

# The Challenge of Positive Influence: Managing Sustainable Development on the West-East Pipeline Project

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*The West-East Pipeline Project is the second largest state infrastructure project in China and the first in which foreign companies were invited to participate. It is an integrated upstream, midstream, and downstream project that brings gas from northwest China to the east via a 4,000-kilometer pipeline from the Tarim Basin in Xinjiang to Shanghai. PetroChina is the company responsible for developing the project. Between 2001 and 2004, PetroChina was in discussions with Shell, Gazprom, and ExxonMobil about possible participation and these companies all signed a Joint Venture Framework Agreement in July 2002. In August 2004, the Joint Venture Framework Agreement was terminated, ending the international energy companies' interest in the project. During the discussions, a key challenge was to drive positive environmental and social outcomes in line with international expectations, within the context of negotiating a minority shareholding in a non-operated Joint Venture. Moreover, the project was already well advanced in planning and through China's regulatory approval when discussions with the international companies started, and moved into full construction while negotiations over participation continued. This paper describes how over 18 months, Shell developed strategies and tools to encourage the project towards international standards and to ensure implementation of those standards. The authors of this paper—who were members of the Shell team—put forward lessons learned and practical solutions, particularly the approaches taken for an environmental and social impact assessment, establishing partnerships, gaining reassurance about the compensation and resettlement program, and managing the expectations of different stakeholders.*



**B**uilding a 4,000-kilometer (km) pipeline comes with no shortage of complexities and challenges, whether in China or anywhere else in the world. As engineers find innovative solutions for a wide scope of technical difficulties in huge infrastructure projects, social scientists and conservationists are becoming more involved in identifying environmental and social impacts, mitigating negative ones, and promoting positive benefits in communities affected by operations of such projects.

While the degree to which a project meets sustainable development goals depends to a large extent on government policies, community expectations, public awareness, and local capacity, companies now realize the necessity of integrating social and environmental considerations more deeply into their project development decision-making. Across a broad spectrum of issues, the Shell team, representing an international consortium of companies that included Gazprom and ExxonMobil, engaged the Chinese partner—PetroChina<sup>1</sup>—in innovative and progressive

methods to address the social and environmental implications of the pipeline's development. While partner caution and reluctance over increasing transparency and accountability, largely culture driven, certainly affected Shell's work, among the Chinese partners there were encouraging trends towards setting clearer goals for sustainable development and increasing allocation of staff and budgetary resources.

This paper draws specifically on Shell's experiences with the West-East Natural Gas Pipeline Project in China. It highlights some of the issues and dilemmas Shell faced within the context of supporting sustainable development and conservation activities on a major infrastructure project in China. In this paper we outline Shell's evolving approach to meet sustainable development goals on the project, as well as define environmental and social impact standards. We also identify the key environmental and social challenges faced by Shell and show what approach was taken to influence the activities of our prospective business partners. Finally, we conclude with lessons learned and



*West East pipeline construction*

*Credit: Mike Seymour*

recommendations for future cooperation.

The authors hope that this paper will contribute to a better understanding of how to set clear goals and establish partnerships that result in limiting negative social and environmental effects of business operations. We are proud to discuss several successes and challenges. By examining some of our challenges and regrets, we hope to provide insights on how to build capacity within the industry to protect the natural and human environments in which business and industry operate in China.

## PROJECT CONTEXT

### *Overview of the West-East Pipeline Project*

The West-East Pipeline is a complex integrated upstream, midstream, and downstream project, costing some \$8.5 billion, that brings gas from the northwest of China to the fast-developing cities in the east. It forms an important part of the Chinese government's plan to increase use of gas and develop cleaner energy resources to sustain economic growth and limit the negative effects of coal use. Shell was part of an international consortium of companies, including ExxonMobil and Gazprom, seeking to take a combined 45% shareholding in the project with PetroChina (50%) and Sinopec (5%).

The project involves drilling wells in the Tarim Basin in Xinjiang and transporting the gas via a 4,000 km pipeline across the country to Shanghai. Along the way, the pipeline will link with additional reserves in the Ordos Basin in Shaanxi province. First gas began to flow into the eastern section of the pipeline from Ordos in early 2004, with Tarim gas coming on-stream in early 2005. Sales of the gas are expected to reach 4.0 billion cubic meters (bcm) in 2005, which is one-tenth of China's total production (Reuters, 2005).

The pipeline, which is about one meter in diameter with an anti-erosion coating, is buried one meter underground and has the capacity to carry 12 bcm of gas a year. After the pipes are placed, the surface of the right of way is to be restored to its original condition, except for some parts where access a few meters wide will remain for maintenance purposes. Most of the land will be returned to cultivation or herding, as it was before the pipeline was laid. Not surprisingly, a project of this magnitude has presented a variety of environmental, land use, and social challenges, which are discussed below.

The West-East Pipeline Project was unusual in that Shell, along with its international partners, began project negotiations (and therefore due diligence) later in the timeline than usual. Shell was selected as a preferred partner for further negotiation in September 2001; the same month as full construction of the pipeline was scheduled to start. The authors cannot speak for PetroChina, which constructed the pipeline, but can discuss collaboration between Shell and PetroChina and other local and international stakeholders to establish and achieve common environmental and social standards in project development.

### *China's Energy Demands*

China, with one-sixth of the world's population, overtook Japan in 2003 to become the second largest consumer of energy globally. It attracts more foreign direct investment per year than any other country, which has helped fuel an economy that has been growing at an unprecedented rate of over 9% on average per year for more than 20 years. China's economic growth is predicted to continue at high rates (it achieved 9% in 2003 despite the SARS epidemic), which requires a huge increase in energy use. China consumed approximately 10% of the energy used worldwide in 1997 and it is predicted to consume approximately 14 to 16% by 2020 (Baldinger & Turner, 2002, pp.11-12). China's crude oil imports are expected to reach

140 million metric tons by 2010.<sup>2</sup>

In 2003, China surpassed its 2005 targets for power consumption two years ahead of projected expectations, but the country's ability to supply the growing demand for energy continues to fall short (AmCham, 2003, p.11). For example, in the summer of 2004 China's east coast cities were plagued with brownouts during the summer months. Despite investment into clean

serious environmental conditions. Local energy supplies are insufficient for China's growing demand, prompting China's oil and gas companies to look towards supplies in Central Asia, Latin America, the Middle East, Russia, and West Africa for new reserves. To cushion itself from possible shortfalls and international price disruptions, the Chinese government has announced plans to increase oil reserves to an amount equal to 50 days of

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energy sources, coal—currently supplying about 70% of China's primary energy demand—will continue to be the country's major energy source. Coal has caused major environmental and health problems, notably air pollution, acid rain, and dangerously high rates of respiratory disease, which is considered the number one cause of death in China.

