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UNDP/UNIDO Project Number: EG/CPR/99/G31  
UNIDO Contract No: 16001261

# Final Report

Submitted to

United Nations Industrial Development Organization (UNIDO)

For execution of

On-site Demonstration of Project Best Practices and Forum on  
Sustainable Development of Coking TVEs in China

Project:

Energy Conservation and Greenhouse Gas Emissions Reduction in  
Chinese TVEs (Phase II)

By

Township Enterprise Development Center, MOA

December 18, 2006

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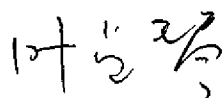
Phase II

Project No: EG/CPR/99/G31

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## 1. Foreword

This document is the final report of the subcontract referred to as “On-site Demonstration of Project Best Practice and Forum on Sustainable Development of Coking TVEs in China” (Contract No. 16001261) of the project mentioned above. The report assesses and summarizes the progress made using the proposal dated September 30, 2006, which the Township Enterprise Development Center, China (hereafter the Contractor), submitted to the UNIDO HQs in response to the substantive Terms of Reference date September 2006 to provide services to execute the Demo/Forum in Gaoping City, Shanxi Province, China.

This report summarizes the overall execution and results of the Demo/Forum.

## 2. Background

The project entitled “Energy Conservation and Greenhouse Gas Emissions Reduction in Chinese Township and Village Enterprises (TVEs)-Phase II” is funded by the Global Environment Facilities (GEF), implemented by the United Nations Development Program (UNDP) and jointly executed by the United Nations Industrial Development Organization (UNIDO) and the Chinese Ministry of agriculture (MOA). It aims at reducing GHG emissions in China from TVEs in the cement, brick, metal and coking sectors by increasing the utilization of energy efficient (EE) technologies and products. Its objectives include creating institutional mechanisms for barrier removal at the national, county, and enterprise level, building technical capacity for energy efficiency and product quality improvement in TVEs, as well as facilitating access to commercial financing for TVEs in the four energy-consuming and pollution-making sectors.

Funded by GEF (US\$7.992 million) with GOC co-financing of US\$10.55 million (cash and in-kind), the project has been very successfully implementing to date since its inception in 2001. It is on track to achieve direct projected energy savings and GHG emissions reduction, by establishing *institutional mechanisms and piloting and disseminating technologies* for energy efficiency in the four sub-sectors, far beyond those projected in the ProDoc.

The project has innovatively created a series of institutions, including the

Policy Implementation Committee (PIC)/Local Policy Implementation Committee (LPIC), Hongyuan Energy and Environmental Protection Co. Ltd. (formerly PTPMC) as well as Revolving Capital Fund (RCF), which are playing a significant role in facilitating TVEs in these four sectors to remove market, policy, technological, and financial barriers to energy efficiency. The establishment and capacity building of such institutional mechanisms have been disseminated in a total of 11 replication regions including 3 at provincial level, 5 at district and 3 at county level.

Seven of the eight pilot TVEs using advanced, practical and high-value EE technology in the four sectors have completed their technical renovations while the other one is under construction. By now, the pilot TVEs have reduced 196,600 tons/yr of CO<sub>2</sub> emissions, far beyond the projected indicator, i.e. 85,000 tons p. a of CO<sub>2</sub> emissions reduction for the eight pilot projects by the project end. Demonstration technology and successful experience are being duplicated and promoted in 118 replication projects.

### 3. Objectives

Objectives of the Demo/Forum are to summarize, publicize, and disseminate best practices and out comes of the Phase II project, introduce coking sub-sector development, the Demo/Forum objectives are: 1) to summarize and publicize project mechanism innovation, pilot enterprise construction and replication of best practices of the project; 2) to introduce latest national policies strategies related to coking technical renovation for energy efficiency and project best practices in various regions as well; 3) to publicize the latest national polices on energy and environment; 4) to deliberate opportunities and challenges facing the coking sub-sector in China.

### 4. Brief Introduction

Funded by the UNDP/UNIDO project, the Demo/Forum was sponsored by Township and Village Enterprise Bureau of MoA, Shanxi TVE Bureau, the GEF, UNDP China Office, and UNIDO China Office. It was executed at Gaoping City, Shanxi province from October 9-11, 2006 and jointly co-sponsored by the Project Management Office, SME Bureau of Jincheng, and Gaoping Municipality. The Demo/Forum was organized and executed by Township enterprise Development Center (the contractor) with support from Hongyuan Energy and Environment Co. Ltd. Participants included a total of 220 people from central and local governmental authorities, technical supporting agencies, project subcontractors, as well as central and local press/medias.

