domestic climate challenges.

Secondly, it traces how China has evolved to become a provider of South-South Cooperation to address climate change. With China’s experience in combating climate change, there are clearly many useful lessons for other developing countries. UNDP is proud to be a partner with China in its South-South work in this area. This publication may help other developing countries to identify elements of China’s experience that may be relevant to them, which could facilitate further South-South Cooperation.

While Climate Change and Development in China: 3 Decades of UNDP Support centres on UNDP’s climate-related assistance to China, it is ultimately about how such efforts contribute to the overall development in China. Climate change and development are inextricably linked and any actions taken to address one have implications for the other. Above all, this publication shows how both efforts can be integrated to achieve inclusive and green development, enhancing people’s human development in a sustainable manner.

I would like to take this opportunity to express our gratitude to the Government of the People’s Republic of China for its invaluable support of UNDP’s climate change-related work at the domestic and international levels for over three decades. We are looking forward to continuing our strong cooperation in the years to come.

Renata Dessallien
UN Resident Coordinator and
UNDP Resident Representative

INTRODUCTION

“Achieving sustainable development is not about trading economic, social, and environmental objectives off against each other. It is about seeing them as interconnected objectives which are best pursued together”¹. *Helen Clark*

Viewed from the outside, China’s challenge seems daunting: in the face of environmental degradation and climate change, how does the country ensure economic growth and development, while establishing a low-carbon society and green economy. And, this, in a country that contains 22% of the world’s population, almost 1.4 billion human beings, and covers the third largest land mass on the planet. A country that is a world champion in reaching the Millennium Development Goals (MDGs), but is also the second largest energy consumer in the world and the biggest emitter of greenhouse gases (GHG) in absolute terms (although China still ranks only 61st in terms of the CO₂ emitted per person)².

These too are the challenges of UNDP’s work in China today. This publication tells the story of this partnership that spans more than three decades of cooperation and achievements.

For China, it has been a journey of promoting economic growth, modernization, opening up to the outside world, implementing a governance apparatus to deal with the environment, and other priorities, and steering the country toward a pathway leading to sustainable and inclusive development, and low-carbon economy and society.

For UNDP, it is the story of how the agency has evolved through supporting China in its development and policy needs; building institutional capacities, techniques and skills; being a bridge for funding sources and access to technology; strengthening and operationalizing the capacity of the country to formulate and implement China’s Agenda 21 – the first in the world – and encouraging the country toward sustainable development path. Moving its strategy upwards to the policy level, cutting edge UNDP programmes incorporated sustainable human development (SHD) interventions and convergence with UN Millennium Development Goals to inspire the formulation of environmental policies and legislation. Today, UNDP delivers high-level policy support to China, drawing extensively on its global network of policy expertise and on-the-ground knowledge.

These pages tell the story of this partnership. It is the story of the struggles, the changes and realizations that China and UNDP have gone through during the last three decades. It describes a supportive partnership that has led to great achievements both for China and for UNDP. Moreover, it highlights how these achievements, experiences and knowledge have been shared with other developing countries through the South-South Cooperation (SSC) agreement between

UNDP and China; which has inspired low-carbon development, poverty reduction and environmental protection elsewhere in the world. “China’s experience and ongoing innovation can save other developing countries time and expense in their low-carbon development imperatives”, declares Renata Dessallien, UN Resident Coordinator and UNDP Resident Representative in China³.

Through this narrative, it is hoped that this report can shed light on how China has mainstreamed climate change into its development agenda and is now actively attempting to forge a new development model that is both low-carbon and sustainable. This may inspire other countries who are struggling with the same all-important challenges.

The sustainable wave

The joint accomplishments of China and UNDP have not happened in a vacuum. On the contrary, on one hand, they were prompted and shaped by developments within the international community. Starting with the development of international environmental politics at the 1972 UN Stockholm Conference, subsequent decades saw the elaboration of the sustainable development strategy and the understanding of climate change complexities with the 1992 UN Earth Summit, the launching of the Millennium Development Goals in 2000, and the development of the international negotiations that produced an agreement under the UN Climate Change Convention, which in turn led to the Kyoto Protocol. On the other hand, these developments reflect the realization, within the Chinese government, of the growing threat that environmental degradation and climate change poses to China’s future growth and development.

Within the sustainable development framework, the world has now worked for more than 20 years on promoting human and social development, economic growth and environmental protection while dealing with the impacts of climate change. Looking forward, the path must be shaped through the framework of a green economy and a low-carbon society. As Janos Pasztor, then executive secretary of the United Nations Secretary-General’s High-Level Panel on Global Sustainability (GSP), put it: “Those

countries who are able to see a little bit ahead will ride on this wave and become the leaders of the tomorrow”⁴.

In many ways, China is riding this wave, working diligently to become a model of low-carbon growth and green economy, “both as a strategy for the next phase of industrialization and in the hope of remediating its domestic environmental crisis... Investment in low-carbon technologies will help to position China as a leading player in the generation of technologies, with the benefit both for the balance sheet and the environment”⁵.

Two important benchmarks are approaching on the international agenda in the coming years. One is the Millennium Development Goals (MDGs) deadline in 2015, and another is the Chinese ‘Xiaokang’ vision of establishing an all-around moderately well off society by 2020. As the biggest developing country in the world and with a main role to play in the global economy – today China is the second largest economy and the largest exporting nation in the world – China’s achievements are bound to have global impacts.

China has reached many MDGs seven years in advance of the 2015 deadline, including those relating to eradication of poverty and hunger, achieving universal primary education and reducing under-five mortality rates⁶. Moreover, China is on track to reduce

maternal mortality and control HIV/AIDS and tuberculosis, with hopes of achieving these MDG targets by 2015. In relation to the seventh MDG goal, 'ensure environmental sustainability', China has reached a turning point in its development path, pursuing a new growth model – one that is more balanced, inclusive and low-carbon.

UNDP has been a part of all these developments in China. The strategic partnership between China and UNDP has covered virtually every sector of the economy, and has supported China in undertaking its remarkable transformation during the last three decades:

- The highly planned and centralized economy of the 1970s has given way to a dynamic market based economy that has caught the attention of the world.

- Since 1979, with the introduction of reforms, China's GDP has grown at an average of 9.8% per annum.

- Its per capita income has increased fifty-fold.

- Some 500 million people have been lifted out of poverty.

- China's Human Development Index rose from 0.404 in 1980 to 0.687 in 2011, above the regional and global average⁷.

Chinese people are now wealthier, better educated and healthier than ever before. In spite of these human development successes, there remain critical national development challenges that need to be addressed for China to finally meet all its MDG targets, and retain and equitably distribute the benefits of the remarkable gains reached in recent years.

These challenges include:

- Rapid growth has come at a serious environmental and natural resource cost raising concerns about sustainability.
- Rural-urban income and gender disparities have grown sharply. Despite considerable policy effort the gap between Eastern and Western provinces has not narrowed.
- At least 100 countries doing better than China when comparing per capita income levels.
- About 122 million rural people are still living in poverty earn less than RMB 2,300 per annum⁸.
- About 20% of China's farmland has been contaminated with heavy metals.

China's ability to successfully confront these development challenges over the next three years will be critical to meet its remaining

MDG targets by 2015 and deliver on its own Xiaokang vision by 2020.

UNDP is in a unique position to support China in addressing its daunting environmental and development tasks. It can do so through its work focusing on the main sustainable human development areas: poverty elimination, empowerment, equity, sustainability and security. Moreover, UNDP cutting-edge programmes are pioneering new and innovative ideas, which are being mainstreamed into China's five-year economic and social development plans, are supporting the Chinese government climate change scheme. UNDP has been particularly active in the energy sector where it was the first among donors/implement agency to work in renewable energy and carbon finance through the Global Environment Facility (GEF) in China. This publication documents this and other facets of UNDP's long partnership with China over three decades, sharing the evolution of China's and UNDP's priorities and the expansion from domestic work into South-South Cooperation.



Chinese people are now wealthier, better educated and healthier than ever before

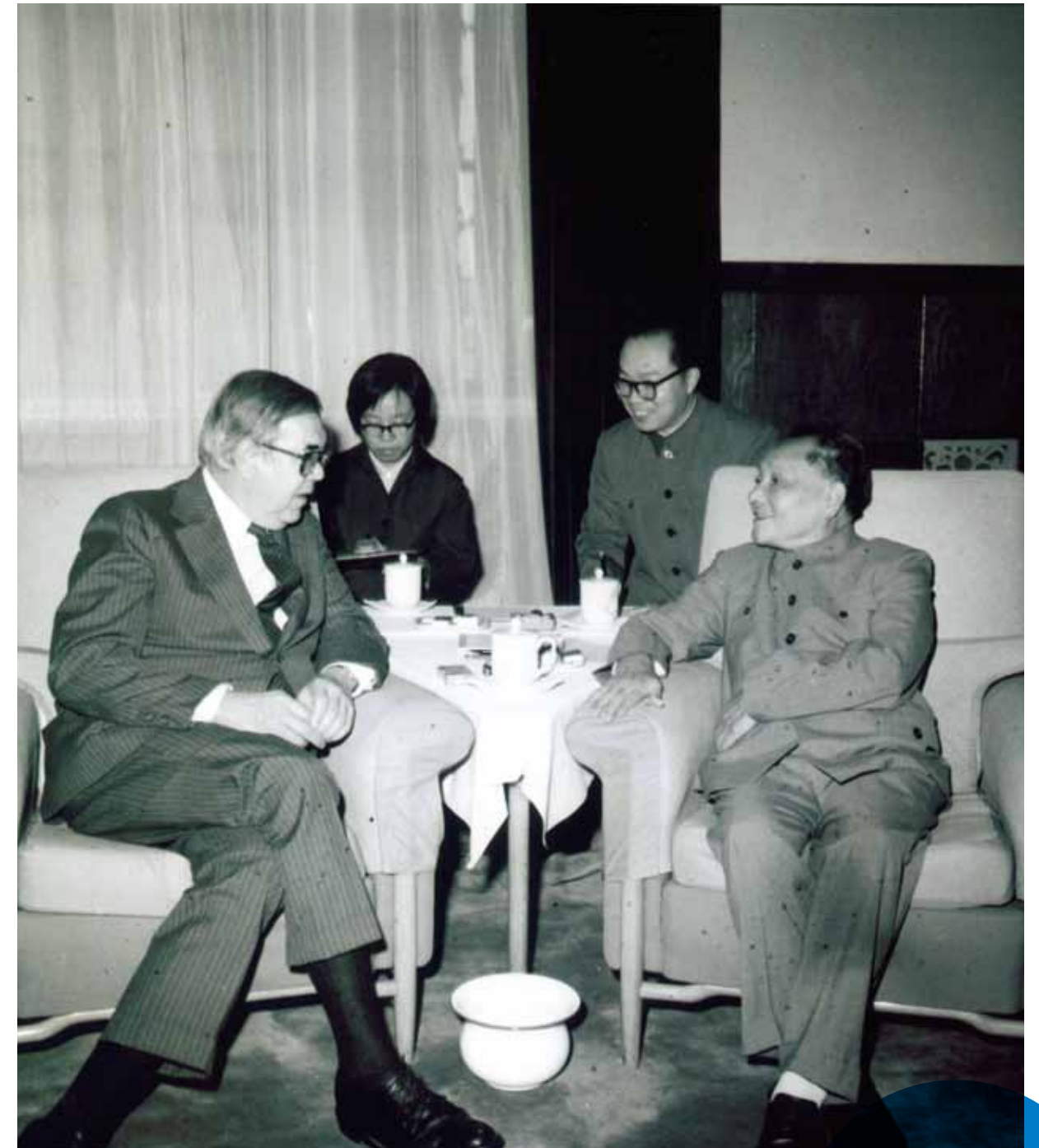
AN EVOLVING PARTNERSHIP

For more than three decades, UNDP has supported the intrinsic economic, social, environmental and political changes that China has gone through. Since 1978, when the Chinese government applied to start receiving technical assistance from UNDP⁹, a conjunction of forces has shaped the UNDP programme in China. These mainly include the Five-Year Plan of the Chinese government, which is the basic framework within which all external development assistance for China is requested, and the international strategies forwarded by the global community in the multilateral arenas. This synchronicity has now developed further. Today, UNDP, drawing on its universal presence in developing countries and its global knowledge networks, is also supporting China's South-South Cooperation.

Energy development has been one of the main axis around which UNDP China projects and programmes have gravitated. This makes perfect sense in a country whose economy has kept an annual growth rate of 8 to 9% for the last 20 years and has focused on economic development since 1970s. Energy is the fuel for economic growth. And in China, economic growth remains fuelled by fossil-based energy. The first two UNDP country programmes (from 1982 to 1990) approached energy development and energy conservation with support for the Chinese goals of economic

development and modernization. From the 1990s on, this sector and its ramifications has been approached within the sustainable development and climate change portfolio. Today, UNDP's climate change programmes in China constitute one of the organization's largest and most diversified climate change portfolios worldwide, with a total budget of US\$ 245 million (2006-2010) and US\$ 422million (2011-2015).

The paths that UNDP China has been through in its climate change and sustainable human development approaches are described in the next section through the lens of "energy". Energy development has been a significant focus of Chinese strategies to address climate change in the pursuit of sustainable development, and consequently, the main focus of the UNDP programmes. Given this, energy is the main focus of this report. China's rapid growth since 1980 has been highly dependent on energy. China is now the world's second largest producer and consumer of energy, behind only the United States, meaning that energy policy is a central factor for any development strategy in China¹⁰. The pursuit of energy efficiency and energy conservancy are approached by the Chinese authorities as, "key strategic measures to achieve China's goals of establishing a resource-saving, environmentally-friendly society and realizing sustainable development"¹¹.



In September 1979, Bradford Morse, former UNDP Administrator and Deng Xiaoping, former Chinese Vice-Premier, reaffirmed a partnership that has lasted for more than 35 years

Building resilience (1981-1985 – 6th FYP)

China's Sixth Five-Year Plan (6th FYP) period (1981-1985) was aligned with the 1970s reforms of pursuing economic growth and modernization. Improving the country's economic and financial situation was the primary goal.

Shaped by its first country programme covering the period 1982-1986, UNDP's assistance was centred on more than 150 projects that attended to the priority areas established by the 6th FYP. All projects followed the principle of self-reliance, which means relying mainly on the country's own effort and seeking foreign assistance as a complementary and subsidiary resource¹². While inputs such as the cost of civil construction and equipment and human resources were provided mostly by the Government, UNDP's contribution was geared toward accelerating development by assisting the relevant Chinese institutions in upgrading their techniques and skills and thus enhancing their capacity for self-reliance.

Energy development and energy conservation were considered a crucial issue in China's national economic development. In 1980,

China's primary energy consumption was 560 million tons of standard coal, ranking it third in the world. The utilization ratio of energy and the thermal efficiency were fairly low in general due to poor management and outmoded technology¹³. In order to support the Chinese goal to improve its energy efficiency, UNDP provided technical assistance and financial support to projects aimed at developing conventional, new and renewable sources of energy. Training and the introduction of advanced conservation and development techniques were prominent characteristics in the projects supported by UNDP.

A special feature of this period was the strengthening of economic and technical cooperation among developing countries (ECDC-TCDC). Over time, this cooperation became stronger and fundamental for the development of current South-South partnerships. UNDP assisted the Chinese government in establishing seven regional centres to facilitate the training in China of specialists and technicians from other developing countries.



Medical experts receive instruction at the Chinese Traditional Medicine Center - one of the seven regional Chinese training centers established with UNDP assistance.