Today, natural gas provides just 2.5% of the country's total energy consumption, but the government hopes to increase that to 8% by 2020 (AmCham, 2003, p.12). The West-East Pipeline promises to allow China to harness a cleaner fuel and limit the growth of coal use in many eastern cities. It is estimated that the pipeline will deliver 20% of China's projected natural gas demand by 2010. Thus the pipeline could have significant health benefits for people living in cities where the gas will replace coal as the primary energy source. The West-East Pipeline is part of the Chinese government's broader goal to reduce hazardous emissions.

A recent Sino-U.S. study on natural gas use in China found that for every 20 billion cubic meters of natural gas used in place of coal, sulfur emissions would decline by 650,000 tons and carbon dioxide would decrease by 14 million tons.<sup>3</sup> It should be noted, however, that regardless of the pipeline or other increases of natural gas, coal use will still increase as China's energy demands continue to rise.

### *Government Approach to Addressing Energy Deficiency*

The 2004 National People's Congress meeting highlighted China's severe energy deficit and proposed moves to limit investment in power-draining sectors such as aluminum (*China Daily*, 2004, p.3). Indeed, Chinese government officials and industry researchers are debating how to diversify energy supplies without threatening national security or exacerbating already

crude imports by the year 2010 in a mechanism similar to the U.S. Strategic Petroleum Reserve (*Beijing Morning Post*, 2004).

The Chinese government is actively developing clean energy resources, emphasizing the tapping of natural gas resources, although some China experts are interested in off-grid energy sources such as fuel cells, as well as liquefied natural gas (LNG) and renewable energy, such as hydropower. In the summer of 2004, the Chinese government also announced a renewed interest in developing nuclear power (Reiss, 2004). Natural gas sector development in China refers to harnessing indigenous resources and importing LNG. At present, seven LNG terminals are currently in different stages of planning. In addition to increasing production of natural gas, the National Development Reform Commission (NDRC, formerly State Development Planning Commission) indicates that the Chinese government has also decided to increase production and consumption of solar, wind, geothermal, and tidal energy.

Chinese policymakers also are aiming to reduce the environmental and health impacts of coal by upgrading and improving current coal-fired industry and developing new clean coal technologies.<sup>4</sup> Energy efficiency received considerable attention during China's Tenth Five Year Plan (FYP) period (2001-2005), with special attention paid to the formation of energy service companies, called ESCOs, promoting more effective building codes, and greater use of energy efficient building materials (Baldinger and Turner, 2002, pp.19-21). Moreover, on 28 February 2005, NDRC announced a new Renewable Energy Law that aims to increase renewable energy sources to 10 percent of total energy production by 2020, an amount roughly equivalent to 300 million tons of coal (*Xinhuanet*, 2005).

While air pollution remains a serious problem

throughout China, air quality has improved in those cities where natural gas heating measures are implemented and strictly enforced (International Energy Agency, 2002, p.9). Major cities along China's coast are now in the process of converting residential heating and cooking facilities from coal to natural gas.

#### HOW TO DEFINE AND DESIGN INTERNATIONAL ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT STANDARDS

##### *Establishing Standards*

Over a period of 18 months, Shell worked with its prospective partners to develop strategies and tools to encourage the West-East Project towards achieving international environmental, health, safety, and social standards and ensure their implementation on the ground. How environmental and social standards are implemented in a gas pipeline project vary from one operation to another, for joint venture partners may have different standards than Shell does. Thus, a good deal of communication on the subject of standards must happen early on. From the earliest negotiations on the West-East Pipeline, Shell managers brought environmental and social considerations to the table for inclusion in agreements and contracts.

Relevant Chinese laws and regulations on issues such as environmental protection, health, and safety, as well as resettlement and compensation were identified early in the due diligence process and a gap analysis was carried out to identify how Shell's involvement might contribute to supporting and strengthening standards and expectations surrounding these crucial issues. Throughout the process the Shell team made considerable effort to understand the expectations of local communities along the pipeline. Prior to Shell's entry into negotiations for the project, the Chinese partners had conducted environmental impact assessments (EIAs) for each province, which had been approved by the provincial Environmental Protection Bureaus (EPBs). Subsequent State Environmental Protection Administration (SEPA) approval for these EIAs came in September 2001 as

Shell was selected as the preferred partner for negotiation. As part of this EIA process, consultation was undertaken by PetroChina, which evaluated options for re-routing wherever considered practical and cost-effective.

While the EIA work already completed for the West-East Pipeline was an important step towards ensuring that the project would meet established environmental principles and satisfy both Shell internal and external stakeholders, it was believed that these EIAs did not go far enough. Thus Shell completed a gap analysis in 2001 to establish work that needed to be done to meet Shell's normal standards. After the gap analysis was done, Shell's Sustainable Development team had to work through and balance a myriad of arrangements, including:

- Building the case for Chinese partners to go beyond mere regulatory compliance;
- Justifying broader approaches to stakeholder consultation, especially to include community feedback; and,
- Undertaking an integrated environmental and social impact assessment (ESIA) to build upon the already government-approved EIAs.

The first step was to agree on the principles by which the partnership would develop, particularly in respect to health, safety, environment and social standards and the definition of sustainable development (see Shell definitions in Box 1). At an early stage all partners in the project agreed they would adopt the same standards, which enabled the partners to develop a comprehensive document detailing the standards that would be followed. This document was part of the first agreement on the pipeline—the Interim Agreement in December 2001—and part of the Joint Venture Framework Agreement (JVFA) that was signed in July 2002.