VIPs included:

Lu Yongjun, Deputy Director General, TVE Bureau of MOA

Hou Shiguo, Assistant Supervisor, Industrial Policy Dep't., NDRC

Xia Xueyu, Deputy Director General, Township Enterprise Development Center, MOA

Qi weikai, Division Chief, TVE Bureau of MOA

Wu Fan/Ms, International Affairs Dep't., MOF

Xie Fei, Division Chief, GEF China Secretariat

Kishan Khoday, Assistant Residential Representative, Energy and Environmental Cluster, UNDP China

Ma Jian, UNIDO China

Wang Xiwu, Senior Administrator, Policy Implementation Committee

Wang Guiling/Ms, Deputy Director, PMO

Xu Litong, Senior Project Expert, PMO

Ryuichiro John Hanawa, Project Manager, Energy and Environmental Cluster, UNDP China

Xie Yongming, Division Chief, Foreign Economic Cooperation Division, SEPA

Professor Meng Zhaoli, prominent EE expert, Tsinghua University

Huang Jingan, Chairman, China Coking Association

Huang Wenbiao, Secretary General, China Coking Association

The Demo/Forum was executed through two phases: the on-site demonstration and the forum.

The on-site demonstration was held on Oct 10 morning, 2006. All the 220 participants paid a visit to Gaoping Coking Group, which is one of the two pilot coking TVEs of the TVE Project (Phase II). Supported by the project, the TVE's built a waste heat power generation plant onto its "Clean Type" coking ovens saving energy by 70,000 tce, or reducing CO<sub>2</sub> emissions by 120,000 tons annually, thereby increased significantly EE and gained considerable economic, social and environmental benefits.

By visiting the site in person, the participants got an clear insight into the project, experienced changes taken place in the TVE, and leaned how support by the project in term of policy (incentives), production technology and management, in particular the arousal of awareness regarding EE and environmental protection.

The forum was conducted in two sections on 10th October afternoon and 11st October morning. The first section was chaired by Mr. Lu Yongjun, Deputy Director General of Shanxi TVE Bureau. VIPs made their opening remarks and expressed their wishes to a success of the forum.

Firstly, Mr. Zhou Mingding, Director General of Shanxi TVE Bureau, expressed his warm welcome and sincere wish to a success of the forum on behalf of the host. He called on participants to learn from each other and from experts at the forum thereby mobilizing and promoting energy efficiency and reducing CO2 emissions and realizing the sustainability in Chinese coking TVEs.

Mr. Kishan Khoday, on behalf of the UNDP China Office, expressed his appreciation and thanks to the successful organization of the forum by the host. He highly appraised the successful results of the project achieved to date and put in great expectations on the sustainability of the project.

Mr. Xie Fei, on behalf of the GEF China Secretariat, pointed out in his remarks that technology renovation for EE will benefit to not only the development of the country, but also to the increase of the market competition capacity and economical profits of Chinese coking TVEs while highly appraising the successful results of the project achieved to date.

Mr. Ma Jian, on behalf of UNIDO China Office, wished that the project will be a successful model for GEF and make significant contributions to the improvement of industrial energy efficiency in China while briefing the objectives and functions of UNIDO.

At last, Mr. Wang Shuxin, on behalf of CPC Gaoping Municipal Committee, GAoping Municipality and over 400,000 residents, expressed his warm welcome to all people attending the forum and introduced briefly the city and the economical development in Gaoping. He also highly appraised the good results achieved at Gaoping Xinggao Coking Group thanks to the support by the GEF/UNDP/UNIDO Project. He promised that the local government will keep on attaching importance on environmental protection thereby enhancing the sustainability of social and economical development in the city.



Presentations were delivered by speakers subsequently after the opening remarks.

In his important presentation entitled "Energy Efficiency and The State Industrial Policies", Mr. Hou Shiguo, Assistant Supervisor, Industrial Policy Dep't., NDRC, pointed problems and challenges facing while affirmed the overall progress regarding EE and environmental protection and the industrial reform in coking sub-sector in Shanxi province. He also introduced briefly the national industrial policies and programs both currently in effect and in the near future.

Mr. Lu Yongjun, delivered a presentation entitled "The sustainability of Chinese TVEs and building a socialist countryside in China". He illustrated our issues including the crucial and strategic role playing by TVEs in the national program and called for more support from international agencies in this regard.