China 6th FYP (1981-1985)	UNDP Country Programme (1982-1986)	UNDP Energy Projects
<p>Primary goal:</p> <p>Strive for a fundamental improvement in the country's economic and financial situation</p> <p>Focus:</p> <p>Economic development and modernization</p> <p>Priority areas:</p> <ul style="list-style-type: none">• Agriculture• Energy development and conservation, especially on correct energy utilization• Human resources development• Infrastructure <p>Energy development and conservation effort:</p> <ul style="list-style-type: none">• Technical innovation• Equipment modernization• Reforms of industrial structure and product composition• Rational utilization of different sources of energy and their economic effectiveness	<p>Priority areas:</p> <ul style="list-style-type: none">• Food production and agricultural productivity• Energy development and conservation• Human resources for development• Infrastructure for development• Promotion of economic and technical co-operation among developing countries (ECDC-TCDC) <p>Activities within the energy sector:</p> <ul style="list-style-type: none">• Development of new and renewable sources of energy• Development of conventional sources of energy• Energy conservation	<p>Technical assistance and financial support to:</p> <ul style="list-style-type: none">• Solar heating and cooling techniques demonstration centre, in the Gansu Natural Energy Research Institute• Experimental wind power station in Zhejiang Province• Prospecting, development and utilization of geothermal resources in Tianjin and Beijing• Oil and gas survey in South Western China• Research centre of thermal energy utilization technology <p><small>* Establishment of seven regional training centres in the areas of biogas, mini-hydro power, sericulture, integrated fish-farming, acupuncture, integrated rural development and primary health care</small></p>

Satiating the thirst for technology (1986-1990 – 7th FYP)

By the second half of the 1980s, the Chinese national economy had begun to develop in a stable and balanced manner, and energy production entered a period of steady growth. Nevertheless, while formulating the Seventh Five-Year Plan (7th FYP) (1986-1990), the government acknowledged that China's technological and infrastructural basis were inadequate for rapid economic and social development. The pace of human resources development and skills training did not match the needs of economic reconstruction. Economic performance was not improving as fast as expected, technological progress had been slow and management and administration were still weak¹⁴.

The national priority was then defined as obtaining access to modern technology, manpower training and intellectual development. Such needs would imply that China should open up to the outside world, which in fact, became the basic policy of the 7th FYP. Between 1985 and 1990, China set out to promote foreign trade and technological exchanges with all other countries, both developed and developing. The total imports and exports were expected to increase by 40 to 50%¹⁵. At the same time, more foreign investment and advanced technology were actively introduced to accelerate China's socialist modernization.

During that period, UNDP – a major source of multilateral technical cooperation grants¹⁶ – was changing the nature of its programmes in order to focus on fewer priority areas and apply a more long-term approach. The programmes were defined in line with the

requirements of national economic and social development and particular characteristics and strengths of multilateral technical assistance. Its activities in China consisted mainly of 1) advanced technology acquisition while making sure that the technologies introduced were adapted, applied, upgraded and standardized; 2) manpower training; and 3) intellectual development. Human resource development, especially in the field of management, became an intrinsic part of all projects in order to enhance the managerial capacity of the relevant government departments, research and service institutions.

The promotion of South-South Cooperation remained a special feature through this period. China worked to strengthen economic and technical exchanges with developing countries, hoping to become more involved in the regional, interregional and global programmes of UNDP.

The UN resolution of establishing the Intergovernmental Panel on Climate Change (IPCC) triggered a series of scientific researches in China to identify the country's vulnerability to the negative effects of climate change. To that end, the Chinese government established an inter-agency group of officials from the State Science and Technology Commission (SSTC), the National Environmental Protection Agency (NEPA), the State Meteorological Administration (SMA) and the Ministry of Foreign Affairs (MFA) to prepare the Chinese scientists and other stakeholders for the UN-sponsored scientific discussions on climate change under the IPCC.



China has the best renewable energy resource endowments in the world

Environmental costs

The political choices and national economic priorities that were transforming the country since the late 1970s, however, neglected the environmental costs and overuse of the natural resource. As Held et. al. (2011) points out, “demand for water, energy and land has skyrocketed; forests has been depleted, resulting in desertification and flooding; water pollution has increased dramatically; and, of course, air quality has diminished as emissions from dirty fossil fuels have risen, increasing particulates in the local atmosphere”¹⁷. The maxim ‘first development, then environment’ was a common refrain throughout the 1980s and much of the 1990s”¹⁸.

Under the influence and awareness raised during the 1972 UN Stockholm Conference, China’s reforms had also led to changes in the political landscape. This paved the way for a small-scale formal environmental protection

apparatus both at the central and local levels in the 1970s and 1980s. However, even with an established basic regulatory framework for environmental protection, China struggled to implement existing policies and fully integrate them into economic development plans and programmes¹⁹.

Although at that time China was investing 0.7% of its GNP on environmental protection, it also suffered about 95 billion RMB of economic losses each year due to environmental pollution, an amount equal to 6.7% of its GNP²⁰. The government then realized that environmental degradation and pollution were constraining economic growth, exerting a significant impact on development, harming public health, and engendering social unrest through the country. China was therefore ready to embrace a new development model – sustainable development.

Launching Sustainable Development (1991-1995 – 8th FYP)

Following a period of two decades that prioritized rapid growth and modernization, opening up to the outside world and reforming its financial and economic systems, China entered the 1990s determined to ensure stable and sustained economic growth. Emphasis was placed on improving performance in a broader sense rather than merely striving for increased production and growth rates.

China had already learned that its development goals could best be pursued by strengthening its linkages with other countries in order to enhance the flow of modern technology, technical and managerial know-how, trade and investment. This policy coincided exactly with the major comparative advantage of UNDP, which is to bring an international dimension to China’s efforts in modernization in a manner that is neutral, multi-sectoral and promotes national self-reliance.

The 1990s also found UNDP advancing its assistance strategy in China. From then on, five key multi-sectoral themes would permeate all UNDP programmes:

- Strengthen management and administrative performance of sectors, individual enterprises and institutions, especially within the programmes dealing with forestry, water, rural and large and medium-sized enterprises and health
- Environment, focusing on development planning. Special attention would be given

to address global issues such as the use of ozone-depleting substances and climate change mitigation and adaptation

- Development of poor areas and minority nationalities
- Increasing the role of women in development, integrating their concerns within the overall programmes rather than isolating them in a separate set of projects
- Technical Cooperation among Developing Countries (TCDC)

In the run-up to the UN Conference on Environment and Development (1992 Earth Summit), UNDP and Chinese environmental and scientific officials organized a series of meetings to raise awareness of the importance of incorporating environmental objectives into China’s plans for economic development. The China Council for International Cooperation on Environment and Development (CCICED) was then launched. Today, it is considered by many Chinese environmental actors as “one of the most prestigious and effective forums for international environmental cooperation”²¹ and for developing recommendations for Chinese leaders.

The Earth Summit raised the Chinese awareness of the importance of sustainable development, the significance of attenuating and preventing environmental pollution, and of introducing pollution control technologies. However, even though 1) a formal

China 7th FYP (1986-1990)	Chinese National Policies	International Arena	UNDP	UNDP Energy Projects
<p>Primary goal:</p> <p>Open up to the outside world, obtain advanced technology and attract foreign investment to accelerate modernization</p> <p>Focus:</p> <ul style="list-style-type: none">• Establish the foundation for a new socialist economic structure- Promote scientific and technological progress and intellectual development• Improve economic efficiency <p>Priority areas:</p> <ul style="list-style-type: none">• Agriculture• Natural resources• Energy• Transport• Industry• Population• Health <p>Energy development and conservation effort:</p> <ul style="list-style-type: none">• Expand energy production with emphasis on increasing electric power• Develop thermal and hydropower resources and build nuclear power stations• Conservation will be emphasized along with exploitation	<ul style="list-style-type: none">• 1989 – The National People’s Congress formally promulgated the Environmental Protection Law (1979)• 1990 – National Climate Change Coordination Leading Small Group is established, chaired by China Meteorological Administration	<ul style="list-style-type: none">• 1988 – Intergovernmental Panel on Climate Change (IPCC) is established• 1989- Montreal Protocol On Substances that Deplete the Ozone Layer enters into force	<p>Focus:</p> <ul style="list-style-type: none">• Technology acquisition and assistance• Manpower training <p>Priority areas:</p> <ul style="list-style-type: none">• Human resources development• Technical transformation of existing industries• Development of advanced technology• Improvement of living standards• Application of electronic information technology <p>Activities within the energy sector:</p> <ul style="list-style-type: none">• Demonstrate technical transformation in the power industry and coal mines• Assistance in oil and gas resource exploration• Help the preparation of coal-water mixture and nuclear power safety regulations• Provide manpower training in nuclear power as well as in energy conservation	<ul style="list-style-type: none">• Demonstrate the technique of preparation of the coal-water mixture• Assist the Institute of Engineering Thermophysics in developing improved turbo machine technology to achieve energy conservation• Technical assistance to the National Nuclear Safety Administration to build up the capacity for nuclear safety administration and formulate safety codes of the nuclear power plants• Support to assist the Beijing Solar Energy Research Centre in the development and demonstration of vacuum solar collectors to supply heat for industrial processes• Assistance in marine engineering geological investigation in the Pearl River Mouth Basin of the South China Sea• Provide access to modern electric light source technology etc.

environmental protection apparatus has been implemented in the country since the 1970s; and 2) the Chinese government had decided to increase the environmental protection from 0.7% to 1% of GNP in the coming decade, there was no coordinated action among the environmental authorities.

China was in urgent need of elaborating a comprehensive sustainable development strategy. Immediately after the Earth Summit, the government decided to formulate its

national Agenda 21, as well as to develop an Action Plan for its implementation, including a resource mobilization strategy. To support this decision and to accommodate the results of the Earth Summit, the Chinese government’s Eight Five-Year Plan (8th FYP) (1991-1995) and the UNDP programme framework undertook a mid-term adjustment, putting in place respectively the needed political instruments and programmes to implement the sustainable development strategy.

Operationalizing China’s Agenda 21

UNDP had been recognized for its unique expertise and experience in the area of capacity building for sustainable development. The Global Agenda 21 itself identified UNDP as having a major role in its implementation, particularly with respect to capacity building. In China, UNDP strengthened the capacity of the country to formulate and implement the national Agenda 21, and to develop and integrate the Chinese sustainable development plan into the economic and social plans at the national and sub-national levels²². Moreover, UNDP was responsible to mobilize donor resources. China was clearly expecting UNDP to employ

its resource mobilization strategy of donor round-table mechanism to seek funding for high priority projects identified in the ‘Action plan for implementing the China’s Agenda 21’. As academic Elizabeth C. Economy explains, “UNDP provided financial support, offered international expertise, reviewed the proposed priority projects and arranged the international donor meetings”²³.

The employment of a sustainable development strategy requires an extremely effective management system, in which capacity building for management and decision-making is crucial. Through its Agenda 21 projects, UNDP provided advice and training to the State Science and Technology Commission (SSTC), the then State Planning Commission (SPC), the Administrative Centre for China’s Agenda 21, and the Agenda 21 Leading Group and Working Group. The aim was to strengthen the capacity of the Chinese government to plan and promote sustainable development on a continuous basis. Specific activities under this project included, for example, training courses for officials from various central ministries and provincial governments, as well as high-level workshops for senior government officials.

UNDP projects also provided a series of reviews and recommendations on key technical and sectorial areas of the draft Agenda 21, including, legislation on sustainable development, comprehensive energy planning, management of natural resources, and waste management²⁴. The programme also supported the development of the ‘Action Plan for Implementing China’s Agenda 21’. The second phase of the UNDP capacity building programme helped strengthen China’s capacity to integrate its Agenda 21 into its economic and social development plans, particularly in the Ninth Five-Year Plan (9th FYP) (1996-2000).

Within one year of the Earth Summit, China became the first country to have its own national Agenda 21 and establish an action plan to promote sustainable development. China’s Agenda 21 was adopted by the State Council of the People’s Republic of China on 25 March, 1994. One year later, in 1995, the UNDP-sponsored programme ‘China’s

Sustainable Development Network’²⁵ (SDN) was established. This network was designed to facilitate access to information sources worldwide relevant to sustainable human development in all sectors of the society. China also used the SDN to broaden its sources of funding for environmental programmes and promote its Agenda 21.

At the time of the elaboration of its national Agenda 21, China had evolved in its scientific knowledge regarding the potential negative effects of climate change to its society and economy. Following the pattern of the Global Agenda 21, China’s Agenda 21 did not have a specific chapter on climate change. However, in Chapter 18, a section deals with ‘Controlling Greenhouse Gas Emissions’, and another with ‘Climate Change Monitoring, Forecasting and Service Systems’. This shows that climate change had become an important political and economic issue in China.

China 8th FYP (1991-1995)	Chinese National Policies	International Arena	UNDP	UNDP Energy Projects
<p>Primary goal: High and sustained economic growth, and further opening up to the outside world</p> <p>Focus: Sustainable development, environmental protection, pollution control technologies, development of science and technology</p> <p>Priority areas:</p> <ul style="list-style-type: none">• Strengthening agriculture• Enhancing basic industries and infrastructure• Readjusting and transforming processing industries• Strengthening education, science and technology <p>Energy development and conservation effort:</p> <ul style="list-style-type: none">• Raise efficiency and reduce negative environmental effects associated with the coal industry	<ul style="list-style-type: none">• 1991- China hosts the Ministerial Conference of Developing Countries on Environment and Development, which resulted in the Beijing Declaration, delivered at the 1992 Earth Summit• 1992- Leading Group for China’s Agenda 21 is set up• 1992 – China Council for International Cooperation on Environment and Development (CCICED) is launched• 1993- The Administrative Centre for China’s Agenda 21 (ACCA21) is established• 1994- ‘China’s Agenda 21 – White Paper on China’s Population, Environment and Development in the 21st Century’ is adopted• 1995- New Energy and Renewable Energy Development Outline 1996-2010 is issued• 1995- Air Pollution Prevention and Control Law is amended• 1995 – Over half of China’s provinces, municipalities and autonomous regions had formed their respective leading groups for China’s Agenda 21	<ul style="list-style-type: none">• 1992- UN Conference on Environment & Development, also known as Earth Summit• 1992- UN Framework Convention on Climate Change (UNFCCC) is opened for signature• 1994- UNFCCC enters into force	<p>Priority areas:</p> <ul style="list-style-type: none">• Rural economic development and production• Energy, transport and tele-communications• Industrial productivity• Social development and environment• Economic and public administration reform and management <p>Activities within the energy sector:</p> <ul style="list-style-type: none">• Environmental and efficiency aspects of coal• Energy efficiency, pricing and conservation	<ul style="list-style-type: none">• Improve planning, allocation and distribution of coal nationwide; improved occupational safety at the site of coal extraction; and pollution reduction and improved efficiency through the introduction of techniques• Policy research and management aspects of the energy sector, particularly the development of medium- and long-term plans for energy production and utilization• Adoption of rational pricing policies• Energy transportation• Labour productivity and economic efficiency in energy production plants• Development and application of laws and regulations relating to the energy sector <p>* Targeted industries: Power generation plants, steel mills, ceramics factories, and the industrial materials manufacturing industry</p>



UNDP had a major role in the development of China’s Agenda 21, especially in the arrangement of international expertise and donor meetings

Following a SHD Orientation (1996-2000 – 9th FYP)

The formal apparatus to implement a sustainable development path in China was already in place. Within the overall framework of the country’s Ninth Five-Year Plan (9th FYP) (1996-2000), the priority policies and programmes for sustainable development were defined by the ‘Agenda 21: White Paper on China’s Population, Environment and Development in the 21st Century’. In this policy, strengthening the energy sector was a top priority for the Chinese leadership.

In 1996, the first year of the 9th FYP, China had reached the position as the second largest energy user in the world after the United States, a ranking that is still held today. Fossil fuels provided 94% of the commercial energy in China (coal was the primary source amounting to 80%), having a heavy toll over the Chinese environment, notably through air pollution but also with increasing water and even land pollution²⁶.

The Chinese energy consumption was growing at an average annual rate of over 5% per year compared to the annual GDP growth rate in the range of 10% since 1985. In 1999, it was said that based on the current Chinese volume of CO₂ emissions, China would probably surpass that of the United States within 10-15 year and be the world’s largest source of greenhouse gases by 2015. The forecast became a reality eight years in advance, in June 2007, when China overtook

the U.S. as the biggest producer of carbon dioxide.

China, as a member of the UNFCCC, was in the process of formulating policies to address global climate change concerns. The National Climate Change Coordinating Leading Small Group (NCCCLSG), which since 1990 was responsible for the coordination of the Chinese climate policy, was moved in 1998 from the State Meteorological Administration into the National Development and Reform Commission (NDRC). Since NDRC is universally considered to be the most powerful comprehensive commission (the highest ranking administrative unit in China) under the State Council, this shift signalled a significant change in Chinese policy. “Officially shifting responsibility for climate change to the NDRC meant that climate change was no longer being treated as a purely scientific question, but as a highly sensitive political and economic issue”, analyses Held et. al. (2011)²⁷.