The partners quickly agreed to a set of minimum criteria, which allowed trial construction to start in December 2001 to test automated techniques new to China. The minimum criteria covered issues such as:

#### Box 1. Shell's Definition of Sustainable Development

Sustainable development principles were added to the Shell Group's overall business principles in 1998. These principles are: (1) generating robust profitability, (2) delivering value to customers, (3) protecting the environment, (4) managing resources, (5) respecting and safeguarding people, (6) benefiting communities, and (7) working with stakeholders.

(1) construction at nature reserves, cultural relics and world heritage sites; (2) avoidance of local communities; (3) compensation and resettlement arrangements; and (4) health and safety and audits/inspections. A joint PetroChina and Shell team audited trial sites before full construction was allowed to proceed. At the same time the partners drew up a plan for extra environmental and social impact assessment work, especially for a social impact assessment (SIA), which is not required by law in China. The project partners agreed to delay construction in most areas until these ESIA were completed. They also developed a fast-track ESIA process that allowed construction to start in a phased fashion as ESIA work was completed in each area.

Shell and partners made a particular effort to obtain credible and independent expert advice, ranging from consultants, research institutes, government departments, and nongovernmental organizations (NGOs) during the preparation of the ESIA and related management plans. In the area of environmental protection, solicited outside advice included:

- Consulting widely on biodiversity issues, locally, nationally and internationally, to build on existing information. For example, Shell worked with the Wild Camel Protection Foundation, IUCN, SEPA, Xinjiang EPB, and local research institutes to hold the Lop Nor Nature Reserve management workshop in December 2002, which discussed biodiversity challenges related to pipeline construction through the reserve.
- Preparing a series of environmental/ecological studies and plans specific to each of the nature reserves, coordinated by the Beijing University School of Environmental Sciences.
- Conducting overall ecosystem studies and a comprehensive soil and water conservation/restoration plan along the whole West-East Pipeline by The Chinese Academy of Sciences (CAS) with input from various Chinese research institutes (e.g., Arid Lands & Desert Research Institute).
- Training of construction contractors and supervision companies in biodiversity awareness and management plans.
- Ensuring expert supervision of construction and restoration activities by engaging nature reserve management staff.
- Engaging local experts to provide baseline understanding and practical measures for species



*The Anxi nature reserve*

*Credit: Mike Seymour*

preservation.

- Establishing a Land and Ecosystem Restoration Monitoring Project by the Water and Soil Conservation Institute within the Ministry of Water Resources.
- Reviewing reserve management plans by partners before any pipeline construction was done in nature reserves.

The result of these numerous studies has been a comprehensive and robust approach to understanding and managing the biodiversity and conservation issues surrounding the West-East project. In addition, local institutes and NGOs have reported considerable skills transfer benefit from involvement in these international approaches to ESIA. Environmental Resources Management (ERM), with contributions on social impacts from the United Nations Development Programme (UNDP) compiled a full midstream ESIA.<sup>5</sup> However, the upstream social and health impacts in Xinjiang could not be completed in the drilling region as the State Statistics Bureau did not grant Shell and its partners a license to conduct social impact studies and consultations in this area.

### *Management Plans*

Shell and its partners wrote management plans based on midstream ESIA reports and upstream

Environmental, Social and Health Impact Assessment (ESHIA) studies that included the social and health impact scoping review, information from independent experts and other stakeholders, and the environmental impact assessment. In order to achieve objectivity, third parties were used to create the plans, which were then submitted in English and Chinese to the partners for review. After review and comments, the plans were finalized and submitted as guidance for construction and planning.

#### WHAT ARE THE KEY WEST-EAST ENVIRONMENTAL AND SOCIAL CHALLENGES?

##### *Identification of Issues*

Understanding exactly what the issues were and building effective partnerships with relevant entities was critical. A High Level Assessment, conducted by an independent consulting company,<sup>6</sup> was completed in the early days to provide a better understanding of the project risks and issues so that partners could manage them better.

The pipeline runs through 10 provinces, traversing a wide variety of habitats, from the sparsely populated arid deserts in the west, through the loess plateaus and erosion-prone central plains, into the more mountainous and forested areas, and then into the heavily farmed and densely populated region in the east. The pipeline traverses six state and provincial protected nature reserves, crosses the Great Wall of China (a UNESCO Cultural World Heritage site) in twelve locations, and passes close to four important state-protected cultural heritage sites and several other areas known to be of cultural heritage or archaeological significance. Moreover, as the route follows much of the ancient Silk Road trading route and undeveloped inland regions, there was high potential for further archaeological discoveries during construction.

The social context for the project was also complex. Some of China's wealthiest counties, as well as some of its poorest, are found along the pipeline, reflecting the gap between the developed east coast and underdeveloped interior western regions. Some 3,000 people needed to be resettled, and over 230,000 people were to be compensated for temporary or permanent land disturbance. Shell and its partners used the following tools to identify social and environmental issues along the pipeline's route:

- Desktop studies and assessments;

- Chinese studies (reports and EIAs);
- Stakeholder engagement;
- Gap analysis to discover what else was needed to identify all possible impacts;
- Independent consultants hired through competitive bidding to conduct ESIA for midstream and ESHIA for upstream;
- Health impact assessment conducted by an independent professional international healthcare research firm; and,
- UNDP collaboration to conduct a large-scale survey in communities along the pipeline to gauge community expectations.

##### *What are the Issues?*

The issues identification exercise revealed a variety of potential and real impacts—both positive and negative—of pipeline construction. Key real or potential impacts identified include:

- Biodiversity threats, especially negative environmental impacts on nature reserves;
- Disruption to local land use and irrigation patterns, including land acquisition;
- Difficulties in consulting with communities to disseminate information about the project;
- Social impacts, including compensation and resettlement, and livelihood disruption;
- Providing local employment opportunities (commonly referred to as “local content”);
- Overly optimistic local expectations for access to natural gas among citizens in villages along the pipeline but where gas off-take does not occur;
- Health and safety threats along the pipeline;
- Damage to cultural heritage, especially regarding Great Wall crossings; and,
- Insufficient attention to ethnic sensitivities.