Mr. Huang Jingan, in his presentation entitled "International and domestic development trends in coking sub-sector", analyzed the current status and future global demand for coke supply by iron and steel industry.

Mr. MENG Zhaoli, a prominent energy efficiency expert from Tsinghua University, introduced, in his presentation entitled "VA and the upcoming energy audit in industrial enterprises in China", a state notice promulgated jointly by NDRC and other four governmental authorities/ministries entitled "Action plan for energy efficiency in one thousand Chinese industrial enterprises" while illustrated in detail the energy auditing procedures and measures to be adopted to the audience.

Chaired by Mr. Lu Yongjun, the 2nd section of the forum was conducted in the morning of October 11.

In this section, Mr. Dai Yande, a prominent energy expert, Deputy Director General of Energy Institute affiliated to NDRC, was firstly invited to make a very important report on the overall circumstance of energy supply and industrial energy efficiency in China. His report was not revealed in the contractor's report due to some of his data and figures are in relevant to state secrets.

Secondly, Ms. Wang Guiling was invited to deliver a report entitled "Best practices of the GEF/UNDP/UNIDO project in Chinese coking TVEs". She reported comprehensively the project implementation, results and experiences achieved to date in particular in the coking sub-sector.

Mr. Zhang Jianping, President of Coking Institute of Shanxi Chemistry

Academy, illustrated in detail the technical advantages of coke tamping technology applied at “clean type” ovens regarding clean production, adoption of new coking resources and increase of coke quality, and the significant results achieved ever since its application in China.

A presentation entitled “To Realize the Sustainability of a Coking TVE by Adapting the Working Method to Local Conditions” was jointly delivered by Mr. Gao Zhicheng, President of the Gaoping Xinggao Coking Group, and Mr. Hou Kang, General Manager of the Group. The introduced briefly the general status, the comprehensive utilization of resources and the pilot role played by the group.

## **5. Outputs**

### **5.1 Summary, dissemination and replication of project best practices and experiences**

Reports and presentations given by the following speakers summarized the project replication in particular in coking sub-sector on different aspects, facilitated participants gaining a clear insight of the implementation, achievements, experiences and lessons of the project.

Ms. Wang Guiling, PMO Deputy Director, briefed the project background and implementation, and introduced results achieved, best practices and experiences accumulated and the work plan for the next step.

She summarized in her report that the project replication in coking sub-sector has resulted in positive social benefits in terms of energy conservation, GHG emissions reduction, and helped to generate remarkable profits in coking TVEs. Mr. Xie Fei, Director of China GEF Office, spoke highly of the project achievements, saying that the TVE Phase II project was a very successful GEF project. Mr. Lu Yongjun, Deputy Director General of TVE Bureau of MOA, mentioned in his presentation that we should pay more attention on saving resource and protecting environment, constructing “Resource-Saving and Environmentally Friendly TVEs”, and making great contributions to better agricultural and countryside environment and to build a new socialist countryside. Thus, the Demo/Forum was very significant for summarizing and disseminating the project best practices and successful experiences nationwide and even abroad.

She pointed out that Chinese TVEs contribute significantly to local and global environmental problems, whilst also accounting for a significant share of Chinese economic production and social welfare (one third of the national

total in the same trade). The TVE Phase II project was launched in 2001 under such context aiming at reducing GHG emissions in China from the TVE sector by increasing the utilization of energy efficient technologies and products in the brick, cement, metal casting and coking sectors, and removing key market, policy, technological, and financial barriers to the production, marketing and utilization of energy efficient technologies and products in these industries. It has been very successfully implemented to date since its inception and has been beyond the original objectives set in the Prodoc.

The project facilitates saving energy in coking TVEs by updating the production technology, setting up or improving the existing management and decreasing the reject rate. Within the project implementation, four strategies have been applied including “project mobilization”, “government lead”, “market drivenness” and “pilot”. Four fundamental activities/works were carried out including sub-sector survey, establishment and capacity building of pilot TVEs, replication of demonstration mechanisms and technologies, and personnel training as well.

The conduction of three successive surveys in the coking sub-sector facilitated gaining a general picture of Chinese coking TVEs in terms of production, technology, finance, energy consumption and GHG emissions, etc., and resulted in the identification of the two pilot TVEs, namely Taiyuan Gangyuan Coking Co. Ltd. and Gaoping Xinggao Coking Group. The two pilot coking TVEs are characterized by clarified ownership, excellent personality of entrepreneurs and geographic advantages for demonstration and dissemination. The project supports TVEs to introduce well developed, energy efficient and locally available technologies in their technical renovations based on their willingness and capability and gained remarkable results.