Several studies urged the implementation of programmes to increase energy conservation and efficiency, including a UNDP/World Bank/Government report on ‘Issues and Options for GHG Emissions’, funded by the Global Environment Facility (GEF), and a similar report by the Asian Development Bank. They demonstrated that minor assistance to the energy sector could make a significant difference to the

make-up of the sector in the near future. As a UNDP document points out, “By strategically helping to level the playing field, international assistance could release the potential of renewable energy and make a big difference to China’s environment and GHG emissions”²⁸.

China had gotten the message. They made sure that energy efficiency in the electricity sector was prominently included in a number of strategy documents, such as the China’s 9th FYP and China’s Agenda 21. Notably, in November 1997, the National People’s Congress approved the ‘Energy Conservation Law’ to promote energy conservation by all sectors of the society, especially within the construction sector and the major energy-consuming industries. The law also aimed to increase energy use efficiency. It stipulated the formulation and promulgation of energy efficiency labelling of products that were widely used and of those that consumed large amount of energy, including household

appliances. The law also determined the next step should be to produce a list of energy-saving products and equipment for government procurement.

In relation to renewable energy, the 1997 law specified that the State would encourage and support aggressive development of biomass, solar and wind energy, development of small-sized hydraulic power generation, and the popularization of energy-saving rural residential houses and kitchen ranges. Indeed, in a country that has the best renewable energy resource endowments in the world²⁹, the development of renewable energy in China could help mitigate the growing local environmental and health concerns associated with pollution from fossil fuel energy sources, as well as answer global concerns. Additionally, renewable energy sources could promote socio-economic development in remote or poor areas, which had no access to the electricity grid.

Interrelated concerns

International assistance to the energy sector had been a priority in China over the 1990s. Within the framework of UNDP’s environment and energy programme, there were several projects being developed that were aimed at both supply and demand management. For the supply side, UNDP implemented projects with a market-oriented approach such as ‘Removal of barriers and capacity building for rapid commercialization of renewable energy in China’ (1999-2008). For the demand side, UNDP, under the Montreal Protocol, implemented eight projects for CFC replacement in the refrigerator sector (1999-2006), that focused on energy efficient, CFC-free refrigerators as a component of the National Plan of Environmental Protection for China.

The UNDP strategy for both projects pursued the objectives of ‘policy, demonstration and capacity building’, but now followed a sustainable human development (SHD) orientation. The new projects were designed, where appropriate, to incorporate upstream SHD policy interventions, downstream demonstration of improved national programme implementation approaches, and capacity building to ensure maximum national self-reliance with respect to both upstream and downstream work.

Despite the substantial progress achieved since the launching of the Chinese economic reforms and opening up to the outside world in 1978, from an SHD perspective major economic and social problems persisted

and new problems had emerged. Poverty had persisted in the remote regions of the Western part of the country. Meanwhile, new sources of poverty had arisen in urban areas, as a product of the rapidly shifting economic and social landscape. Unemployment had increased despite the unprecedented growth rates. Environmental deterioration had become acute owing to lack of attention to the subject prior to 1978, the pressures of rapid economic growth since then, a continued reliance on coal-based energy, and severe shortages of fresh water and the lack of protection of the available water supply.

UNDP took the approach that China’s fundamental poverty, unemployment, environmental degradation, women’s marginalization and economic transition concerns were all interrelated; and they should be tackled within the framework of a comprehensive SHD strategy, as it was stated in the first UNDP National Human Development Report undertaken in China (1997). Despite the large flow of foreign aid and investment into China (in 1995, approximately US\$ 3 billion and US\$ 35 billion, respectively), the Chinese government recognized a continuing unique role for UNDP in supporting national development,

especially in SHD areas. After all, UNDP remained the largest United Nations system donor, with core and non-core assistance of US\$ 35 million annually³⁰.

UNDP, through resource mobilization and capacity building, was also working on supporting the 9th FYP goal that all levels of government, including provincial and municipal, should prepare and implement Agenda 21 sustainable development strategies, consistent with local conditions and requirements. Moreover, UNDP supported China’s Agenda 21 priority programme projects that concerned policy, programme formulation, legislation, education and demonstration of sustainable development practices. Within the UNDP upstream policy intervention approach, special attention went to the incorporation of strategies to promote sustainable small town development and small and medium enterprise development into the Tenth Five-Year Plan (10th FYP) (2001-2005). This UNDP proposal was critical to help China absorb surplus rural labour.

In addition, UNDP continued to be an important multilateral vehicle by which China could share its development information and its best and replicable practices with other developing countries. At the same time, China was prepared to utilise the relevant experiences from other countries in the South. This could be accessed through the technical cooperation among developing countries (TCDC) instruments that included compilation of best practices, subject specific workshops, capacities and need matching exercises, twinning and networking arrangements etc.

Pursuing Sustainable Human Development

Human development is the expansion of people’s freedoms and capabilities to lead lives that they value and have reason to value beyond the satisfaction of essential needs. It is about living long, healthy and creative lives; and to engage actively in shaping development equitably and sustainably on a shared planet³¹.

are essential to expand those choices. Sustainability is the effort to enable future generations to have at least the same possibilities as people today. Similarly, all inequitable processes are unjust: people’s chances at better lives should not be constrained by factors outside their control. Inequalities are especially unjust when particular groups, whether because of gender, race or birthplace, are systematically disadvantaged.

This perspective has led UNDP to formulate the concept of ‘Sustainable Human Development’ as “the expansion of the substantive freedoms of people today while making reasonable efforts to avoid seriously compromising those of future generations”³².

China 9th FYP (1996-2000)	Chinese National Policies	International Arena	UNDP	UNDP Energy Projects
<p>Primary goals:</p> <ul style="list-style-type: none">• Quadruple the per capita GNP (base year 1980)• Raise the people's living standard, with poverty practically eradicated• Expedite the formulation of a modern state enterprise system and establish a socialist market system• Improve efficiency in the allocation efficiency of resources, advance technological progress so as to achieve sustainable economic and social development <p>Government priorities:</p> <ul style="list-style-type: none">• Contain inflation• Curb unemployment• Reduce the adverse social effects resulting from high growth <p>Two shift strategies:</p> <ul style="list-style-type: none">• From traditional planned economy to a socialist market system• In economic growth, from ‘extensive mode’ to ‘intensive mode’, stressing quality, efficiency and productivity <p>Energy development and conservation effort:</p> <ul style="list-style-type: none">• Increase the supply of energy• Promote greater energy efficiency and conservation on the demand side	<ul style="list-style-type: none">• 1996 – PRC Electricity Law• 1996- PRC Coal Law• 1996- State Economic and Trade Commission, State Development and Planning Commission, and State Science and Technology Commission released the “Program on New and Renewable Energy Development in China (1996-2010)”• 1997- PRC Energy Conservation Law• 1998- National Climate Change Coordinating Leading Small Group (NCCCLSG) is moved to the National Development and Reform Commission (NDRC)	<ul style="list-style-type: none">• 1997- Kyoto Protocol is formally adopted at COP3• 1998 - China signs the Kyoto Protocol• 2000- The Millennium Development Goals (MDGs) are officially established following the 2000 Millennium Summit	<ul style="list-style-type: none">• 1997 UNDP China Human Development Report: “Human Development and Poverty Reduction”• 1999 UNDP China HDR: “Transition and the State” <p>SHD priority thematic areas:</p> <ul style="list-style-type: none">• Poverty elimination• Sustainable agriculture and food security• Economic reform, employment and governance• Environment protection and energy efficiency• Social development including health and education <p>Activities within the energy sector:</p> <ul style="list-style-type: none">• Enabling energy policy for sustainable development• Supply-side support for clean coal and other energy technology• Demand-side management and pollution control• New and renewable energy in poor areas	<ul style="list-style-type: none">• Capacity building for rapid commercialization of renewable energy in China (1999-2008)• Barrier removal for the widespread commercialization of energy-efficient CFC-free refrigerators (1999-2006)• China’s Green Light Programme• Management and energy efficiency in the electric power industry• Capacity development for fuel cell powered buses development and in commercialisation China



UNDP energy programme has promoted market transformation in China, starting at the production line of CFC-free refrigerators to targeting changes in consumers’ behaviour through awareness campaigns

Governance for Sustainable Development (2001-2005 – 10th FYP)

The 21st century met a China that was already harvesting remarkable progress toward reaching the international targets established by the Millennium Development Goals (MDGs). Underway for almost 25 years, its strategy of economic reform and opening up to the outside world was delivering amazing results. The proportion of the absolute poor (those subsisting on US\$ 1 per day or less) was reduced from 31.5% of the total in 1990 to 11.5% in 2000, considerably lower than the MDG of halving the numbers of absolute poor by 2015. Access to primary education was 99.1% in 2000, well on the way to reaching the target of providing universal access by 2015³³.

However, it was becoming even more apparent that China's rapid economic growth came with a high level of environmental degradation and depletion of natural resources. Several environmental protection laws, standards and regulations had been passed, but enforcement remained a challenge. Social disparities also remained to be confronted. In the 2000 Human Development Report, China was listed in 99th place with an overall Human Development Index (HDI) of 0.706. Provincial-level HDIs highlighted the economic disparities between the Western and Coastal regions of the country³⁴.

Facing these challenges the Chinese government, through its Tenth Five-Year national economic and social development plan (10th FYP) (2001-2005), established the tasks of increasing social investment, restoring the environment, promoting growth with equity and reducing disparities between regions, between urban and rural communities and between men and women. These goals were planting the seeds to the Chinese vision of 'Xiaokang'; the national development strategy toward an all-around well-adjusted society that was to be officially formulated and launched in the next Five-Year Plan.

As a strategic partner of the Chinese government in the promotion of sustainable human development, UNDP was tasked with moving up to the policy level and strengthening the convergence with UN Millennium Goals. Good governance and economic reform were leading themes. Priority was given to the removal of barriers for development of renewable energy sources, addressing climate change, promoting cutting-edge technology development and providing advice to major national partners in the formulation of environmental policies and legislation.

Good governance was on the top of the agenda. As a result of a series of severe energy shortages and blackouts that began in 2002, the Chinese government was shocked into an effort to improve governance capacity³⁵. The country was also expected to become a member of the World Trade Organisation (WTO) in the early stages of its 10th FYP. While this would require substantial structural adjustment across a wide range of institutions and sectors, it would also "provide the world's most populous country with unprecedented access to world markets", as analysed in the 2002 China Human Development "Making Green Development a Choice".

UNDP support in the area of governance centred on key leverage points for the transformation process. These areas included the justice system; the Western Development Initiative for the Western provinces; the development of small towns as absorbers of surplus rural labour; the preparation of the labour market for new jobs; and increasing the understanding and awareness of the new market economy and WTO implementation rules and regulations by key officials at the national level and in the Western provinces.

Shaping economic growth

Moreover, the Chinese government's decision to approve the Kyoto Protocol in 2002 also demanded a strengthening of the structures of climate and energy governance. In that setting, the UNDP climate and energy-focused programmes were technical and political leverage for the Chinese government to establish policies and targets in an effort to control GHG emissions, improve energy efficiency and conservation, and encourage the use of renewable energy.

The UNDP projects also provided a practical base for the formulation of the 2004 "China Medium- and Long-term Energy Conservation Plan" by the National Development and Reform Commission (NDRC), while it was formulating the 'Energy Development Program Outline for the Medium- and Long-Term'. The Chinese government took the decisive step to change the economic growth pattern and realize the strategy of sustainable development, while confronting energy and climate change concerns.

The Chinese government developed a 4-phase, 12-year strategic plan to dramatically improve the efficiency of its major end-use sectors, buildings and industry. To support the first phase (2005-2007) of the plan, UNDP designed the programme "China End Use Energy Efficiency Project (EUEEP)". Phases 2-4 would focus on expanding the scope of the policies, standards, enforcement, and outreach activities in buildings, industry, transportation, and other end-use sectors.

The project's purpose was, firstly, to assist in the elaboration of an energy conservation policy and regulatory system consistent with the objectives of the 'Energy Conservation Law' of 1998. Secondly, it aimed to remove barriers to the widespread application and practice of energy conservation and energy efficiency in the major energy consuming sectors, especially in 'buildings' (in Beijing, Shanghai, Shenzhen, and Chongqing) and in the 'industrial sector' (iron, steel, cement and petrochemicals). The

'Energy Efficiency Benchmarking Guideline for Energy-intensive Industry' that covered general, cement, iron and steel, and chemical sectors was one of the project's results. It was published and disseminated to the top 1000 energy-intensive industrial enterprises.

Another subject of the 'China Medium- and Long-term Energy Conservation Plan' was that technological progress is fundamental to promote energy conservation. Even though China and UNDP had developed, introduced and disseminated a large number of new technologies, new processes and new equipment on energy conservation, investment as a whole had been insufficient, and thus the ability for innovation remained weak. The Clean Development Mechanism (CDM), at that time yet to be implemented by the Kyoto Protocol, was perceived by some key Chinese officials in the NDRC as a potential conduit for technologies and investments into the Chinese economy. Participating in the CDM projects would also allow China to demonstrate its commitment to action on climate change, while



UNDP programme
"China End Use Energy
Efficiency Project" supports
the practice of energy
conservation and energy
efficiency in major energy
consuming sectors

remaining free of any binding obligations to specific emissions reduction targets.

The Chinese government had already adopted a wide range of policies to restructure its energy sector. This encouraged improved energy efficiency and greater use of renewable energy. These substantial opportunities for shifting away from low-efficiency coal technology created considerable potential for reductions projects of low-cost GHG emissions through CDM. However, the implementation of the CDM in China required the development of sufficient capacity in order to manage the financial, technical and legal issues that were associated with CDM projects.

The UNDP programme, 'Building Capacity for the Clean Development Mechanism in China' (2003-2006), was designed to strengthen the ability of government institutions to implement procedures that would enable Chinese industry to gain smooth approval for suitable CDM projects. The programme provided stakeholders with the skills and knowledge needed to enable CDM projects to be developed in China, while offering 'learning by doing' opportunities through on-the-ground pilot activities. By encouraging investment and stimulating technology transfer of low carbon emission technologies, the CDM has been an important instrument that has assisted China in meeting its sustainable development goals, whilst helping to limit GHG emissions.

This UNDP programme was an immediate success, and in fact, it continues to produce benefits. The programme selected three pilot projects to "prove that CDM was 'real' and that has triggered an impressive number of follow-up projects"³⁶. The Huitengxile wind-farm became the first registered CDM project from China with the Executive Board of the UNFCCC, and the first registered wind-farm project in the world. The 'Taishan Huafeng

Cement Works Waste Heat Recovery and Utilization for Power Generation Project' was the first registered energy efficiency CDM project from China with the Executive Board of the UNFCCC. It also formed the basis for an approved CDM methodology AM0024. The 'Huainan Pansan Coal Mine Methane Utilization and Destruction Project' was one of the first projects that submitted methane baseline methodology and monitoring methodology in the world. Another key output of this project is the establishment of a China Climate change Info net, China's official website and platform for climate change information. <http://www.ccchina.gov.cn/en>

These pilot projects have brought significant replication impact of CDM projects development in later stages in China. The fourth climate change White Paper that China released in 2011 states that: "By July 2011, China had approved 3,154 CDM projects, mainly focusing on new energy and renewable energy, energy conservation and the enhancement of energy efficiency, methane recycling and reutilization and other areas. A total of 1,560 Chinese projects have been successfully registered with the UN CDM Executive Board, accounting for 45.67% of the world's total registered programs, and their estimated certified emission reductions (CERs) have reached an annual issuance volume of 328 million tons of carbon dioxide equivalent, accounting for 63.84% of the world's total, providing valuable support for the implementation of the Kyoto Protocol"³⁷.

In both programmes, UNDP adopted the strategy of designing downstream projects to produce results that would feed into policy making. Selected projects were then used to illustrate the efficacy of tentative policies before they were adopted nationwide. UNDP cooperation had thus effectively moved up to the policy level.

Showcasing China

The partnership between UNDP and China has been very successful in securing access to global financing windows, especially regarding the Global Environment Facility (GEF) and the Montreal Protocol (MP) funds. The reason is that the country is very efficient in implementing projects and achieving good results, as the programmes' evaluations confirm. As the largest public funder of projects to improve the global environment, GEF has been approached by UNDP and China since 1994. Specifically for energy and climate change projects in the country, since 1999, UNDP has obtained US\$ 127 million in grants as a counterpart for a budget of US\$ 322 million in co-financing from the Chinese government. The UNDP China portfolio for GEF5 (2010-2014), which is currently under development, is expected to reach US\$ 50 million in total, including biodiversity and climate change projects. UNDP China is also accessing the Montreal Protocol funds for a second round now. For the current period of 2011-2015, grants received until now amounted to nearly US\$ 73 million, whereas the total grants received since 2004 amounted to US\$ 130.6 million.