This section will look in-depth at five issues we see as particularly important and useful in drawing constructive lessons about building partnerships and engaging in innovative methods new to the oil/gas industry in China. Specifically, (1) nature reserves, with a focus on the Wild Bactrian Camel and Lop Nor Nature Reserve; (2) resettlement and compensation along the pipeline; (3) social impacts and local expectations; (4) cultural heritage, with an emphasis on the Great Wall crossings; and (5) health and safety concerns/standards.

### 1. Nature Reserves

The West-East Pipeline runs through six nature reserves in five provinces, three of which are state protected and three provincial. Regulations relating to nature reserve management and land use in China recognize three types of management zones: core, buffer, and experimental. While core and buffer zones are meant to be fully protected from external influences, the experimental zones allow for certain activities to be undertaken that are not supposed to cause lasting habitat damage, wildlife disturbance, or pollution. The Chinese government permitted the pipeline route alignment through certain sections of the experimental zones of the reserves, a situation that is not uncommon for such developments in China (or elsewhere in the world). Notably, regulatory approval for the route had largely been obtained by the time the international partners were selected for further negotiation.

Through the ESIA upgrade and subsequent efforts, Shell and its partners worked closely to influence best practice environmental and conservation measures in each of the protected areas affected by the pipeline route. In reserves along the entire route the project partners conducted discussions with reserve managers, local authorities, as well as local, national and international conservation experts. Typically, mitigation options for pipelines going through fragile areas include major or minor re-routing, a modification of construction methods, and other remediation and compensation measures. Stakeholder discussions and ESIA's explored each of these options in depth.

PetroChina engaged the Chinese Academy of

Sciences to further assist the project by defining the scope of a "Green Action Plan" to cover environmental management for the entire pipeline route. The plan includes a series of sub-plans to cover the next 8 to 10 years of the project in some of the following areas:

- Eco-protection
- Landscape and ecosystem restoration
- Water and soil erosion monitoring
- Pollution control and monitoring
- Nature reserve and biodiversity conservation
- Cultural heritage protection
- Cleaner production
- Environmental management and supervision
- Environmental education
- International cooperation

A number of opportunities for PetroChina to further build relationships and forge partnerships with different stakeholder groups in support of sustainable development and conservation activities are envisaged through implementation of this plan.

The EIAs and studies undertaken by PetroChina and its partners have helped push for better management in nature reserves along the pipeline. For example, the route of the pipeline was moved to ensure it did not enter the core and buffer zones of the Arjin Shan Lop Nor Wild Camel Reserve in Xinjiang. Moreover in this reserve PetroChina carried out close scrutiny of vegetation and watering points to allow for micro routing away from such areas. (See Box 2). The

### Box 2. Arjin Shan Lop Nor Wild Camel Sanctuary

The Arjin Shan Lop Nor Nature Sanctuary in southeastern Xinjiang is a provincial nature reserve, established in 1999 to protect the habitat of the Wild Bactrian Camel. The area is characterized by harsh desert that is remote and inhospitable. It forms part of the Great Gobi Desert, one of the world's largest deserts. Currently, there are no legal inhabitants in the majority of the reserve, however there are local communities along most of the boundaries particularly in the south where camel hunting and medicinal plant collection within the reserve threaten the species and its habitat. In some areas, in the absence of fresh water, the wild camel has adapted to drinking saltwater slush, which domestic camels will not touch. There is existing legal mining activity (permitted by a grandfather clause) and increasing illegal mining within the reserve.

Economic pressure to use the areas adjoining the nature reserve as grazing for domestic Bactrian camels has increased hybridization on the southern border and this poses a significant threat to the unique genetic strain of the Wild Bactrian Camel which current scientific research suggests might be a separate species.

The Wild Bactrian (two-humped) Camel is the ancestor of domestic camels and is only found today in four locations—three separated habitats in northwest China (Taklamakan desert, Lop Nur, and Arjin mountains) and one in Mongolia. There are approximately 600 individuals surviving in China and 350 in Mongolia and numbers are decreasing each year. This low population makes the Wild Bactrian Camel more rare than the Giant Panda and important in terms of China's biodiversity conservation.

### Box 3. Social and Environmental Linkages: Land Requisition, Restitution, and Compensation

While western China is sparsely populated and the pipeline effectively avoids most areas of human activity, land plots in densely populated central and eastern China are relatively small, which makes temporary land requisition a potentially significant disruption of livelihood for farmers. Furthermore, because of the large number of individual households involved and various land use right complexities in the east, a compensation plan for each impacted individual was considered both impractical and fraught with regulatory complexities. Therefore, requisition, restitution and compensation procedures were agreed between the West-East Pipeline Company and relevant national and provincial government entities to meet legal and demographic constraints.<sup>1</sup> These procedures were based on Chinese land administration laws requiring governments at appropriate jurisdictional levels to manage the distribution of information and compensation funds. The land required for construction and operation of projects such as this fall into two categories:

1. Land temporarily requisitioned for right of way construction; and,
2. Land permanently acquired for ancillary facilities and service roads, thus no longer useable for its original purpose.

The compensation and resettlement process is undertaken according to PRC policy, which if correctly implemented, is quite equitable. Activities undertaken in this process include: (1) land site and asset verification, (2) independent market analysis to determine compensation basis rates, and (3) negotiation of timing of payments and timing of land clearance.

The policy requires that project proponents negotiate and confirm compensation standards for temporary land requisition with provincial Land and Natural Resources Bureaus (LNRBs), then pay compensation to the provincial-level bureau according to signed agreements. The compensation is allocated by provincial LNRBs to impacted counties for distribution. For permanent land acquisition, the same procedures apply. However negotiated compensation rates are much higher, reflecting permanent land acquisition and a Land Use Certificate is also granted by the Ministry of Land and Natural Resources.