The project established LPICs hosted by Shanxi TVE Bureau. It has been playing a crucial role in facilitating the project implementation and laid a solid foundation for the sustainability of energy conservation and consumption reduction, by effectively assisting relevant governmental authorities in *effecting industrial policies concerned*.

Moreover, activities related to technical training were conducted throughout the whole project implementation period. The training focuses on project introduction, EE, production technology, management, and policies related to coking sub-sector and environmental protection, as well as voluntary agreement (VA), thereby broadened the trainees’ business vision and enriched their professional knowledge, in particular for those who work in rural TVEs over a long period of time.

In addition, Ms. Wang Guiling summarized successful experiences obtained from the project implementation. That is, 1) to plan and design

project activities in line with rules and regulations of the market; 2) to encourage local governments and enterprises to participate in the project actively; 3) to strengthen capacity building of project teams both at national and local levels; 4) to keep a pace with times and make necessary innovation and adjustments under preconditions of unchanged project framework and objectives; and 5) to enhance information exchange and cooperation among stakeholders. All the above-mentioned would benefit China's coking sub-sector, the next step of project implementation and the sustainability of post-project even.

## **5.2 Introduction to national policies and development strategies regarding China's coking industry**

Presentations mentioned below focused on the construction of circular economy, promotion of technical renovation in coking TVEs all-around thereby build up the sustainability of the TVEs. Speakers, in their presentations respectively, revealed to the audience work done by the GOC in TVEs in coking sub-sector, and up-coming policies and measures to be taken by the government. They focused on development of circulating economy and full-scale promotion of coking sub-sector and sustainable development in TVEs, which gave the participants an insight into the supports given by GOC at every level to the project.

Mr. Hou Shiguo briefed the general status of China's coking sub-sector and national policies and programs concerned. He recognized the innovative approaches taken by the Gaoping Xinggao Coking Group to explore new resources for coking and protect environment. He firstly analyzed problems facing China's coking sub-sector. He pointed out that there have been significant changes and development in China's economy since its reform and opening-up to the outside world. It has been developing rapidly and achieved significant results. China's industrial growth speed in sub-sectors of iron and steel, chemistry, ferrous metal, cement and glass has been two times (or even three times) higher than that of the national GDP, but in a poor and outdated production manner. Therefore, the state government put forward series new development strategies including concepts of sustainable development and scientific development, to build up new socialist countryside and introduce clean production mechanisms, etc., and has taken series of strict control measures since 2004. Measures taken in coking sub-sector include 1) eliminating indigenous and refined indigenous coking ovens; 2) installing GHG emission monitoring equipments on all coking lines to strictly control emissions at the national standardized levels; 3) recycling resources and waste water by all industrial enterprises; 4) Strictly controlling the overall quantity of discharges and emissions by each region. He also pointed that problems related to the environment and energy shortage are yet to be rooted up. Main

problems include 1) the control capacity is far below the practical demand; 2) indigenous or refined indigenous coking ovens are yet to be eliminated up; 3) the control and management capacity of coking enterprises are yet to be strengthened to meet the practical demand; 4) the coking production is still conducted by small scaled producers. In this connection, the state government authorities concerned enacted a new ingress regulation for coking producers by issuing higher standards to optimize the industrial structure thereby conserving energy consumption and reducing GHG emissions effectively.

Newly modified notional policies and regulations include 1) allowing price float-up by those qualified coking enterprises; 2) charging discharge/emission fees at preferential levels to enterprises whose discharging level has reached national standards, or vice versa. In addition, the government will apply incentives in terms of financing, land use, taxation and expert quota as well to those qualified enterprises. In the meantime, Mr. Highly recognized approaches taken and improvement regarding coking sub-sector made by Shanxi provincial government.

Finally, Mr. Hou made his comments on the newly developed "clean type" coking oven by pointing out its advantages and shortcomings. He mentioned that it will take some time for the state governmental authorities to finally approve it, and suggested more attention and support should be paid or applied to have it further improved.

Mr. Lu Yongjun emphasized that one of the most essential experiences to the success of the project is to implement the project in line with the government's strategy and programs, or in other words, to have the project implemented under the governmental drivenness. On one hand, to make the project in line with governmental strategy and policy; on the other hand, the success of the project can promote the implementation of governmental strategy and programs concerned thereby leading to a win-win result. The success of the project provides a good model of this concept.