UNDP is one of the implementing agencies enabling resources accessed from the MP and

the GEF in China. Aside from the Foreign Economic Cooperation (FECO) under the Ministry of Environment Protection, which manages China's work under the Montreal Protocol, UNDP works with the National Development and Reform Commission (NDRC) and other Ministries on GEF financed climate change projects. Utilizing resources from the MP, GEF and other funding, UNDP and its partners, the Ministry of Agriculture, Ministry of Science and Technology, Ministry of Industry and Information Technology, and China National Institute of Standardization, just to quote a few, are the frontrunners in implementing climate change mitigation and adaptation strategies in China. They are also frontrunners in mainstreaming climate change into China's development agenda. These projects developed by UNDP and its partners have also actively forged a new development model that is both low-carbon and sustainable.

In a 'joint venture' that has lasted now for more than three decades, an easy communication flow, resilient cooperation and strong political support between UNDP and its partners, are pointed out as the main reasons for the effective outcomes

of the climate change and energy projects implemented in the country. At the same time, these results have worked as a positive reinforcement for UNDP and China to assure access in the global funds.

That is also why it is so important for UNDP and China to showcase, in the global arena and especially within the climate change negotiation platforms, what is actually happening in the country. During the last UN Framework Convention on Climate Change (UNFCCC) annual meetings of the Conferences of the Parties (COP), UNDP China has promoted side events with its national counterparts to give more visibility to the projects that are being developed in the country both related with mitigation and adaptation. These events have also had a positive effect as they demonstrate the cooperation between UNDP and different Chinese departments and ministries, particularly NDRC. It also opens up space for China to highlight how it has mainstreamed climate change into its development and economic policy making. After all, UNDP has been China's partner in writing its sustainable development history since the country opened up to the outside world.

UNDP has promoted side events with its Chinese counterparts during the UNFCCC Conference of the Parties to reaffirm the mutual cooperation. Here, Helen Clark, UNDP Administrator and Zhao Baige, former Vice-Minister of the National Population and Family Planning Commission of China, at the Cop15, in Copenhagen, Denmark



Pursuing energy efficiency (2006-2010 – 11th FYP)

China 10th FYP (2001-2005)	Chinese National Policies	International Arena	UNDP	UNDP Energy Projects
<p>Primary goals:</p> <p>Rapid growth with equity across regions and between population groups</p> <p>Government priorities:</p> <ul style="list-style-type: none">• Globalization and WTO entry• Maintain rapid economic growth through continued restructuring and reform of the economy• Increase employment opportunities and the living standards of the Chinese people in both rural and urban areas• Reduce disparities between regions, between urban and rural communities and between men and women• Deepen reform of the state• Enhance the rule of law and democracy <p>Energy development and conservation effort:</p> <ul style="list-style-type: none">• Promote energy conservation• Improve energy efficiency• Encourage the use of renewable energy• Encourage the development of clean energy technologies in order to foment the CDM market• Improve effort to control GHG emissions	<ul style="list-style-type: none">• 2001- China becomes a member of the World Trade Organization (WTO)• 2002- China approves Kyoto Protocol• 2003- National Coordination Committee on Climate Change (NCCCC) is established by the State Council, chaired by NDRC, replacing NCCCLSG• 2003- Law on the Promotion of Clean Production is implemented• 2003- Law on Environment Evaluation and Assessment is implemented• 2004- Medium- and Long-Term Energy Savings Plan• 2004- China's Initial National Communication on Climate Change is presented at COP10• 2005- Measures on the Operation and Management of CDM projects are issued	<ul style="list-style-type: none">• 2005- Kyoto Protocol enters into force• 2005- The first Meeting of the Parties (MOP-1) to the Kyoto Protocol• 2005- Large Cities Climate Leadership Group, the C40 is founded• 2005- Asia-Pacific Partnership on Clean Development and Climate is founded	<ul style="list-style-type: none">• 2002 UNDP China HDR: “Making Green Development a Choice”• 2005 UNDP China HDR: “Development with Equity” <p>Priority areas:</p> <p>Governance and economic reform</p> <p>Priority thematic areas:</p> <ul style="list-style-type: none">• Reforms and governance• Poverty reduction• HIV/AIDS and social development• Sustainable environment and energy development <p>In all three thematic areas there is increased use of information communication technology (ICT) for development, and gender concerns cut across all programme areas</p> <p>Activities within the energy sector:</p> <ul style="list-style-type: none">• Environmental governance that emphasizes building national capacity in implementing policy, legal and regulatory measures• Capacity development to negotiate and implement global environmental commitments	<ul style="list-style-type: none">• China End Use Energy Efficiency Project – Phase 1. 12-year strategic plan, 4 phases• Building Capacity for the Clean Development Mechanism in China – 2003-2006

The elaboration of the Eleventh Five-Year national economic and social development plan (11th FYP) (2006-2010) demanded a visionary exercise from Chinese leaders. The country was at an intermediate stage of industrialization and in a crucial period toward the target of building ‘a moderately prosperous society in all aspects’ before 2020. Advocating the ‘scientific concept of development’³⁸, the government identified the ‘five balances’ to strive for: between urban and rural, between different geographical regions, between economic and social, between people and nature and between domestic development and opening-up beyond China’s borders. The pursuit of Xiaokang, an all round, moderately prosperous and harmonious society, was at the centre of the 11th FYP.

In accordance with the requirement of carrying out the ‘scientific approach of development’, the 11th FYP actively addressed climate change as a long-term mission for realizing the Chinese sustainable development strategy. It fundamentally guarantees that China can carry forward the work of addressing climate change in an all-round way. Within the Chinese framework, climate change is “an issue involving both environment and development, but it is ultimately an issue of development”³⁹. As such, it also represented a strategic opportunity to step up efforts to develop a green, low-carbon and circular economy.

China's economy is one of the fastest growing in the world, with an average GDP growth of 9.4% over the past two decades. This sustained growth has resulted in unprecedented progress in reducing poverty and in dramatic improvements in the lives of people. Even though sharp variances in the levels of development exist, none of the 31 provinces, autonomous regions and municipalities in China belongs to UNDP's ‘low human development’ category⁴⁰. The Xiaokang challenge has translated this growth into broad-based sustainable development by making it more pro-poor, pro-environment and pro-women.

However, there is a major obstacle in the middle of this path. Climate change has generated many negative effects for China's economic and social development. This poses a major challenge to the country’s sustainable development and represents even greater threats for the future if left unaddressed. In an effort to mitigate and adapt to climate change, the main focus of the 11th FYP was therefore to: accelerate the transformation of the Chinese economic development model, control GHG emissions by promoting industrial restructuring, energy reorganization and energy conservation, improving energy efficiency, optimizing the energy mix, and increasing carbon sink.

In 2006, China set forth the goal of reducing its per-unit GDP energy consumption in 2010

by 20% (or 4% annually) from that of 2005. In 2007, China became the first developing country to formulate and implement a national program to address climate change – the same year that the country overtook the United States and became the world's biggest CO₂ emitter. The Renewable Energy Law (effective from 2006) established the target to increase the share of renewable energy to some 10%; another plan was to cover roughly 20% of the country's land with forest. In 2009, China launched its goal of reducing the per-unit GDP greenhouse gas emission in 2020 by 40-45% as compared to that of 2005⁴¹.

In order to effectively implement the National Climate Change Programme (NCCP), the provincial-level governments were charged with the task of organising local responses to climate change. UNDP 'Provincial Programmes for Climate Change Mitigation and Adaptation in China' (2009-2010), implemented in parallel with the 'UN Climate Change Partnership Framework (CCPF) Programme'⁴², assisted the local governments in translating the NCCP into provincial climate change strategies tailored for the local reality of each province. It included on-the-ground action plans by developing local policies, institutional frameworks,

partnerships and implementation capacities with a comprehensive consideration on both mitigation and adaptation. As a result of this UNDP project, all Chinese provinces formulated a provincial-level climate change programme. Moreover, UNDP directly supported the establishment of China's first national climate change think-tank, as well as sub-national climate agencies which would contribute to implementation of the 11th FYP and the meeting of its targets.

China's NCCP also identified the need for international cooperation on climate change. China especially sought technology transfer and cooperation and capacity building. Among others, it sought the capacity building which was necessary for developing national communications to the UNFCCC.

The UNDP programme 'Enabling China to Prepare its Second National Communication to the UNFCCC' (2007) strengthened the procedure of China's National Communication process and its links with national development priorities. The programme built the capacity for the development of a more comprehensive national greenhouse gases (GHG) inventory. The resulting report of extended categories and sources of GHG emissions was instrumental for China's 2009 pledge to reduce its carbon intensity by 40% to 45% by 2020. It improved the statistical system and the data quality of emissions factors, and optimized the GHG emissions calculation methodology. The UNDP programme also established a preliminary national GHG inventory database management system, making the preparation of GHG inventories a continuing process. It developed GHG emissions scenarios and strengthened the assessment of the impacts of and vulnerability to climate change. Moreover, through the dissemination of China's relevant policies and measures to address climate change, the UNDP programme was capable of enhancing the Chinese public awareness on climate change.

Harvesting results

With the country mobilized to take actions against climate change at both the national and local levels, soon the 11th FYP targets of energy conservation and emissions reduction for each region and sector started to be reached. The energy consumption per unit of GDP dropped by 10.1% in 2008 compared to 2005, further decreased by 3.35% in the first half of 2009 compared to the first half of 2008, representing a total reduction of 670 million tons of CO₂⁴³.

In terms of energy efficiency, however, China continued to cope with the combined challenges of growing energy needs, limited high quality energy resources, environmental pollution and energy security. More action driven by political direction was required. This led the Chinese government, in 2007, to approve a revised 'Energy Conservation Law', which created a legal framework for promoting energy efficiency and conservation activities. Among other things, the Law made local governments accountable for implementing their share of the national targets by including officials' adherence to their target as key criteria in their performance evaluations⁴⁴. The amendments also required the state grid companies to purchase all power produced by renewable energy sources. Energy conservation became a matter of strategic importance in energy policy.

Another significant policy that promoted energy conservation was the launch of the 'Medium- and Long-Term Development Plan for Renewable Energy' in 2007. This policy at the same time sped up the development of renewable energy as strategies to mitigate GHG emissions. By 2010, China aimed to have raised the share of renewable energy in its total primary energy consumption to 10%, and by 2020, to 15%. A relevant goal of this plan – especially for the international market of renewable energy – was the establishment

of a basic system of renewable energy technologies and industry by 2010. It aimed for relatively complete implementation by 2020, "so that a domestic manufacturing capability based mainly on China's own 'Intellectual Property Protection' (IPR) will have been established, satisfying the needs for deploying renewable energy on a large scale in China"⁴⁵.

For many years, China ranked first in the world in both installed capacity and power generation of hydropower. From 2008, the scale of wind power doubled annually for three years in a succession, and in that year alone, an installed capacity of 6.14 GW was added. At the end of 2008 the total installed capacity of wind power reached 12.17 GW, placing China as the fourth biggest wind energy producer in the world.

The photovoltaic solar industry also developed rapidly. At the end of 2008, China had an accumulative installed capacity of 150 MW for PV solar power. The heat collecting area of solar water heaters had reached 125 million square meters accounting for over 60% of the world total, and keeping China the world leader in this field for many years⁴⁶.

Under national policy guidance and with financial and technical support from UNDP through its programme 'Capacity Building for Rapid Commercialization of Renewable Energy in China' (already in implementation since 1999), the annual utilization of renewable energy (including large hydropower) and nuclear power accounted for 8.9% of the primary energy consumption at the end of 2008⁴⁷. Moreover, it provided valuable assistance to the formulation of the Renewable Energy Law (2006).

Within the political context of the 11th FYP, the Chinese private sector, despite the new energy governance apparatus, found

Clean energy: China's green revolution is already in its way

the incentive to grow. During this period, the private sector became a powerful force in assisting with national efforts to alleviate poverty and took an active part in international cooperation on climate change by acting as vital players in mitigation efforts. Both of these ‘side-effects’ were accomplished by the active engagement of the Chinese private enterprises in Clean Development Mechanism (CDM) projects.

During the 11th FYP period – in its efforts to aid in the realisation of the national priority goals – UNDP implemented the programme ‘MDG Carbon: Carbon Finance for Achieving MDGs in China’ (2006-2010) that aimed to develop a strategic framework for China’s MDG-carbon market. The approach was based on the integration of the carbon reduction activities through the implementation of CDM projects, with focus

on energy solutions that benefit poverty reduction and ecological sustainability. UNDP believes that the promotion of renewable energy and greater energy efficiency must be done in a way that reduces the vulnerability of the poor in maintaining sustainable livelihoods, furthering economic growth and supporting sustainable development.

The 11th FYP set the targets, “reflecting the Chinese government’s growing concern with the environmental costs of China’s development model”⁴⁸. China, with UNDP assistance, had reached great achievements, especially considering the complexity of the economic and energetic changes it pursued. However, the concern to rebalance the Chinese economy had been growing. When the Chinese government gathered to write the Twelfth Five-Year Plan (12th FYP) and review its strategy on climate change, low-carbon development and carbon trading mechanisms, it became clear that what initially begun as a relatively modest environmental ambition in the beginning of the 1990s, had developed into a major stance toward what could be called China’s green revolution.



The rural areas in China are now provided with energy-saving products and energy efficient buildings

UNDP Programmes: Transforming the energy efficiency markets

During the years 2007-2009, to further its efforts to save energy and increase energy efficiency planned in the 11th FYP, the Chinese government issued three policies related to production and consumption of energy efficient electric home appliances. The three policies were: ‘Home appliances going to the countryside’; ‘Project of energy-saving products for the people’; and ‘Replacement of household electrical appliance’. These programmes intended to promote energy efficient products (rated 1st or 2nd grade)

through financial subsidies. Ten categories of products were targeted: air conditioners, refrigerators, washing machines, flat panel televisions, microwave ovens, electric cookers, induction cookers, water heaters, computer monitors, and electric motors.

In order to support the implementation of this political strategy, UNDP expanded programmes aimed at transforming markets by introducing energy efficient products, particularly those listed above. These highly

complex programmes have reached all stops on the production line, from the design of products to the retailers, even targeting changes in the consumers’ behaviour. The programmes were designed to promote changes in the market, and influence the creation of major national policies on energy saving with a very strong focus on energy and carbon efficiency. Three examples of those programmes are:

Lighting the planet

The UNDP programme ‘Phasing-out of Incandescent Lamps and Energy Saving Lamps Promotion in China (PIESLAMP) (2008-2013)’ contributes to the reduction of GHG emissions through the transformation of the Chinese lighting market toward more energy efficient lighting products, technologies, and practices. This programme has even had an impact in the global lighting market, since China is today the leading manufacturing country of lighting products in the world.

Fluorescent Lamps (CFLs) in China rose from around 100 million in 1996 to near 3 billion in 2007, a 30% increase. Today, it accounts for more than 80% of the total world production. From this total, approximately 70%, or more than 2 billion pieces of these CFLs, are exported. On the other hand, China is still the leading manufacturing country of Incandescent Lamps (ILs). In 2006, the IL production in the country was around 4.3 billion pieces, representing about one third of the world’s production. Incandescent lamps typically consume four times more energy to provide the same lighting services as efficient

alternatives, such as CFLs, while the latter last up to 10 times longer⁴⁹.

This UNDP project has promoted the widespread adoption of energy efficient lighting products (ESLs), improved the Chinese energy saving lamps (ESL) market, and worked toward the phasing-out of ILs. As a direct result of this UNDP project, China launched a national roadmap on phasing-out incandescent lamps, through which it will save up to 216 billion kilowatt hours of electricity by 2012 and reduce CO₂ emissions by up to 237 million tonnes⁵⁰.