#### NOTES:

<sup>1</sup> Key government documents guiding land requisition issues include: the 1999 Land Administration Law of the People's Republic of China; the Ministry of Land Resources Order Number 3 "Measures for Management of the Examination and Approval of Construction-Used Land" (March 2, 1999); Decree Number 10 "Methods of Land Acquisition Notice" (October 22, 2001); and Ministry of Land Resources Land Law #233 "Notice concerning the future standardization of the procedure for investigation applications for the approval of land for construction" (August 2, 2002).

reserve is home to the Wild Bactrian Camel, a critically endangered species. The re-routing to protect the reserve added an incremental cost of \$18 million to the project. In addition, PetroChina and the reserve management agreed to a compensation package that was reviewed and supported by the Wild Camel Protection Foundation (WCPF, an international NGO based in the UK). Reserve managers have prepared a reserve management plan utilizing the funds with technical assistance from the WCPF as international advisors.

In addition to the compensation package, Chinese partners sponsored a Peking University-led environmental management plan for the reserve, which complements an ecological restoration plan prepared by the Chinese Academy of Sciences. Some stakeholders were concerned about residual radiation from past

nuclear weapons testing at Lop Nur, but radiation surveys conducted by Chinese research institutes and verified by international experts indicated no abnormalities in the vicinity of the pipeline route. The series of environmental/ecological studies and management plans sponsored by PetroChina and Shell/International Oil Consortium (IOC) included:

- Chinese environmental assessments for the whole pipeline route;
- ESIA upgrading by Environmental Resources Management (ERM);
- Eco-conservation and Restoration Management Study by the Chinese Academy of Sciences (CAS);
- Reserve specific construction and operations management plans by Peking University;
- *W2E EnviroEducation Manual – State Protected*



*Flora and Fauna by Province* by CAS;

- *Green Action Plan* prepared by CAS;
- Lop Nor Nature Reserve Management Workshop held in August 2002; and,
- Environmental and social management plans to provide site guidance on responsible construction management.

## 2. *Resettlement and Compensation*

Throughout the early stages of their involvement in project discussions the IOC highlighted the compensation and resettlement of persons affected by the project as an important issue. Various consultant assessments, a joint Shell/PetroChina Quality and

audits independent of the IOC and PetroChina. The partners thus contracted a range of organizations to undertake the work, which included NGOs, academic institutions and a semi-private resettlement management institute trained in international practices and with experience in providing resettlement services to the World Bank for over a decade.

Organizations involved in the resettlement and compensation review work included: Institute of Environment and Development; Institute of Rural Development, Chinese Academy of Social Sciences; East China Investigation and Design Institute; Sinosphere Corporation; and Shanghai Bringger Consulting Company, Ltd. The audits conducted by these

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## **UNDP conducted a Social Impact Assessment Survey, which was the first survey of its kind for a major infrastructure project in China.**

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Health Safety and Environment (HSE) audit, social impact assessment survey by UNDP, and discussions with PetroChina emphasized the need to conduct further work to provide assurance that compensation and resettlement were being carried out responsibly (i.e., consistent with Chinese law and in accordance with good international practices). The issue of compensation and resettlement was an explicit Joint Venture Framework Agreement commitment.

Primary resettlement concerns included: (1) timely payments to households; (2) existence of a dispute resolution process; (3) transparency and accountability in remuneration payments; (4) adequate notice given prior to disturbance; and (5) the quality of land and infrastructure restoration for affected people. Temporary land requisition posed the greatest challenge to the compensation and land requisition program, especially in regions where soil quality was poor and pipeline construction was built over irrigation channels.

Another activity by Shell and its partners was an eight-month review program for compensation and resettlement developed with the assistance of an independent consulting firm.<sup>7</sup> In order to be effective, buy-in by PetroChina to the approach and benefits of the review process was important. Discussions were organized among managers within PetroChina, international partner companies, local researchers, and international stakeholders. Considerable effort was made to introduce the methodology, assessment criteria, logistics, and a collaborative working model for the review. This review program design required

organizations were done between December 2002 and September 2003, with a three-month hiatus due to SARS. They documented evidence on resettlement impacts, compensation entitlements, effectiveness of compensation distribution and timing, land restoration, mitigation measures, and resettlement procedures and management. Separate reports on these various impacts for each of the 10 provinces crossed by the pipeline were prepared in both English and Chinese.

Both during and after the completion of the compensation review work, the international partners worked with PetroChina support and cooperation to improve procedures. This collaborative work to improve the resettlement and compensation issues led not only to improved implementation of the legal processes and capacity building of PetroChina's staff, but also greater trust among project partners, international stakeholders, and the community members. The joint reviews were completed in all provinces along the pipeline, although at different stages of the construction process given the timing of pipeline work.

## 3. *Social Impacts and Community Expectations*

The partners recognized that social effects of the project could not be divorced from environmental or other effects and they needed to be understood and addressed in an integrated manner. It had been agreed with PetroChina that Shell conduct a social impact assessment along the entire length of the pipeline route. Managing a consultation and engagement exercise along

4,000 km of the route in China was a major challenge for a commercial company such as Shell, legally not connected to the project and faced with legislation restricting foreign companies in sponsoring surveys.

Given the complexities involved, Shell initiated a 'first of its kind' partnership in China with the United Nations Development Programme (UNDP) and the China International Centre for Economic and Technology Exchange (CICETE) to conduct the social impact survey.<sup>8</sup> UNDP, with its unique status in the country, its well-developed partnerships with national institutions and its experience of conducting similar surveys in China, was well placed to perform the work.

UNDP conducted a Social Impact Assessment Survey, which was the first survey of its kind for a major infrastructure project in China, engaging 10,000 people in communities along the pipeline route. The survey contributed to a better understanding of views and expectations of local stakeholders and demonstrated the most modern, effective survey methodology practices. The survey strengthened an appreciation of the positive benefits of the pipeline, highlighted potential social problems, and made recommendations for practical mitigation measures.

The survey was structured through a Memorandum of Understanding between Shell, UNDP and CICETE. The work involved five national consulting institutions, an NGO, provincial and county statistics bureaus, the State Statistics Bureau (SSB), and a team of national and international consultants. The six institutes were:

- Central Statistical Information Consulting Center of the SSB
- College of Rural Development, China Agricultural University
- School of Public Policy and Management, Tsinghua University

- Institute of Environment and Development and Leadership in Environment & Development
- Academy of Macroeconomics Research, National Development Reform Commission (NDRC)
- Rural Development Institute, CASS

Fundamental to long-term success, however, will be the extent to which the social survey process, managed by SSB and influenced by relevant government institutions, supports the assessments.