In his report, Mr. Lu emphasized four points, e.g. 1) the crucial position and role played by TVEs in the program of building a socialist countryside; 2) the way and modality for TVEs to participate in the program; 3) creation of a better environment and conditions for TVEs to participate the program; 4) More attention should be paid on saving resources and protecting environment while encouraging TVEs to participate in the program.

At last, Mr. Lu called on building resources-saving and environmentally friendly by taking "the concept of scientific development" as a guideline, and make great contributions to the development of rural economy and environmental protection in rural areas.

Mr. Huang Jigan analyzed the current situation and trends of global demand for coke supply based on the following points:

1) The rapid growth of global and China's economic development leads to an increase of iron and steel production. In 2005, the global iron output exceeded 700 million tons/a., while China's output reached 10.67 million tons/a. including 1.74 million tons exports. All these lead to a fierce increase of coke output in particular in China. During the 5-year period from 2001 – 2005, the total out put of coke increased by 1.28 billion tons with an increasing rate of 6.46% per annual. Among which, most of the increase were made by China.

2) The current situation of coke consumption is characterized by a steady increase of overall demand worldwide except that in Asia. In Asian countries, in particular in China and India, market demand for coke sees a dramatic increase due to the increase of iron and steel production there. While in developed countries, e.g. European countries, Japan and USA, the trend becomes downward even. In general, the export volume of coke by China becomes downward from its peak along with the global trade reduction of coke. But the domestic demand keeps increasing in China. In 2005, China exported 12.76 million tons of coke, and the overall coke consumption reached 242.15 million tons at a year-on-year increasing rate of 26.67%.

3) In comparison with the development trends abroad, the domestic market demand for coke is increasing in China due to its rapid economical development. The strong market demand leads to a rapid development for China's coking industry. The China's current coke output has reached 300 million tons with significantly improved production technology including coking ovens with a 6-meter high carbonization chamber and dry coke quenching process. The China's government pays great attention on the recovery of side products from coke production and environmental protection by eliminating outdated coking technology and optimizing the industrial structure. China's coking industry has been entering into a steady development period.

4) At last, Mr. Huang predicted a steady increase of global market demand for coke in the up-coming years based on the development trends of global economy in particular the iron and steel industry. In the meantime, China will speed up the elimination of outdated coking technology and building of large scaled coking ovens with dry coke quenching technology while strictly eliminate all indigenous or refined indigenous coking ovens.

### 5.3 New coking technology for EE

Speakers mentioned below discussed and illustrated the current status, challenges facing China's coking industry and energy auditing.

Mr. Zhang Jianping pointed out, in his presentation, that the tamping technology with the "clean type coking oven" has been highly recognized internationally by its superior advantages in clean production, adoption of new kinds of coal for coking and coke quality improvement. The technology with domestic intellectual property right in China has created significant profits for local coke producers.

He illustrated the heat-recovery coking technology and its performances and advantages of the QRD series "clean type coking oven" including QRD-2000 type oven developed by the institute where Mr. Zhang is from. The new type oven significantly improved the production capacity of coking ovens for making large scaled foundry coke, bettered operational conditions and mitigated labor strength. For its advantages of clean production, wide adoption of coking coal, high coke quality, low consumption rate of energy and water, easy for operation and heat recovery, the new type oven has been developing rapidly in China. Based on an undercount, there are at least 27 coking plants have introduced the new type ovens (QRD series).

By using this type of ovens, it can remarkably reduce the density of pollutants and the emitting level which are far lower than that of the national standards. In addition, it can realize zero waste water discharge by waste water recycling, and it makes little noise during the normal operation. With this oven, it can use weakly caking coal for coking to make larger scale and higher quality coke than the commonly used coking technology. The heat recovered from the oven can be used for power generation or other purposes thereby saving energy significantly.

Given the new type of oven can realize clean production, Mr. Zhang recommended to charge pollutant discharge/emission fees according to the real level but not to the average. The government should enact new policies and incentives to support for exploring new kinds of coking coal resources and recovering or recycling waste/residual heat thereby saving energy and other natural resources.

Prof. Meng Zhaoli introduced the up-coming "Action plan for energy efficiency in one thousand Chinese industrial enterprises" a state notice promulgated jointly by NDRC and other four governmental authorities/ministries and illustrated in detail the energy auditing procedures and measures to be adopted to the audience.