The annual production of Compact



UN Secretary-General Ban Ki-moon delivers a speech at the signing ceremony for the Green Lights Project

Cooling China

Another strategy aimed at transforming the Chinese market through the promotion of more energy efficient products originates from the UNDP programme ‘Promoting Energy Efficient Room Air Conditioners’ (PEERAC) (2010-2015). The programme has contributed to reducing GHG emissions through the transformation of the air conditioning market toward more energy-efficient room air conditioners (RAC) in residential and commercial buildings. Applying a combination of ‘technology push’, ‘market pull’ and ‘policy and awareness promotion’ activities, this project’s purpose is to remove a number of key barriers in the room air conditioner industry which affect the manufacture and sale of more energy efficient RAC.

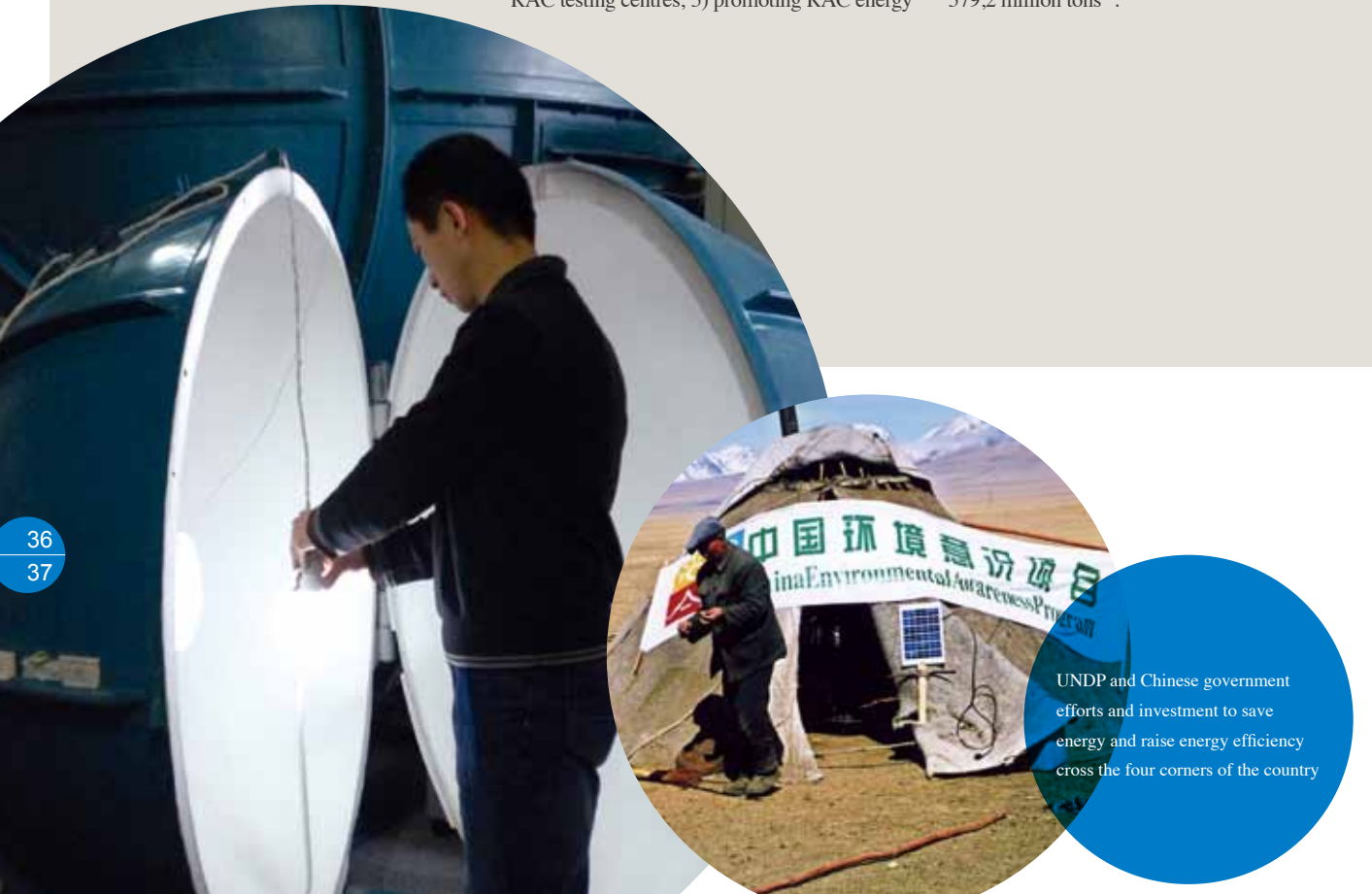
The Chinese production of RACs reached 75 million in 2007, and this amount accounted for more than 75% of the RAC market worldwide.

Until the end of this project (2015) it is expected that the total production of RAC in China will exceed 80 million pieces and the domestic sale will be more than 40 million pieces⁵¹. With the implementation of the governmental programme that encourages the utilization of energy efficient home appliances in the rural areas, it is expected that the rural RAC market will be tracking a high growth trend in the near future.

The project has a multi-faceted approach and its activities are composed of 1) upgrading air conditioner compressor efficiency; 2) addressing the technical and financial barriers that prevent RAC manufacturers from developing more energy efficient products, involving the participation of RAC manufacturers that represent at least 75% of domestic RAC sales; 3) developing RAC energy performance standards; 4) establishing RAC testing centres; 5) promoting RAC energy

efficiency, with development of procurement guide and procurement promotion, RAC retailer program, modification and implementation of the RAC energy labelling programme; 6) developing and implementing a consumer education programme; and 7) developing a website containing information and tools on energy efficient RACs.

Considering that the total RAC ownership in China will double in the next 10 years, the utilization of RACs will imply a significant portion of the energy consumption and CO₂ emission generation of the country. Without the PEERAC project, the low energy efficiency RAC would still be produced in China. On the other hand, as a result of the PEERAC project, the cumulative potential CO₂ emission reduction from the wide scale application of energy efficient air conditioners in the residential and commercial sectors is about 579,2 million tons⁵².



Energy Efficiency Labelling throughout Asia

Reaching three goals at the same time in just one programme has been the aim of the UNDP project ‘Barrier Removal to the Cost-effective Development and Implementation of Energy Efficiency (BRESL)’ (2009-2013). Firstly, it has supported China’s further integration with the world through partnerships with neighbouring countries and the sharing of experiences on poverty reduction and socio-economic development through the scaling up South-South links. Secondly, it has promoted one of the most cost-effective types of policies and programs to mitigate global climate change, namely the establishment of energy efficiency standards and labels (ES&L). The reason for this is the program’s potential to generate complete market transformations for different classes of energy-saving products, at a cost far below the one of providing new energy supply. And thirdly, it has contributed to the realization of the Millennium Development Goals (MDGs), particularly by ensuring environmental sustainability, and developing a global partnership for development. produce

UNDP BRESL is aimed at rapidly accelerating the adoption and implementation of energy efficient standards and labels

(ES&L) in Asia, and in doing so bringing about energy savings from the use of energy efficient appliances. The project also facilitates harmonization of test procedures, standards and labels among six developing countries: China, Indonesia, Vietnam, Bangladesh, Pakistan and Thailand.

The project focuses on capacity building and assisting government, manufacturing, distributing, retail, consumer and environmental stakeholders throughout the Asian region to implement the most cost-effective energy efficiency measure available. In each participating country, priority activities are being carried out to help foster each country’s preferred process for developing or expanding its ES&L program.

In reality, there are two projects comprised in this UNDP programme: Asia BRESL and China BRESL. The latter sets specific activities to be conducted in China, with the National Development and Reform Commission (NDRC) as the implementing partner and the China National Institution of Standardization (CNIS) as executing agency, in close collaboration with China Standard Certification (CSC). The products being

subject of studies under the Asia BRESL are: refrigerators, room air conditioners, electric motors, ballasts for fluorescent tubes, electric fans, and compact fluorescent lamps. In addition, China is developing a new rice cooker standard as part of BRESL, consulting with Vietnam and Thailand, who have also expressed interest in this standard.

The UNDP BRESL targets an overall CO₂ emissions reduction of 24.8 million tons by the end of the project (2013), and a cumulative CO₂ reduction of 37.3 million tons, dispersed across the participating countries⁵³. The programme will likely lead to substantial indirect emissions reductions, especially when taking in account that the BRESL includes China, which is the world’s largest manufacturer of electrical appliances and energy-using equipment. The higher efficiency level of Chinese manufactured goods will have a very significant global spill over effect. Another positive impact is that, building on the BRESL experience, other energy-consuming appliances may also become subject to improved energy utilization performance.

UNDP and Chinese government efforts and investment to save energy and raise energy efficiency cross the four corners of the country

Delivering high-level policy support (2011-2015 – 12th FYP)

China 11th FYP (2006-2010)	Chinese National Policies	International Arena	UNDP	UNDP Energy Projects
<p>Primary goals:</p> <p>‘Xiaokang’: Promote sustainable development, establish a ‘harmonious socialist society’ and extend its benefits to the largest number of people</p> <p>Government priorities:</p> <ul style="list-style-type: none">• Quadruple its 2000 GDP level by the year 2020• Balanced, human centred development• Care of the environment• Support of individual empowerment• Commitment to improved governance and accountability• Meet most of the MDGs by 2015 <p>Energy development and conservation effort:</p> <ul style="list-style-type: none">• Achieve the target of about 20% reduction of energy consumption per unit GDP by 2010• Raise the proportion of renewable energy (including large-scale hydropower) in primary energy supply up to 10% by 2010, the extraction of coal bed methane up to 10 billion cubic meters• Increase the forest coverage rate to 20% and realize the increase of carbon sink by 50 million tons over the level of 2005 by 2010	<ul style="list-style-type: none">• 2005/06- Renewable Energy Law• 2007- Medium- and Long-term Renewable Energy Development Strategy and Plan• 2007- China’s National Plan for Responding to Climate Change• 2007- China’s Initial National Assessment Report is released• 2007- National Leading Group to Address Climate Change is set up, with Premier Wen Jiabao as the group leader, replacing NCCCC• 2007- Energy-saving Law is amended (based in 1998 Law)• 2009- Promotion of Circular Economy Law• 2009- The NPC Resolution on Active Response to Climate Change• 2010- Renewable Energy Law is amended (based in 2006 law)	<ul style="list-style-type: none">• 2007- Bali Road Map is adopted during COP13, which included the Bali Action Plan• 2009- First BASIC ministerial meeting is held in Beijing• 2009- Copenhagen Accord is agreed during COP15• 2010- Cancun Agreement is reached during COP16	<ul style="list-style-type: none">• 2007/08 UNPD China HDR:” Access for All: Basic public services for 1.3 billion people”• 2009/10 UNDP China HDR: “Toward a Low Carbon Economy & Society” <p>Priority areas:</p> <ul style="list-style-type: none">• Social and economic policies for equitable growth• Participatory methods and capacity building for effective and equitable policy implementation• More efficient management of natural resources• Support to China’s increased role in the global arena• HIV/AIDS <p>Activities within the energy sector:</p> <ul style="list-style-type: none">• Improve end-use energy efficiency in manufacturing industries and buildings• Enhance application of new and renewable technologies• Advocacy and policy initiatives will support the achievement of national renewable and energy targets for 2010 and 2020• Continued assistance will be provided to fulfil obligations under multilateral environmental agreements, especially the Kyoto Protocol• Environmental awareness will be enhanced, empowering the general public to play an increasingly central role in the more efficient use of critical resources, i.e. water and energy, and in environmental protection	<ul style="list-style-type: none">• MDG Carbon: Carbon finance for achieving MDGs in China (2006-2009)• Enabling China to prepare its second national communication to the UNFCCC (2007-2013)• Phasing-out of Incandescent Lamps and Energy Saving Lamps Promotion in China (PIESLAMP) (2008-2012)• Barrier Removal to the Cost-Effective Development and Implementation of Energy Efficiency (BRESL) (2009-2013)• Provincial Programmes for CC Mitigation and Adaptation in China (2009-2012)• Promoting Energy Efficient Room Air Conditioners – (PEERAC) (2010-2015)

The period covered by the Twelfth Five-Year Plan (12th FYP) (2011-2015) represents the final five years before the Millennium Development Goals (MDGs) deadline in 2015. For China, having lifted more people out of poverty in the last 30 years than any other country in human history, the focus now is on: the disparities that have arisen after such an intense period of growth, on ensuring the sustainability of the development, and in its increasing ability to contribute to development elsewhere through South-South Cooperation.

On the agenda, there are significant new challenges to be tackled, whilst some older problems persist. Rural-urban income and gender disparities have grown sharply; the gap between Eastern and Western provinces has not narrowed; and a serious environmental and natural resource cost has been paid for decades now as a consequence of the rapid economic growth, raising concerns about sustainability. While China is the second largest economy in the world, at least 100 countries are doing better when comparing per capita income levels⁵⁴.

Determined to successfully confront China’s development challenges, the 12th FYP has launched “not only a development blueprint, but a green revolution”⁵⁵. The 12th FYP is the first plan in which the theme is ‘green development’. The green and low-carbon sectors have been identified as the core part of a new industrial strategy and an important pillar for growth. Unprecedented attention has also been devoted to energy efficiency and climate change. A report of the website ‘chinadialogue’, an independent and non-profit news organization, concludes: “It is an historical moment: the point at which China launches – and joins – the global green

revolution and adopts a concrete plan of action for responding to climate change. The positive effects will be felt worldwide”⁵⁶. It is hopefully the beginning of China’s green era.

In stepping up once more its strategy to assist the Chinese development and climate change plans, UNDP has focused its work on high-level policy support. In addition to its traditional programme work, UNDP now draws extensively on its international policy expertise and convening power to achieve key results. Based on its upstream strategy of ‘soft interventions’ (namely, advocacy, policy dialogue and advice, forums, capacity-building, and pilot experiments), UNDP contributed substantially to the 12th FYP and other key policy reforms. One example is the UNDP National Human Development Report (2009/10) ‘China and a Sustainable Future – Toward a Low-Carbon Economy and Society’ that contributed to the increased emphasis on low-carbon development in the national discourse at a crucial moment in time when China was preparing its 12th FYP.

Also, UNDP has supported China in moving toward multi-dimensional development planning, and contributed to the design of a new indicator system that includes social protection, environmental sustainability and the rule of law, to measure progress over the FYP period. Of the 50 development indicators developed by the government and UNDP, 23 were incorporated in the 12th FYP⁵⁷. Similar support was provided for indicators in 15 pilot Five-Year Plans at the provincial level. UNDP policy studies and dialogue have also directly contributed to the new ‘10-Year Poverty Reduction and Development Guidelines’, stressing the links between poverty and sustainable development, including climate change.



Sharing results

UNDP programmes in the area of energy have resulted in the development of regulations, codes, guidelines and standards for energy efficiency conservation, such as the introduction of energy efficiency labelling achieved during the 11th FYP. In addition to developments in relation to China's climate change policy, they have also contributed to the formulation of the national energy efficiency targets in the 12th FYP. These programme activities also assisted in the process of drafting the 'Roadmap on Phasing-out Incandescent Lamps' (2011-2016) and 'Roadmap on Promotion of Energy Saving Lamps' (2011-2016), which were jointly launched by the government and UNDP. These policies are expected to have a major national and global impact (See box, page 35)

Another development opportunity that UNDP has built on is related to the empowerment of communities and civil society to participate in shaping China's cultural and socio-economic development. As the only international partner of the Bureau of Non-Governmental Organisation Registration, for example, UNDP supported a Civil Society Organisation (CSO) pilot initiative. This resulted in a simplified registration process and new policy for taxation adopted in 2011, which will benefit directly up to 3 million associations. Currently, an estimated 300,000 to 500,000 non-governmental organizations (NGOs) are operating in China⁵⁸. The outcome of this UNDP initiative was the recognition, for the first time, in the 12th FYP of the role of the CSOs and their potential to empower communities and address the conditions of vulnerable groups (the elderly, disabled persons, persons living with HIV/AIDS, and migrant workers), as well as to address climate change and promote disaster risk reduction.

So what are the chances of success for the 12th FYP? Will China succeed in its ambitions to achieve greener growth and greater social stability as provided in the 12th Five-Year Plan? There is definitely no lack of political will and direction, or high-level policy advisory capacity. The Chinese government has come a long way in the pursuit of a greener development in China. The challenge ahead is that of creating 'inclusive and green growth', which rebalances the economy to spread the benefits more equally, alleviates social inequality and protect the environment.