Subsequent private sector inquiries to UNDP to conduct similar assessments elsewhere in China indicate that this innovative approach is setting a model for future projects. There were, however, regrets associated with this part of the social impact assessment work. For example, the UNDP survey had a very large sample size, which provided valuable breadth but perhaps too little depth. In addition, precise information on the actual pipeline route was inadequate despite numerous inquiries to the partner and requests for construction company involvement. Finally, the survey focused more on values and opinions associated with the pipeline development than it did with actual or potential impacts.

#### *Tradition of Social Investment*

Shell and many other international multinationals give back to the community through what is often called "social investment." Justification for such investment includes making a contribution to society that is affected by the company's operations, improving community relations, and an understanding that it makes good business sense. Some examples of areas in which companies such as Shell are actively supporting projects include: poverty alleviation and economic development; NGO and community training and capacity building; conferences and education materials;

### Box 4. Shell China West-East Project Social Investment Activity<sup>1</sup>

- HIV/AIDS work in Aksu, Xinjiang, the upstream drilling region
- Public health education in poor, remote Tibetan communities
- Capacity building for environmental impact assessments
- Poverty alleviation and education for poor college students
- Microfinance study
- Great Wall and historic preservation

#### NOTES:

<sup>1</sup> Please note that Shell China, the corporate entity, has a broader Social Investment Program.

environmental protection; cultural heritage; as well as support for public health efforts such as HIV-AIDS. The Chinese context for “social investment” is different to that in the west. Chinese companies have only relatively recently been privatized and therefore have not yet evolved well-advanced social investment programs, at least as those corporate social responsibility programs are commonly defined in the West. It should be noted, however, that state-owned industries in China have for decades acted as a social safety net, providing housing, medical care, and education for employees and communities.

Interestingly, one of the local Chinese companies operating near a project drilling site did not recognize the term “social investment,” but company staff readily produced a two-page list of donations to communities where they operate. Support ranged from infrastructure development in school and health clinics, road building, poverty alleviation, and disaster relief. One lesson Shell learned: be open to different definitions of community contribution and encourage partnership and sharing of experiences in other parts of the world.

The findings of the UNDP Social Impacts Assessment Survey, and the subsequent report on vulnerable communities along the pipeline, led Shell China to sponsor six social investment programs, as outlined in Box 4.

#### 4. Cultural Heritage

China’s Great Wall, which was added to the UNESCO World Heritage List in 1987, stretches some 6,000 km from the eastern seaboard in Liaoning to the Taklamakan Desert in Xinjiang. The world heritage designation includes all above ground structures, standing sections of the main wall, spur lines, watchtowers and other associated structures as well as underground relics such as foundations.

The Great Wall has deteriorated to varying degrees along its length, and while it has been restored in several areas such as around large cities in the northeast and a short section at Jiayuguan in the west, the segments near the pipeline remain largely unrestored. Factors contributing to its deterioration include the natural processes of weathering and erosion, and human activities such as cutting for the passage of roads and pipelines, cultivation and use by communities as construction materials.

The pipeline crosses the Great Wall in twelve locations in Gansu, Ningxia, Shaanxi, and Shanxi provinces. Crossing points are defined as including sites at which both visible aboveground sections of the wall



*Great Wall in Gansu Province. The earthen structure has been heavily weathered due to the harsh climate*

*Credit: Mike Seymour*

will be traversed by the pipeline as well as sites at which the Great Wall once stood.

The partners were committed to working with PetroChina to ensure all work at Great Wall sites was conducted responsibly and in full compliance with PRC regulatory requirements and cultural heritage preservation best practice. PetroChina EIAs—submitted to SEPA in 2001—addressed cultural heritage preservation, including reference to the Great Wall. SEPA does not, however, have administrative responsibility for cultural heritage protection. This responsibility rests with the State Cultural Relics Bureau (CRB).

PetroChina therefore commissioned provincial CRBs to undertake cultural heritage surveys for all provinces in 2002. Supplementary field visits and discussions with CRB representatives were undertaken by IOC as part of the environmental and social impact assessment (ESIA) upgrade work, at which time photographs were made at each Great Wall crossing. The Joint Venture Framework Agreement (JVFA) clearly outlined partner agreement to refrain from construction at any Great Wall crossing until required regulatory approvals were in place, which necessitated approval of detailed engineering plans for each location by the provincial and central CRBs. The Shell-sponsored ESIA and environmental and social management plans (ESMPs) included a *Great Wall Management Plan* and *Archaeological Chance-find Policy*, prepared with input from CRBs, UNESCO and International Friends of the Great Wall. These studies and plans form part of the *Pipeline Construction Health Safety and Environment (HSE) Manual*.

Verification visits have since been made post-construction to provide assurance that the construction activities were conducted responsibly and in line with the JVFA requirements. In addition to the above studies and collaboration, Shell China sponsored a social investment program with International Friends of the Great Wall and World Monuments Fund to raise awareness about Great Wall conservation and preservation.

The report notes that the collaborative work with Shell and its partners promoted internal learning and development within PetroChina on issues of ESIA upgrade work, nature reserve management planning, compensation and resettlement audits, construction HSE and quality support and inspections, and HSE contractor management. PetroChina also saw considerable value in the social impact survey conducted by UNDP.

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## PetroChina achieved some notable “firsts” on the West-East Pipeline Project, such as the involvement of foreign HSE and social impact assessment expertise.

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### 5. Health and Safety

China is a challenging culture for safety. At its peak, approximately 70 construction crews (amounting to several thousand people) were working on spreads along the West-East Pipeline route. International HSE standards were unfamiliar to many of the crews. Some examples of specific health and safety support provided by Shell included:

- Training and awareness on international HSE standards for pipeline construction and drilling activities.
- Preparation of project HSE Management System documentation and HSE Construction Manuals.
- Production of Environmental and Social Management Plans for the whole pipeline that were issue-specific (e.g., nature reserves, Great Wall, cultural heritage and desertification).
- Preparation of many specific HSE and quality standards, procedures and guidelines (e.g., hazard management, supervisor competency requirements, minimum health standards, emergency response, tunneling construction, and use of explosives).
- Joint HSE and Quality inspections, audits and reviews (construction and post-construction), with resultant significant ‘step change’ improvements in contractor HSE (e.g., carefully managed Yellow River crossings).
- Influence stronger HSE in contract requirements.