To safeguard citizen's rights to a clean environment, a public interest lawyer from All China Environmental Federation, a CSO supported by UNDP, is sampling waste water to back up litigation at environmental tribunal

Implementing an adaptation strategy

Already in 2007, in its National Climate Change Programme, the Chinese government acknowledged the need to place equal emphasis on both mitigation and adaptation: "Mitigation and adaptation are integral components of the strategy to cope with climate change. For developing countries, mitigation is a long and arduous challenge while adaptation to climate change is a more present and imminent task"⁵⁹, and an urgent mission as well. The frequency and severity of extreme climate/weather events in Chinese territory is growing each year. This has provoked unusual worldwide meteorological disasters in terms of the scope of affected areas, the number of different disasters, the gravity of disaster and the mass of affected population.

In 2010 alone, approximately 430 million people were affected by hazardous natural disasters. In that year, these disasters caused nearly 8,000 deaths, close to 3 million homes were destroyed, about 40 million acres of crops ruined, and over US\$ 79 billion (500 billion RMB) of direct economic losses⁶⁰. In the first half of 2011 alone, natural disasters affected 290 million people in China, causing 449 deaths and 100 people missing, and a direct economic loss amounting to as much as US\$ 22.5 billion (142.03 billion RMB)⁶¹.

The government has recognised disaster risk reduction as a potentially effective tool for climate change adaptation. Moreover, viewing disasters as a fundamental threat to development, UNDP China has strived

to promote a more resilient form of development by strengthening national and local disaster risk management capacities, and mainstreaming disaster risk reduction within development planning and practices. UNDP Umbrella Programme on Disaster Risk Management aims to reduce the vulnerabilities of urban and rural communities and strengthen their abilities in coping with disasters. Through policy advocacy, pilot and demonstration initiatives, the programme is promoting community-based disaster risk reduction, encouraging the participation of social as well as private sector organizations, with priority be given to the poor, ethnic minority and risk-prone areas.

Reforestation: Part of the adaptation strategy – a major policy priority – that is being developed by the Chinese government



Risk Management

Since 2010, UNDP has worked closely with the Government of China in implementing risk management programmes combined with climate change adaptation strategies. The project ‘Climate Change Adaptation in Arid Area’ has established the first eco-system surveillance network in the arid region of Central Asia, encompassing the Chinese Xinjiang autonomous region and the countries Kazakhstan and Uzbekistan. The project supports scientific research, analysis and documentation of climatic risks in the region and further improves institutional capacity in risk-conscious natural resources use and ecosystem protection. Furthermore, the project also acts as a platform for technological cooperation between China and its neighbour countries in Central Asia.

However, in the Xinjiang autonomous region, due to climate change, ice melting in its alpine areas combined with torrential rains has led to increasing threats of flooding. UNDP project ‘Flood Risk Management in Mountainous Areas’ has implemented the use of remote-sensing technology to improve ice melting and flood forecasting systems in Kumalake river area. Through research, testing, and exploration of applicable technologies, models and mechanisms, the program is aimed at improving the flood risk management mechanisms and disaster reduction capacities in the area, which in turn promotes resilience and sustainable development of the area.

In the context of global climate change and

increasingly extreme weather conditions, the UNDP project ‘Strengthening Monitoring and Early Warning for Geological Disasters’ has enhanced local disaster forecasting and early warning capacity by applying integrated technologies and methods to monitor risk factors for landslides and debris flow. In Ningxia autonomous region, for instance, after the 2008 earthquake, the structure of the mountain area became unstable. Under the climate change background, the frequency and severity of torrential rains have increased the risks of landslides. The UNDP project mapped the villages situated in the risk areas, promoted the construction of six early warning systems and stations for rainfall and landslide deformation surveillance. Facing the imminence of a natural disaster, the local

villagers will receive warnings through SMS on their mobile phones, while the emergency evacuation strategy is activated.

UNDP’s policy research and pilot projects has contributed to a transformational change from a traditional top-down approach to a more participatory, locally based conception of disaster risk reduction in China. This was directly reflected in the Five-Year National Plan for Comprehensive Disaster Reduction and Prevention (2011-2015), China’s first disaster risk reduction plan in the housing

sector, and its first national guidance note on strengthening community-based disaster reduction. Over 100 million Chinese citizens, primarily those located in poor and ethnic minority areas, will benefit from this major policy shift, gaining first hand training and experience in reducing risk⁶². The new plan promotes disaster prevention and mitigation as an integrated approach to climate change adaptation and will be incorporated in economic and social development planning at all levels.

The Chinese government, with UNDP policy assistance, also issued its first ‘Guidance Note on Strengthening Integrated Community-based Disaster Reduction in Urban and Rural Communities of China’. It highlights the need to address community-level risks and vulnerability, and stresses the urgent need to strengthen disaster risk reduction in both urban and rural communities in order to adapt to changing climates, reduce vulnerability to disasters and build resilience for sustainable development.

Biodiversity resilience

In line with the climate change policies put forth by the Chinese government with regard to agriculture, forestry, animal husbandry, water conservancy, and ecological planning, UNDP climate change adaptation projects that focus on biodiversity have aimed to strengthen the resilience of the ecosystems and the vulnerable population in their response to climate change.

Under the UNDP EU-China biodiversity program from 2005 to 2011, agro-biodiversity

was enhanced to make the local farming more self-sufficient and more diversified so that they could better adapt to the climate change challenges. Varieties of rice and other species that are more suitable for dry periods, for instance, were subjected to research, and together with the communities, pilot field areas were implemented. The farmers, with UNDP support, were encouraged to share different varieties of seeds between the villages, bringing them also to local cities fairs and promoting more exchanges aimed at a broad variety of

seeds until they could establish seeds’ banks.

UNDP biodiversity program in China also has worked with protected areas to ensure connectivity between them, covering as many different types of habitat and species as possible to ensure that, in a climate change context, there are still biodiversity patterns and ecological corridors for the protected species.

Policies in place

China’s understanding of the biophysical impacts of climate change has increased in recent years and there is also growing awareness of the impacts on socio-economic systems. Developing a comprehensive adaptation strategy is becoming a major policy priority for the Chinese government. It is a priority particularly since climate change adaptation is now seen as an increasingly important part of China’s sustainable development and essential for safeguarding ‘economic and social security’. The 12th Five-Year Plan makes clear reference to the need for strengthening capacity for climate

change adaptation, especially in relation to extreme and slow onset climate events. In response, the China’s National Adaptation Strategy (NAS) has already been drafted and submitted to the State Council for approval in 2012. The next step is its adoption by the National People’s Congress.

Within the NAS core areas of work there are plenty of opportunities for UNDP and China to move forward a series of partnerships that are already in place, such as enhancing early warning and disaster risk reduction, and agriculture. Moreover, they also point out new

areas of co-operation, like the development of fiscal and tax policies for climate change adaptation (focusing on developing risk transfer mechanism, reforming the tax policy system, governmental procurement policy etc.); coastal zone management (developing coastal zone resilience, enhancing risk assessments etc.); strategic water resource management; and health.

UNDP capacity to bring in international support and expertise is essential if China’s adaptation pathway is to be effective, sustainable and resilient.



As part of the climate change adaptation strategy, a wastewater treatment site is built with the community engagement after an earthquake in Makou Village

The fast growing South-South Cooperation

The seeds of UNDP’s South-South Cooperation (SSC) with China were two sister programmes entitled Economic and Technical Cooperation between Developing Countries (ECDC-TCDC), which began in the early 1980s. Throughout that decade, China strengthened South-South economic and technical exchanges with developing countries, supported by UNDP regional, interregional and global programmes.

The fruits of these exchanges did not take long to ripen. In the 1990s, the material available through the compilation of best practices, workshops, networking arrangements, etc. enhanced China’s abilities to benefit from the experiences of other countries and to share its own experience. Since then, China regards cooperation with other developing countries as a corner stone of its foreign policy, and has supported a huge variety of South-South programmes that are concerned with agriculture, trade, health, education, science and technology, and much more.

In recent years, UNDP’s role in the promotion of South-South Cooperation has increased. It has also deepened China’s engagement and participation in global and regional development partnerships to accomplish the MDGs, to address climate change and to facilitate and manage the consequences of rapid economic growth.

In November 2010, to make this expanding and deepening partnership, UNDP and China signed a Memorandum of Understanding (MOU) for strengthened South-South Cooperation. UNDP is now working closely with China on South-South Cooperation with respect to knowledge sharing and development projects, on a broad set of issues.

China’s 12th Five-Year Plan (2011-2015) indicates that the country expects to play an active role in global affairs, and strengthened South-South Cooperation. 2011 saw China open up to international collaboration concerning its foreign aid. And, China has looked to UNDP as one of its partners of choice in this area. As a result, in 2011 UNDP was able to pilot trilateral cooperation with China and third-party countries; provide platforms for global South-South dialogue; support China’s engagement on regional and global agendas; and help China share its development experience with other developing countries. For example, UNDP and NDRC recently initiated a joint China-India research on low-carbon development policies with experts from both countries. The research will result in a joint report in 2013 with policy recommendations and suggestions for an exchange of lessons learned and information, as well as for future mechanisms for China-India cooperation in this area.

South-South Cooperation has become a fast-growing area of work for UNDP China with high impact potential for the global community.

China 12th FYP (2011-2015)	Chinese National Policies	International Arena	UNDP	UNDP Energy Projects
<p>Primary goals:</p> <ul style="list-style-type: none">• Green development• Restructure the economy toward a more domestic driven one• Scientific development <p>Government priorities:</p> <ul style="list-style-type: none">• Sustainable development of the population, resources and the environment• Develop social security, job generation, pension and public health system• Develop seven new ‘Strategic Emerging Industries’: biotechnology, new energy, high-end equipment manufacturing, energy conservation and environmental protection, clean-energy vehicles, new materials and next-generation information technologies <p>Energy development and conservation effort:</p> <ul style="list-style-type: none">• Reduce carbon intensity by 40-45% by 2020• Reduce energy intensity by 16% by 2015• Reduce carbon intensity by 17%• Increase non-fossil fuel energy sources to 11.4% of the total energy use• Establish a carbon market• Achieve 15% share of renewable energy in China’s overall supply by 2020	<ul style="list-style-type: none">• 2011- China’s second National Assessment Report on Climate Change is released• 2011- White Paper: China’s policies and actions on climate change is released• 2011 – Comprehensive work plan for energy conservation and emission reduction during the 12th FYP is issued• 2011- Work plan for GHG emissions control during the 12th FYP is issued	<ul style="list-style-type: none">• 2011- Durban Platform for Enhanced Action is agreed during COP17• 2012 – Stockholm+40 is celebrated• 2012- UN Summit on Sustainable Development (Rio+20) is organized	<p>Priority goal:</p> <p>Supporting China in achieving the MDGs and the Xiaokang vision</p> <p>Priority areas:</p> <ul style="list-style-type: none">• Furthering South-South Cooperation• Civil society empowerment• Address climate change, promote green, low-carbon economy• Increase the participation of the poorest and most vulnerable in China’s social and economic development <p>Activities within the energy sector:</p> <ul style="list-style-type: none">• Removal of policy and capacity barriers for low-carbon and sustainable strategies and technologies, including those for the reduction of ozone depleting substances and persistent organic pollutants• Build capacity of city and provincial governments to implement action plans for mitigation and adaptation, and sustainable development, in line with the low- carbon development targets established by China	<ul style="list-style-type: none">• Provincial GHG emissions inventory capacity building and GHG emissions accounting methodology for enterprises of key industries (2012-2014)• Establishment of National Registry System for Domestic Emissions Trading Scheme and Voluntary Carbon Emission Reduction (2012-2014) <p>UNDP Adaptation Projects in Disaster Management:</p> <ul style="list-style-type: none">• Strengthening monitoring and early warning for geological disasters• Flood risk management in mountainous areas• Climate change adaptation in arid area



International Seminar on Strengthening South-South Cooperation on Science and Technology to Address Climate Change hosted by the Chinese government, UNDP and several other UN agencies

CONCLUDING REMARKS

The story of China’s development and UNDP’s engagement in China are closely linked. The cooperation has grown from capacity building to national strategies with global impact. Today, to address climate change, China and UNDP are cooperating on developing strategies that promote economic growth while building a low-carbon society within a sustainable human development framework.

For the future, China and UNDP will keep pursuing joint common development and results and outcomes. Besides the challenges identified and discussed in this report, China now has to confront the task of promoting sustainability in the face of urbanization and climate change.

For UNDP, it is an opportunity to strengthen its role as a pioneer of new and emerging development solutions such as low-carbon economy, green urbanization, and equity for sustainable growth.

As a solutions-exchange facilitator, UNDP acts as a bridge for other developing countries to China’s knowledge, technology and expertise in reducing poverty and sustainable development – mainstreaming China’s contribution to global development. As a solutions-importer, UNDP also mobilizes expertise from the UNDP global development knowledge network, and that of the United Nations, adding value to the quality of China’s development.

By investing in a green economy and in green growth that is underpinned by emerging green technologies, China has an opportunity to leapfrog decades of traditional development that is based on high polluting fuels. The task of UNDP is to provide ideas,

innovations, and the right framework to promote broader environmental sustainability and the sustainable use of natural resources. It must do so with particular reference to the need for energy efficiency, increased environmental safeguards, preventing degradation of ecosystems and protecting biodiversity, and tackling industrial pollution.

The Chinese authorities and UNDP are jointly expanding the environmental sustainability goals into a wider range of national policy areas, such as sustainable urban planning and development to create eco-cities. This is a particularly critical area, given that cities already account for 84% of China’s commercial energy consumption, and that 350 million more people are expected to move into Chinese cities in the next 20 years⁶³. In December 2011, for the first time in its long history, China reached a level in which there are now more people living in cities than in rural area. This is a major milestone in the history of the country and marks that China is at a critical point of rapid urbanization and urban transformation. The UNDP China Human Development Report 2012/13 on ‘Sustainable and Liveable Cities’ hopes to add food for thought to address both challenges and opportunities faced by China in this process.

Mitigation and adaptation to climate change will be top priorities for the Chinese government and UNDP in the years to come. UNDP is committed to deepening its partnership with China, in this and other areas, for the well-being of the Chinese people and, as the two deepen their South-South Cooperation, for the benefit of all developing countries.



Sustainable and Liveable Cities – A future that UNDP and China envision and build together

ANNEX I

UNDP China Success Stories

Examples of key UNDP China climate change cooperation programmes, recently completed and ongoing, organized in chronological order.

Barrier Removal for the Widespread Commercialization of Energy-efficient CFC-free Refrigerators (1999 – 2006)	
Objectives	To promote the widespread commercialization of energy efficiency refrigerators by removing technical, market, commercial, information, and other barriers to increase market penetration of the technologies and products. China is the country with the second highest number of refrigerators in the world.
Response	It successfully combined elements of ‘technology push’ by providing a combination of training, technical resources and financial incentives that encouraged refrigerator manufacturers to increase the efficiency of the household refrigerators they produce; and ‘market pull’ by preparing and developing the consumer market through a combination of standards, labelling, an information campaign, to accept and purchase in quantity the energy-efficient refrigerators produced.
Outcomes	<div>✓ An increase of nearly 29% in the weighted-average efficiency of household refrigerators produced in China between 1999 and 2005, as well as impressive improvements in refrigeration compressor efficiency.</div> <div>✓ Reduction of 11 million tons of CO₂ emissions by 2005, and a total of 42 million tons of CO₂ emission reduction by 2010.</div> <div>✓ Cumulative CO₂ emissions reduction over the life of the project total 170 million tons of CO₂ for refrigerators produced through 2005 and reduction of 630 million tons of CO₂ for refrigerators produced through 2010.</div> <div>✓ Successful implementation of an award winning public awareness campaign on energy efficient refrigerators.</div>
Implementing Partner(s)	State Environmental Protection Administration, UNDESA, 16 refrigerators manufacturers and 10 compressors manufacturers, responsible for producing 70% of refrigerators and compressors in China
Budget	Total Budget: US\$ 40,706,000 UNDP (GEF): US\$ 9,617,000 Government: US\$ 1,370,000 Private Sector: US\$ 29,719,500

Capacity Building for the Rapid Commercialization of Renewable Energy Programme (1999 – 2007)	
Objectives	China's fossil fuel – coal and oil – based energy structure is generating high and rapidly increasing CO ₂ emissions. The project aimed to widen the adoption of renewable energy technologies (RETs) and renewable sources in China by removing a range of barriers to increased penetration of the technology
Response	It strengthened the capacity of China to shift from supply-oriented technology deployment to demand-driven, investor- and consumer- friendly approaches. The programme also developed market-based institutions and instruments to attract new players in renewable energy industries and increase investments in RETs. This project integrated policy development, market reform and technology dissemination.
Outcomes	<div>✓ Developed national capacity for the rapid commercialization of renewable energy systems in China, including support for establishment of the China Renewable Energy Association.</div> <div>✓ Demonstrated successful models for hybrid power for town and village-level rural households.</div> <div>✓ Developed national solar water heating program.</div> <div>✓ Developed national wind resource assessment and wind development program.</div> <div>✓ Assisted with formulation of China's new renewable energy law.</div> <div>✓ Removed primary barriers to four promising renewable energy technologies: solar/ wind hybrid electricity, wind; large-scale anaerobic biogas commercialization and bagasse cogeneration.</div>
Implementing Partner(s)	China National Development and Reform Commission (NDRC)
Budget	Total Budget: US\$ 26,570,000 UNDP: US\$ 740,000 Government: US\$ 11,500,000 GEF: US\$ 8,800,000 Donors: Australia US\$ 3,000,000, Netherlands US\$ 2,530,000
Energy Conservation and GHG Emissions Reduction in Chinese Township-Village Enterprises (TVEs) Phase II (2000 – 2007)	
Objectives	An estimated 23 million TVEs exist in China, contributing to 30% of GDP, 143 million jobs and responsible for over half the total outputs in the building materials. They account for one sixth of China's total emissions of CO ₂ and are often characterized by high pollution levels due to outdate process technology. The project aimed to remove key market, policy, technological, and financial barriers to the production, marketing and utilization of energy efficient technologies and products in the brick, cement, metal casting and coking sectors.
Response	The TVE sector is a strategic component in the development of the rural economy. In line with the transition to a market-oriented socialist economy in China, the project brings the TVEs fully into a competitive market, whilst supporting the role TVEs play as employers and engines of rural development.
Outcomes	<div>✓ Reduced greenhouse gas (GHG) emissions in the TVE sector in 9 pilot demonstration sites by increasing the utilization of energy efficient technologies and products in the brick, cement, metal casting and coking sectors. It resulted in GHG savings of 300,000 tons/yr of CO₂.</div> <div>✓ Expanded the application of best practices for local and national regulatory reform. 118 TVEs replicated resulting in additional GHG savings of 2 million tons/yr of CO₂.</div> <div>✓ Built technical capacity – 1,200 trained through workshops on new technology, energy efficiency and product quality improvement in TVEs.</div> <div>✓ Created access to commercial financing.</div>
Implementing Partner(s)	Ministry of Agriculture, UNIDO and local TVEs in the brick, cement, metal casting and coking sectors.
Budget	Total Budget: US\$ 18,542,000 UNDP (GEF): US\$ 7,992,000 Government: US\$ 10,550,000

Capacity Building for the Clean Development Mechanism (CDM) in China (2003 – 2007)	
Objectives	To adopt the appropriate national and international best practices for CDM project proposal development, baseline calculation, additional assessment, development of monitoring plans, and verification and implementation of CDM projects in China. The goal was to set the foundations for China's participation in the new global carbon market.
Response	Implementation of the CDM in China is a challenging and complex process, requiring the participation of many stakeholders. This requires the development of sufficient capacity to deal with the institutional, financial, technical, and legal issues that are associated with CDM projects. This project built capacities for project developers/investors, local government officers, industries (power, cement, coal mine and a dozen other sectors with high potential for emissions reduction) as well as consultants and researchers.
Outcomes	<div>✓ Designed China's initial national CDM laws and regulations.</div> <div>✓ Strengthened the Government of China's institutions' ability to implement CDM projects.</div> <div>✓ Provided stakeholders with the skills and knowledge needed to enable CDM projects to be developed.</div> <div>✓ Provided "learning by doing" opportunities through on the ground pilot activities including design of initial market analyses and China's first set of Kyoto approved CDM projects.</div> <div>✓ Disseminated information on the CDM to industry and other interested parties, bringing together public and private partners.</div>
Implementing Partner(s)	China International Center for Economic & Technical Exchanges (CICETE)
Budget	<div>Total Budget: US\$1,183,366</div> <div>UNDP: US\$ 50,366</div> <div>Donor (UN Foundation): 400,000</div> <div>Donor (Norway): US\$ 733,000</div>
China End Use Energy Efficiency Programme (EUEEP) (2005 – 2011)	
Objectives	The removal of barriers to the widespread application and practice of energy conservation and energy efficiency in the major energy consuming sectors (buildings and industrial) in China.
Response	The project fostered a strategic approach to developing, implementing, and enforcing a comprehensive and effective energy conservation policy and regulatory system. The project was an unprecedented multi-scale government-led framework. It brought together, for the first time, all relevant parties at the national, provincial and community levels to agree on a common and innovative strategy to systematically adopt measures to address China's energy challenges.
Outcomes	<div>✓ Strengthened energy conservation standards and regulations.</div> <div>✓ Developed the energy conservation market and strengthen the roles of relevant stakeholders.</div> <div>✓ Revised China's Energy Conservation Law.</div> <div>✓ Built capacity of China's energy conservation management system, including decision-making and administrative capacity of energy conservation centers.</div> <div>✓ Reduced carbon emissions by 76 million tons (279 million tons of carbon dioxide) by the end of the 12-year programme.</div>
Implementing Partner(s)	National Development and Reform Commission (NDRC)
Budget	<div>Total Budget: US\$ 80,375,000</div> <div>UNDP (GEF): US\$ 17,000,000</div> <div>Government: US\$ 31,350,000</div> <div>Private Sector: US\$ 32,000,000</div>

MDG Carbon: Carbon Finance for Achieving MDGs in China (2006 - 2009)	
Objectives	To create new and innovative mechanisms to capitalize on the potentially significant benefits carbon finance for China's attainment of Millennium Development Goals (MDGs).
Response	Further to UNDP's Global MDG Carbon Facility launched in November 2005, the China MDG Carbon Programme is a mechanism that can help achieve this outcome in China.
Outcomes	<div>✓ Development of a strategic framework and plan for MDG Carbon market development in China.</div> <div>✓ Supported design and implementation of pilot MDG-Carbon projects that go beyond the current 'end of pipe' projects, with major emphasis on least developed areas of China.</div> <div>✓ Strengthened and developed capacity of the local stakeholders for real CDM projects development. This has been supported by pilot establishment of a Climate Exchange process in China – a public-private sector platform for facilitating carbon trading between multinational and local firms.</div>
Implementing Partner(s)	Ministry of Science and Technology
Budget	<div>Total Budget: US\$ 1,700,000</div> <div>UNDP Trust Fund: US\$ 200,000</div> <div>Private Sector: US\$ 1,500,000</div>
Developing Interconnection of Nationwide Electricity Network and Improving Energy Efficiency in China (2007 – 2010)	
Objectives	To help reduce coal and water consumption for power generation, promote renewable and nuclear energy-use, reduce air pollutants by adopting international best practices, regulations, policies and technologies from other countries. It aimed also to build managerial and technical capacity of participating power generation companies and their affiliates on energy efficiency practices while linking them to national policy development and capacity building frameworks to influence future economic development of the power sector.
Response	The Chinese government has initiated electricity sector reforms to overhaul an antiquated system and attain new energy security and environmental objectives. How China proceeds with these reforms will have lasting consequences, both locally and globally.
Outcomes	<div>✓ Strategy and roadmap for achieving the energy conservation objectives of the "11th Five-year Plan" developed.</div> <div>✓ Assessment and Roadmap on the New Technologies for Emissions Reduction in Power Sector prepared.</div> <div>✓ Strategic Policy Framework and Action Plan of the Power Sector for Wind Power Development in China formulated.</div>
Implementing Partner(s)	China International Center for Economic & Technical Exchanges (CICETE) and China Power Investment Corporation (CPIC)
Budget	<div>Total Budget: US\$ 24,254,913</div> <div>UNDP: US\$ 1,034,774</div> <div>Government: US\$ 23,220,139</div>

China Climate Change Partnership Framework Programme (2007 - 2011)	
Objectives	In order to pursue a common overarching approach to policy and action on climate change, the 9 UN agencies in China and 12 Chinese partners jointly launched this Framework, encompassing three major areas of focus: climate change policy, mitigation, and vulnerability assessment and adaptation. Its strategy is to a) support national level policies needed to achieve climate change goals in China; and b) promote dissemination of innovative pilot partnerships and technologies at the local level.
Response	The project supported the development of post-2012 strategies, strengthened global knowledge sharing and best practices, piloted clean coal and new renewable energy technologies, and designed adaptation policy frameworks to climate-proof future investments in less developed areas of China.
Outcomes	<div>✓ Three Post 2012 strategies on technology transfer/finance, sector technology transfer, and human development links to carbon budgeting were drafted.</div> <div>✓ Series of local and international roundtables were held for post-2012 strategies discussions.</div> <div>✓ Blueprint for the Global Climate Change Centre.</div> <div>✓ First draft of Basic Energy Law was completed and series of local workshops for public stakeholder consultations were held, and the law submission to National Peoples Congress.</div> <div>✓ A roundtable meeting between Chinese and multinational companies to establish the UN Business Compact on Climate Change.</div> <div>✓ Local partnerships were established for local design and piloting of biomass technology in household application.</div>
Implementing Partner(s)	China International Centre for Economic & Technical Exchanges (CICETE)
Budget	<div>Total: US\$19 million</div> <div>MDG Achievement Fund: US\$ 12 million</div> <div>Private: US\$ 5 million</div> <div>Government: US\$ 2 million</div>
Provincial Climate Change Programme – Mitigation and Adaptation (2008 – 2011)	
Objectives	To support the Government of China in translating its National Climate Change Programme (NCCP) launched in 2007 into on-the-ground action by developing local policies, institutional frameworks, partnerships and implementation capacities.
Response	To realize the provincial initiatives to combat climate change, the mitigation strategy, some underlying strategies were formulated; design of new pilot schemes in key areas such as energy efficiency, clean coal and renewable energy; improvement of land management and reduction of deforestation in reducing emissions; overcoming policy barriers and transaction costs through improved regulation and standards to control high energy intensive and heavy polluting sectors.
Outcomes	<div>✓ Developed provincial programmes for climate change mitigation and adaptation with strong local ownership.</div> <div>✓ Established institutional arrangement at provincial level for address climate change.</div> <div>✓ Strengthened capacity of local governments in adopting climate change adaptation and mitigation by creating a mechanism to allow joint actions of different local government departments.</div> <div>✓ Cooperation supported on both mitigation and adaptation between China and other countries by sharing experiences and best practices.</div>
Implementing Partner(s)	China International Centre for Economic & Technical Exchanges (CICETE)
Budget	<div>Total Budget: US\$ 4,105,600</div> <div>UNDP: US\$ 400,000</div> <div>Donors: EU US\$ 1,705,600, Norway US\$ 2,000,000</div>

Enabling China to Prepare Its Second National Communication to the UNFCCC (2008 – 2012)	
Objectives	China has been a party to UNFCCC since 1992 and submitted the Initial National Communication (INC) with a national inventory of greenhouse gases (GHG) emissions in 2004. This project aimed to improve capacity building efforts; existing data system; data monitoring; choice of methods; compilation and quality control of the data; and financial and technical support.
Response	The INC has laid a great foundation for the international community to have a comprehensive understanding of the efforts of China in combating climate change. The 2nd NC has enhanced the capacity of Chinese government in integrating climate change into socio-economic development planning and informing NLGCC for better policy-decision making.
Outcomes	<div>✓ Developed inventory of GHG emissions, GHG inventory database and GHG emission forecasting and modelling systems of 7 sub-components: energy, agriculture, industry, forestry, waste treatment, GHG database, and projection methodology. Nationally, it contributed to a comprehensive understanding of the GHG emissions from different source categories.</div> <div>✓ Completion of the assessment of the impacts of climate change on China and its vulnerabilities.</div> <div>✓ Improved public awareness on climate change.</div> <div>✓ Developed inventories of GHG emissions for HK SAR and Macau SAR</div> <div>✓ Supported activities for achieving the UNFCCC objectives.</div> <div>✓ Publication and dissemination of the documents on China's SNC to UNFCCC.</div>
Implementing Partner(s)	National Development and Reform Commission (NDRC)
Budget	<div>Total Budget: US\$ 5,650,000</div> <div>UNDP GEF: US\$ 5,000,000</div> <div>Government in kind: US\$ 650,000</div>
Phasing out of Incandescent Lamps & Energy Saving Lamps Promotion Project (PILESLAMP) (2008 – 2012)	
Objectives	Enhanced promotion and resulting higher utilization of energy saving lamps (ESLs) in China through the transformation of the local lighting products market and the phasing-out of incandescent lamp (IL) production and sale.
Response	The project focused on lighting industry capacity enhancement to achieve conversion of IL manufacturing to ESL production; ESL market development and product promotion to achieve strengthened promotion networks and marketing channels for ESLs in cities and rural areas; to launch awareness campaigns to raise the demand for ESLs; and to bring about more affordable and accessible financing options for ESL applications.
Outcomes	<div>✓ Increased volume of investments in ESL manufacturing and conversion of IL production lines to ESLs.</div> <div>✓ Improved quality of locally manufactured ESL products.</div> <div>✓ Reduced hazardous waste pollution from ESL production and disposal.</div> <div>✓ Improved capacity of the energy service institutes and market partners to promote ESLs country widely.</div> <div>✓ Expanded marketing channels for ESL products in large/medium size cities and big towns</div> <div>✓ Significant improvement in the sales of ESL products and reduction in the sales of incandescent lamps in the rural areas (small towns & villages).</div> <div>✓ Improved public awareness on the benefits and application of ESL products, especially in the rural areas.</div> <div>✓ Successful business transformation of incandescent lamp manufacturers to ESL producers.</div> <div>✓ Improved availability and accessibility of ESLs in the domestic market.</div> <div>✓ Phasing out of the manufacture, sales and use of incandescent lamps and promotion of ESLs in China.</div>
Implementing Partner(s)	National Development and Reform Commission (NDRC)
Budget	<div>Total Budget: US\$ 84,000,000</div> <div>UNDP Budget (GEF Trust Fund): US\$ 14,000,000</div> <div>Government: US\$ 27,000,000</div> <div>Private sector: US\$ 40,000,000</div> <div>Donors: US\$ 3,000,000</div>

Barrier Removal to the Cost-Effective Development and Implementation of Energy Efficiency Standards and Labelling (2009 – 2014)	
Objectives	Reduction of GHG emissions in selected Asian countries (i.e. BRESL countries – Bangladesh, China, Indonesia, Pakistan, Thailand and Vietnam) by accelerating the adoption and implementation of energy standards and labels (ES&L) in Asia. The project also facilitates harmonization of test procedures, standards and labels among developing countries in Asia, when appropriate. The project is expected to cost-effectively deliver an average of 10% reduction in total residential and commercial energy use in partner countries at the time of peak impact by the year 2030 compared to a baseline scenario, thereby contributing to more environmentally sustainable and economically efficient development
Response	Placing energy conservation as the top priority of national policy, many Asian countries consider the potential of implementing energy-efficient standards and labelling (ES&L) program to effect the transformation of energy consuming appliances or equipment markets to the widespread utilization of energy-efficient appliances or equipment at a lower cost than providing new or alternative energy supply.
Outcomes	<div>✓ The 5-year BRESL project is adopted with the expectation to achieve an average of 10% reduction in total residential and commercial energy use at the time of its peak impact by the year of 2030. The project is:</div> <div>✓ Providing support for BRESL countries to develop legal and regulatory basis.</div> <div>✓ Strengthening institutions and developing capacities, including training, regional technical working groups, strengthening of testing and certification infrastructure, and improving data collection and reporting.</div> <div>✓ Assisting manufacturers to better understand standards and labels to improve products and profits</div> <div>✓ Promoting regional and national coordination and information sharing through a regional ES&L website</div> <div>✓ Undertaking several national level pilot projects to raise consumer awareness about efficient products and increase sales</div> <div>✓ Facilitating regional trade through mutual recognition agreements and product certification and posting procedures</div>
Implementing Partner(s)	National Development and Reform Commission (NDRC)
Budget	<div>Total Budget: US\$ 35,880,900</div> <div>UNDP GEF: US\$ 7,800,000</div> <div>Government: US\$ 24,020,900</div> <div>Private Sector: US\$ 4,060,000</div>
Promoting Energy Efficient Room Air Conditioners (PEERAC) (2010 – 2014)	
Objectives	To decrease China’s future GHG emissions through transformation of the Chinese room air conditioner (RAC) market to production and sale of more energy-efficient RACs.
Response	The total annual energy consumption combined commercial and residential (C&R) sectors in China accounts for about 20% of the country’s total energy consumption each year. In the residential sector alone, the electricity consumption increases by 11% to 15% each year. Heating, ventilation and air conditioning (HVAC) account for the highest energy consumption among the end uses in the C&R sector at 60-65%. China currently aims to cut 20% of energy consumption per unit GDP by 2010 compared with 2005 levels. The proposed project combines AC Compressor and RAC Efficiency Upgrades and the promotion of Energy Efficient RAC.
Outcomes	<div>The project is expected to contribute to the reduction of GHG emissions in China through the transformation of the market and C&R building market toward more energy-efficient building equipment/appliance, technologies and practices. The corresponding achievements are:</div> <div>✓ More locally produced high efficiency AC compressors.</div> <div>✓ More locally produced high efficiency room air conditioners.</div> <div>✓ Enhanced enabling environment to support energy and increased market share of EERACs.</div>
Implementing Partner(s)	China Ministry of Environmental Protection
Budget	<div>Total Budget: US\$ 27,613,600</div> <div>GEF: US\$ 6,263,000</div>