PetroChina has publicly recognized the benefit of foreign cooperation in HSE and social impact assessments for the West-East Pipeline Project in its *West-East Pipeline Company QHSE Reports 2002/2003*.

Capacity in China has been further built through skills transfer amongst local institutes commissioned to undertake ESIA and hazardous operations work. Through assistance with social impact and compensation and resettlement work, PetroChina has been able to broaden proactively the understanding of a large number of national and local stakeholder groups on international consultation expectations for major projects with regard to health and safety associated with the pipeline. This potentially serves to raise the expectation and standards for future major infrastructure projects in China.

### LESSONS LEARNED AND OPPORTUNITIES

A number of lessons have been learned and opportunities identified over the approximately two years of Shell involvement on the project.

*Partnership with JV partner.* Strong mutual understanding, rapport developed over time, and extensive dialogue are key. Agreeing to overarching common goals helps smooth the discussion over standards. Management plans and principles will not be followed unless trust and buy-in are first achieved. If language is a barrier, then excellent interpretation must be available at all times.

*Personal relationships.* The importance of building personal relationships at all levels cannot be underestimated. Long-term relationships are valued and rewarded in China, whereas frequent staff turnover has a negative impact on maintaining trust. Clear, consistent project leadership is also critical. Troubleshooting from superiors or high-level representatives should not serve to undermine leadership on the ground.

*Partner relationships.* Local partners may be reluctant to engage as broadly as international players for fear of criticism and exposure and because it is contrary to normal process in project development in China. Political pressures and propaganda can challenge the authenticity and value of engaging with local residents, community members, and other stakeholders. It is often only after Chinese companies understand how public consultation can bring them benefits, such as how to avoid potential future problems and added costs, that they will be willing to engage.

*Standards and objectives.* Begin discussing standards and objectives in the earliest stages of project negotiation, and make clear to prospective partners which of those you expect the project to uphold. Ensure that they are documented and clear, and that meaning and intent are the same in English and local versions of these documents. The degree of detail needed depends on the circumstances. Standards, including wider business principles, need to be included in the contract documents or other formal agreements.

*Time to agree.* Do not underestimate the time it can take to reach agreement. Reaching agreement can be a protracted, time-consuming, and difficult process—particularly when justifying the business case beyond regulatory compliance and where there are several partners and various government bureaus (such as the case of environmental investment programs and social and resettlement issues) involved. Translation/interpretation from one language to another can often be a major factor in any disagreement. Partners tend to micro-edit and refine agreements in their own language and have little time left to ensure an accurate interpretation in their partner's language leading to disagreements and delays.

*Measures of success.* At an early stage in discussion with any stakeholder party to the project, it is important to achieve consensus on certain criteria indicating what constitutes a successful project and how this will be measured.

*Involvement of third parties.* Third parties provide independence and credibility to studies, assessments and plans, both within the host country and international community. Bringing in international experts can be sensitive from perceptions of cost and insensitivity to the local environment. But, they also offer huge potential for know-how exchange and local capacity building among business partners, local institutes and NGOs.

*Leveraging international expertise.* Use of acknowledged international environmental experts can



*Cultural heritage rescue excavations and archaeological dig in Chuzhou, Anhui Province. These are the remains of a 3,000-year old site unearthed during West-East pipeline construction.*

*Credit: Mike Seymour*

greatly support efforts of multinational joint venture partners to influence their national counterparts as to the value and importance of biodiversity and conservation.

*Staffing.* Mobilize key social and environmental specialists early in major infrastructure projects. Do not underestimate the health, safety, and environment (HSE) staffing requirements during early negotiation and scoping phases of the project. Try to ensure staff continuity. The over-reliance on temporary HSE staff from other offices and short-term contractors threatened to slow down progress at key stages, such as during negotiations over standards, ESIA management, and key stakeholder meetings. Complexity of the project means that newcomers face a steep learning curve.

*Leverage local expertise.* Foreign organizations/companies and the administrative mechanisms in government often overlook the wealth of technical and scientific capability within China. Appointing just one institute as a consultant can result in lost opportunities with respect to obtaining input from centers of excellence across the range of topics to be addressed. Involvement of local expertise is essential to enable understanding of local complexities.

*Assumptions about local capacity to address key social impacts.* Be careful not to overlook excellent local capacity existing in many areas. For example, contrary to some international observations, it is possible to conduct responsible compensation and resettlement in China. Audit findings indicate that the project land acquisition work was conducted by PetroChina in a responsible manner, and they have ensured that hardship or loss of income was avoided.

*Local expertise in the social arena.* Carefully review social expertise qualifications and experience among international and local consultants. Many environmental consulting firms profess to have social expertise. However, in the West-East Pipeline Project this kind of expertise was found to be a weak area, requiring Shell to expend considerable effort to find the right caliber individuals. International consultant understanding of how to get social impact assessments done in China was weak.

*Encourage broad consultation.* Engaging in dialogue with a broad set of stakeholders and encouraging public participation is standard practice for many foreign companies, but it must be recognized that this approach is new and sometimes uncomfortable for many Chinese partners and runs counter to Chinese culture where the government/party forms the core of society. Expectations should be managed accordingly.

*Audits.* Establish and take part in an audit process to provide assurance that required standards/project expectations are being met.

*Explore breadth of participation.* In addition to supporting technical and scientific expertise, consider possible opportunities not immediately apparent, e.g., for private sector companies to impart management, administration and finance skills to staff at nature reserves.

## CONCLUSION

All companies investing or operating in China have the potential to make an important contribution to sustainable development and conservation, through partnership with their JV partners, government entities, NGOs and the public.

A rigorous approach to conducting ESIA's, ensuring stakeholder consultation, and leveraging the use of both international and local expertise is essential to define environmental protection needs, identify conservation opportunities and develop social programs. Moreover, it is important to ensure that an audit program is developed to provide assurance that standards are implemented on the ground.