China: Low-carbon products certification project in Chongqing and Guangdong (2012 – 2014)	
Objectives	<div>To support:</div> <div>✓ Provincial greenhouse gas (GHG) emissions inventory capacity building.</div> <div>✓ Develop a set of greenhouse gas emissions accounting methodologies for enterprises of key industries.</div>
Outcomes	<div>✓ Chongqing and Guangdong provinces low-carbon product certification implementation rules and low-carbon product certification standards developed (draft).</div> <div>✓ Greenhouse gases accounting methodologies for motorcycle and wrought aluminium alloy extruded profiles developed.</div> <div>✓ Low-Carbon product certification standards and GHG accounting methodologies for general portland cement, flat-panel TVs, air-conditioners, flat glass, household refrigerators and small and medium asynchronous motors developed.</div>
Implementing Partner(s)	National Development and Reform Commission (NDRC)
Budget	<div>Total budget for China out of 25 countries: US\$1,030,000</div> <div>UNDP (EU): US\$ 1,030,000</div>
Establishment of National Registry System for Domestic Emissions Trading Scheme and Voluntary Carbon Emission Reduction Projects (2012-2014)	
Objectives	<div>To support Government of China by designing and building technical measures to regulate and supervise the voluntary emission reduction and trading markets through:</div> <div>✓ Establishing national voluntary emission reduction project registry system to maintain a common voluntary market with centralized information disclosure and standardized trading commodities.</div> <div>✓ Establishing a national registry for regional and nationwide emissions trading schemes to materialize the national objective to build carbon market gradually.</div> <div>✓ Developing capacity by carrying out education and training activities to build and enhance the capacities of stakeholders in the voluntary project market, and regional and national emissions trading market.</div>
Outcomes	<div>✓ Established national voluntary emission reduction project registration and management system.</div> <div>✓ Established national registry system for emissions trading scheme.</div> <div>✓ Enhanced capacity in the voluntary project market, and regional and national emissions trading market.</div>
Implementing Partner(s)	National Development and Reform Commission (NDRC)
Budget	<div>Total Budget: US\$ 10-12,000,000</div> <div>UNDP (Donor country Norway): US\$ 10-12,000,000</div>

REFERENCES

¹ Helen Clark, UNDP Administrator (From her speech “The Road to Rio: recommitting to sustainable development” at the University of Cambridge, Centre for Research in the Arts, Social Sciences and Humanities, 17 April 2012).

² Worldwatch Institute (2012). Carbon Dioxide Emissions on the Rise as the Kyoto Era Fades. By Xing Fu-Bertaux, a Research Associate with Worldwatch’s Climate and Energy Team.

³ Speech held at the UN Climate Change Conference (COP16), in Cancun, Mexico.

⁴ Interview with the journalist and international communication expert Andréa Zenóbio Gunneng, March/2012, in Beijing, China.

⁵ Chinadialogue (2011). China’s Green Revolution – Energy, Environment and the 12th Five-Year Plan, pg. 8. www.chinadialogue.net

⁶ UNDP in China. 2011 Annual Report.

⁷ UNDP in China. 2011 Annual Report.

⁸ The new poverty threshold of RMB 2300 per annum was introduced in 2011. Fan Xiaojian, the Director of State Council’s Poverty Alleviation Leading Group Office states that the number of poor has declined from 128 million to 122 million. China Daily, ‘Counting on success in poverty fight’, http://www.chinadaily.com.cn/cndy/2012-08/10/content_15657342.htm

⁹ From 1973 to 1978, China participated in the UNDP economic and technical assistance activities as a contributor, promoting the technical exchanges among developing countries. In 1978, the Chinese government decided that it would maintain the status of a contributor, but, at the same time, would start receiving technical assistance from UNDP. Source: First Country Programme for The People’s Republic of China for the period 1982-1986.

¹⁰ Held, David, Nag, Eva-Maria & Roger, Charles (2011). The Governance of Climate Change in China. LSE-AFD Climate Governance Programme, working paper, pg. 11.

¹¹ White Paper (2011): China’s policies and Actions for Addressing Climate Change.

¹² UNDP Country Programme 1982-1986.

¹³ UNDP Country Programme 1982-1986, pg. 20.

¹⁴ UNDP Country Programme 1986-1990.

¹⁵ UNDP Country Programme 1986-1990.

¹⁶ In 1984, UNDP provided 18% of the total multilateral technical assistance, or 44% if food aid is not taken into account.

¹⁷ Held, David, Nag, Eva-Maria & Roger, Charles (2011). The Governance of Climate Change in China. LSE-AFD Climate Governance Programme, working paper, pgs. 10, 11.

¹⁸ Economy, Elizabeth C. (2010). The River Runs Black – The environmental challenge to China’s future. 2nd Edition. Winner of the International Convention of Asia Scholars Book Prize in Social Sciences, pg. 18.

¹⁹ UNDP Agenda 21 Programme Document (1993).

²⁰ UNDP Agenda 21 Programme Document (1993).

²¹ Economy, Elizabeth C. (2010). The River Runs Black – The environmental challenge to China’s

future. 2nd Edition. Winner of the International Convention of Asia Scholars Book Prize in Social Sciences, pg. 196.

²² China’s Agenda 21 – White Paper on China’s Population, Environment and Development in the 21st Century.

²³ Economy, Elizabeth C. (2010). The River Runs Black – The environmental challenge to China’s future. 2nd Edition. Winner of the International Convention of Asia Scholars Book Prize in Social Sciences, pg. 197.

²⁴ UNDP Agenda 21 Programme Document (1993).

²⁵ UNDP Agenda 21 Programme Document (1993).

²⁶ In 1996, consumption of energy in China exceeded 1.3 billion tonnes of coal equivalent (tce). Coal has been the Chinese primary source of energy, accounting at that time for approximately three quarters of commercial energy use and 80% of electricity generation. Oil provided about 16%, with hydropower (5%) and natural gas (2%) accounting for the rest. UNDP project document “Capacity building for rapid commercialization of renewable energy in China” (1999-2008), pg. 1.

²⁷ Held, David, Nag, Eva-Maria & Roger, Charles (2011). The Governance of Climate Change in China. LSE-AFD Climate Governance Programme, working paper, pg. 22.

²⁸ UNDP project document “Capacity building for rapid commercialization of renewable energy in China” (1999-2008), pg. 22.

²⁹ National wind resource potential exceeds 255 gigawatts (GW). Solar insolation is excellent, with 17 million Mtce (or 50,000 EJ) of solar energy absorbed at the surface annually. Hydro, biomass and geothermal resources are also abundant in some provinces, with potential annual resources of 300 Mtce of biomass for energy purposes, 76 GW for mini-hydro (less than 25 MW) and 6.7 GW from geothermal energy. UNDP project document “Capacity building for rapid commercialization of renewable energy in China” (1999-2008), pg. 2.

³⁰ UNDP Country Programme 1996-2000.

³¹ UNDP Human Development Report 2010.

³² UNDP Human Development Report 2011.

³³ UNDP Country Programme 2001-2005

³⁴ UNDP Country Programme 2001-2005

³⁵ Held, David, Nag, Eva-Maria & Roger, Charles (2011). The Governance of Climate Change in China. LSE-AFD Climate Governance Programme, working paper, pg. 24.

³⁶ UNDP Annual Review January 2007 of the project 'Building Capacity for the Clean Development Mechanism in China’.

³⁷ White Paper (2011): China’s policies and Actions for Addressing Climate Change.

³⁸ UNDP Country Programme 2006-2010.

³⁹ 2007 China’s National Climate Change Programme.

⁴⁰ UNDP Country Programme 2006-2010.

⁴¹ White Paper (2011): China’s policies and Actions for Addressing Climate Change.

BIBLIOGRAPHY

Academic Literature

- China’s Green Revolution – Energy, Environment and the 12th Five-Year Plan (2011). E-book, chinadialogue – www.chinadialogue.net/reports
- National Renewable Energy Laboratory (NREL) fact-sheet on “Renewable energy in China”
- “Resilient people, resilient planet – A future worth choosing”, a report developed by the High-level Panel on Global Sustainability (GSP), launched on 30th January 2012 in Addis Ababa.
- The Governance of Climate Change in China (2011). LSE-AFD Climate Governance Programme, working paper. Held, David, Nag, Eva-Maria & Roger, Charles
- The River Runs Black – The environmental challenge to China’s future (2010). 2nd Edition. Economy, Elizabeth C. Winner of the International Convention of Asia Scholars Book Prize in Social Sciences

Political Documents

- 11th Five-Year Plan
- 12th Five-Year Plan
- 1998 Law on Energy Conservation.docx
- 2004 China Energy Saving Plan
- 2005 The Renewable Energy Law
- 2007 Medium- and long-term development plan for renewable energy
- 2007 China's National Climate Change Programme
- 2008 Law on Energy Conservation
- 2009 Progress Report “China’s Policies and Actions for Addressing Climate Change”
- 2011 White Paper: China’s polices and Actions for Addressing Climate Change
- 2012 Current Status and Next Steps of China’s 2012 National Adaptation Strategy (NAS)

Agenda 21 Documents

- China’s Agenda 21
- Project Document
- Project Document Best Practices
- Terminal Report
- Beijing’s Agenda 21
- Project Document
- Evaluation
- Annual report

⁴² This UNDP project was complementary to the EU-China Energy and Environment Programme and to the EU-China CDM Facilitation Project. At that time, UNDP was developing a new UN Climate Change Partnership Framework (CCPF) programme bringing together nine UN agencies and more than 10 national partners to chart the course of post-Kyoto strategies and undertake a series of national level dialogues and policy activities related to climate change mitigation and adaptation. CC PF aimed to facilitate overall national coordination of climate change projects.

⁴³ China’s Policies and Actions for Addressing Climate Change – The Progress Report 2009, NDRC, pg. 7.

⁴⁴ UNDP Agenda 21 Programme Documment (1993), pgs 27, 28.

⁴⁵ Medium- and Long-Term Development Plan for Renewable Energy, 2007, pg. 6.

⁴⁶ China’s Policies and Actions for Addressing Climate Change – The Progress Report 2009, NDRC, pg. 21.

⁴⁷ China’s Policies and Actions for Addressing Climate Change – The Progress Report 2009, NDRC, pg. 24.

⁴⁸ Chinadialogue (2011). China’s Green Revolution – Energy, Environment and the 12th Five-Year Plan, pg. 5. www.chinadialogue.net

⁴⁹ UNDP Programme Document ‘Phasing-out of Incandescent Lamps and Energy Saving Lamps Promotion in China (PIESLAMP).

⁵⁰ UNDP Programme Document ‘Phasing-out of Incandescent Lamps and Energy Saving Lamps Promotion in China (PIESLAMP).

⁵¹ UNDP Programme Document ‘Promoting Energy Efficient Room Air Conditioners’ (PEERAC).

⁵² UNDP Programme Document ‘Promoting Energy Efficient Room Air Conditioners’ (PEERAC).

⁵³ UNDP Programme Document ‘Barrier Removal to the Cost-effective Development and Implementation of Energy Efficiency (BRESL).

⁵⁴ UNDAF 2011-2015. Development Assistance Framework for the People’s Republic of China, pg. 1.

⁵⁵ Chinadialogue (2011). China’s Green Revolution – Energy, Environment and the 12th Five-Year Plan, pg. 13. www.chinadialogue.net

⁵⁶ Chinadialogue (2011). China’s Green Revolution – Energy, Environment and the 12th Five-Year Plan. , pg. 21. www.chinadialogue.net

⁵⁷ UNDP in China. 2011 Annual Report, pg. 2.

⁵⁸ UNDP Country Programme 2011-2015, pg. 3.

⁵⁹ China Climate Change Programme 2007.

⁶⁰ UNDP & CICETE Risk Management Annual Newsletter 2011.

⁶¹ Current Status and Next Steps of China’s 2012 National Adaptation Strategy (NAS). Report written by Rebecca Nadin, director Adapting to Climate Change in China (ACCC) – 21-10-2012.

⁶² UNDP in China. 2011 Annual Report, pg. 3.

⁶³ UNDAF 2011-2015. Development Assistance Framework for the People’s Republic of China.

UNDP Project Documents

- * Barrier Removal to the Cost-Effective Development and Implementation of Energy Efficiency (BRESL) Standards and Labeling Project (2009)
 - Project Development Preparation (PDF) Proposal
 - Inception Report
 - Project initiation document
 - Project Document
- * Promoting Energy Efficient Room Air Condtioners – (PEERAC) (2010)
 - Minutes of Pre-PAC Meeting
 - Project Document
- * Capacity Building for Rapid Commercialization of Renewable Energy in China (1999)
 - Project Document
 - Draft Final Report G8 Renewable Energy Task Fore, 2000
 - Monitoring & Evaluation Framework for UNDP/GEF Portfolio in China, 2000
 - Final Report - Establishment of a Chinese Renewable Energy Industries Association, 2001
 - Mission report on wind-diesel-battery hybrid power system demonstration at Beilong
 - Final Report for SSA 2008
- * China End Use Energy Efficiency Project (EUEEP) (2005)
 - Project document (2003)
 - Mission report UN Climate Change Conference, Bali, 2007
 - Project Annual Report, 2010
 - Meeting Summary of Research on Energy Conservation in China Based on I IPEEC Mechanism and Promotion Mechanism of End Use Energy-consuming Products, 2010
- * Phasing-out of Incandescent Lamps and Energy Saving Lamps Promotion in China (PIESLAMP) (2009)
 - Project document
 - Project progress, 2010
- * Barrier Removal for the widespread commercialization of Energy-efficient CFC-free refrigerators (1999)
 - Project document
 - Summary report
- * Enabling China to Prepare its second national communication to the UNFCCC (2007)
 - Project document, 2007

- * Building Capacity for the Clean Development Mechanism in China (2003)
 - Project document, 2003
 - Annual Review report, 2007
 - Terminal report
- * MDG Carbon: carbon finance for achieving MDGs in China (2006)
 - Project Document, 2006
 - Mission report Inner Mongolia, 2007
- * Provincial Programmes for Climate Change Mitigation & Adaptation in China (2009)
 - Project Document, 2009
 - Progress Report, 2009
 - Annual Project Progress Report, 2010
- * Provincial Greenhouse Gas Emissions Inventory Capacity Building and Greenhouse Gas Emissions Accounting Methodology for Enterprises of Key Industries
 - Project Document
- * Establishment of National Registry System for Domestic Emissions Trading Scheme and Voluntary Carbon Emission Reduction
 - Project Document

UNDP Country Cooperation Programmes (CCP)

- 1982-1986
- 1986-1990
- 1991-1995

UNDP Country Cooperation Framework (CCF)

- 2001-2005
- 2006-2010
 - UN Dev. Assist. Framework 2006-2010
- 2011-2015
 - UN Dev. Assist. Framework 2011-2015
 - 2011 UNDP China Annual Report

UNDP Human Development Report

- 2010 – The Real Wealth of Nations: Pathways to Human Development
- 2011 – Sustainability and Equity: A Better Future for All



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