On the West-East Pipeline Project, the specialist skills of several organizations were used directly to support ESIA's, specialist studies, management plans and monitoring. Ongoing impact assessment, monitoring and review are areas where conservation and social interest groups could continue to be directly involved and offer the benefit of independence and credibility.

Protected areas in China not only lack funding,

but also face increasing pressures from development and local communities. While the private sector cannot solve all of these problems, some significant opportunities exist where the corporate sector might support innovative, responsible approaches to environmental and social management in partnership with others.

This could include assistance to reserve management via know-how exchange programs, capacity building, complimentary research and conservation study, and support to regulatory development. In a wider sense, opportunities also exist to broaden the approach of private sector assistance to conservation activities, away from traditional approaches of monetary-based support. Further consideration might thus be given to exploring how multinational companies can bring a business approach to reserve/conservation management in China through sharing of their core business skills. These might include business planning, financial management, human resources, competence development, health and safety, emergency response, communications, marketing and supply chain management.

In summary, PetroChina achieved some notable 'firsts' on the West-East Pipeline Project, such as the involvement of foreign HSE and social impact assessment expertise, led by Shell, at a time while negotiating a minority shareholding in the project. Another significant first was the inclusion of Chinese experts in making the various assessments. These local experts conducted remarkable research and gained important new project experience. Yet another striking first was the level of interest and participation in the project assessments from a broad range of Chinese stakeholders. One hopefully lasting impact of this project will be that the achievements from the environmental and social standard work will raise the HSE and social impact standards for future major infrastructure projects in China.

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## ENDNOTES

<sup>1</sup> The name PetroChina in this paper includes Petrochina's subsidiary companies the West East Pipeline Company and Tarim Oil Company, who were the proponents of the pipeline (midstream) and gas exploration & development (upstream) parts of the West-East Project.

<sup>2</sup> China OnLine Newservice, March 4, 2004.

<sup>3</sup> “Expanding Natural Gas Use in China: A Joint Sino-US Research Report” *Executive Summary*, University of Petroleum-Beijing and Pacific Northwest National Laboratory, April 2002.

<sup>4</sup> Notably, China has welcomed numerous bilateral and multilateral energy projects. In the area of clean coal technologies and energy efficiency The China Energy Group at Lawrence Berkeley National Laboratory has been particularly active in China. See their Web site: <http://china.lbl.gov> for more information.

<sup>5</sup> The Midstream ESIA covered the pipeline counties in Xinjiang excluding those in the drilling region, as well as Gansu, Ningxia, Shanxi, Shaanxi, Henan, Anhui, Jiangsu, Zhejiang, and Shanghai.

<sup>6</sup> ERM offices based in London conducted the High Level Assessment.

<sup>7</sup> The independent consulting firm was Beijing-based Sinosphere Corporation.

<sup>8</sup> The survey was completed in August 2002 and is available at the UNDP website ([www.unchina.org/undp](http://www.unchina.org/undp)) at <http://www.undp.org.cn/documents/siasurvey.html> or via a link through [www.shell.com.cn](http://www.shell.com.cn). Findings of the report were incorporated into the overall ESIA Report by ERM.

## Save China's Tigers Works to Reintroduce Tigers

As part of its Tiger Reintroduction Project, the UK-based Save China's Tigers—together with the Chinese Tigers South African Trust, and the Wildlife Research and Development Center of the State Forestry Administration of China—organized a group of South African and Chinese tiger experts to visit Sichuan, Hunan, Jiangxi and Fujian provinces in late 2003 to survey seven proposed Chinese Tiger reintroduction sites. This survey follows the relocation of two Chinese Tiger cubs to South Africa for “re-wilding training” in September 2003. The team consisted of wildlife reserve planning and management experts and was headed by Dr. Jeremy Anderson, the first director of Pilansburg National Park. Ms. Li Quan, founder of Save China's Tigers who engineered the Tiger Reintroduction Project, noted the importance of this team's work by stating:



*This is the first step in finding a home for the return of the re-wilded Chinese Tigers back to China starting in 2008. Our South African expert team is the best in the world with extensive experience in setting up and managing wildlife reserves, both government and privately owned in southern African countries. Once the suitable reintroduction site is identified, work will start to restore habitat and reintroduce wildlife previously found in this area.*

The Chinese Tiger Reintroduction project marks the beginning of the establishment of a Chinese Tiger Conservation Model that aims to save this endangered big cat by combining South African wildlife and ecotourism management expertise with indigenous Chinese wildlife and unique Chinese cultural heritage to create opportunities in eco-tourism for local economic development.

Ms. Li Quan secured permission and a strong group of partners to undertake the Chinese Tiger Reintroduction project through an agreement signed in Beijing on 26 November 2002 between Save China's Tigers foundation, the Wildlife Research Center of China's State Forestry Administration, and the Chinese Tigers South Africa Trust. For over a decade, China's State Forestry Administration has been leading the effort to save this critically endangered tiger species, through the establishment of several nature reserves. The first Chinese tigers that will successfully regain hunting skills and are able to survive independently are expected to be reintroduced into the wild in China in 2008, to coincide with the Beijing Olympic Games. Save China's Tigers has been appealing to the public to vote for the Chinese tiger as the mascot of the 2008 Beijing Olympic game.

“The tiger represents the most important symbol in Chinese culture. If the tiger becomes extinct, the cultural values that embrace this icon will also be lost for future generations. We have summarized the Chinese Tiger campaign as being ‘Three Tigers,’ the Spiritual Tiger, Cultural Tiger and Ecological Tiger,” Quan said.

Save China's Tigers, the first foundation in the world dedicated to help China's conservation of the Chinese tigers and other big cats, is very grateful to its many selfless supporters, who have helped make the Chinese Tiger project possible.

*For more information on the Chinese Tiger Project, see [www.savechinastigers.org](http://www.savechinastigers.org) or contact Kate Reynolds at: Tel: +44 20 7702 9382 Mobile: +44 7968 815 171, e-mail: [kate.reynolds@mailbox.co.uk](mailto:kate.reynolds@mailbox.co.uk)*