In the notice, it is stipulated that the energy consumption per unit GDP shall be reduced by 20% at the end of “11<sup>th</sup> 5-year National Development Plan” (in 2010) than that at the end of “10<sup>th</sup> 5-year National Development Plan” (in 2005), i.e. to reduce the energy consumption per GDP from 1.22 tce in 2005 to 0.98 tce in 2010. This is the first binding indicator for EE ever promulgated in a national development plan. To be in accordance with the notice, all enterprises should put the Responsibility System for EE Targets into effect, strengthen their management and monitoring, and examine the results at each level or each production procedure. Other measures to be taken should include setting up systems of statistics and measurements, strengthening the Responsibility System for EE Targets, auditing and reporting regularly the energy consumption, developing plans for EE (implementation of the plans should be reviewed by supervisors from governmental authorities concerned), increasing input and promulgating incentives to promote technical renovations for EE, carrying out PSA and delivering training, etc.

In addition, Prof. Meng illustrated in detail activities and methods regarding the up-coming audit, including the energy systematic balance chart, energy auditing system and their relationships, etc. Besides, He also introduced measures and formulas for energy auditing (e.g. the calculation of  $\gamma$  - EE rate, EEI – energy efficiency indicator, EF – equivalent factor from energy saving to CO<sub>2</sub> reduction, etc.), as well as how to draft a self-auditing report and abstract. Case studies were illustrated at the presentation.

## **6. Recommendations and suggestions**

Although the project replication has achieved a remarkable success in coking sub-sector, there is still a long way to go. Therefore, the following recommendations and suggestions concerning speeding up energy conservation and GHG emissions reduction to a larger extent were presented at the Forum.

### **6.1 To issue a national law to administrate coking production**

By now, only a local regulation entitled “Regulation on Administration of Coking Production in Shanxi” has been enacted in Shanxi province. It is the first ever in China to stipulate the reform of coking industry; all administration has to be executed based on some tentative administrative regulations nationwide in this regard.

### **6.2 To strengthen the publicizing campaign to save resources and energy in coking sub-sector**

We should strengthen the dissemination of the project best practices and experiences in coking sub-sector thereby building up such an atmosphere in



the whole society to save resources and energy. As a result, more attention on EE will be paid on by officials and TVE entrepreneurs, more support will be provided by governmental authorities, more public participation can be solicited and sound monitoring by the media.

### **6.3 To better the “clean type coking oven” technology, recover heat and create a clean environment in coking production**

Just as what Mr. Hou commented, the number of “clean type coking oven” used in the production is quite limited due to its unsteady performance, e.g. ablation. It was suggested at the forum further test and improvement should be taken on the new technology.

### **6.4 To promote reform by setting up higher technical standards**

All technical standards and regulations concerned should be modified or revised timely in accordance with the national policy and development programs, so as to promote sector reform, eliminate outdated technology and products thereby improving energy efficiency, protecting environment, as well as being in line with the sustainable development.

## **7. Conclusions**

The Demo/Forum has gained in general the projected objective. Not only did it further build up links among governmental authorities, technical supporting agencies and TVEs, but also made contributions to the sustainability of the TVE Phase II project as well as the replication of the demonstration technologies. It provided an opportunity for all participants to gain insight into existing problems, opportunities and challenges facing TVEs in the coking sub-sector, as well as the latest industrial policies and technologies, knowing better the project.

## Annex: Proceedings of the Forum (List only)

- (1) “Disseminating Project Best Practices and Making Contributions to China’s environmental Protection and Sustainability”  
Mr. Xie Fei, Director of GEF China Secretariat
- (2) “Energy Conservation and China’s Industrial Policy”  
Mr. Hou Shiguo, Assistant Supervisor of Industrial Policy Dep’t., NDRC
- (3) “Sustainable development of Chinese TVEs and Building up a New Socialist Countryside”  
Mr. Lu Yongjun, Deputy Director General of TVE Bureau, MOA
- (4) “International and Domestic Development Trends in Coking Sub-Sector”  
Mr. Huang Jingan, Chairman of China Coking Association
- (5) “VA and the upcoming energy audit in industrial enterprises in China”  
Prof. Meng Zhaoli, a prominent EE expert from Tsinghua University
- (6) “Best Practices of the GEF/UNDP/UNIDO Project in Chinese Coking TVEs”  
Ms. Wang Guiling, Deputy Director of PMO
- (7) “Clean Type” Coking Technology and its Application in China  
Mr. Zhang Jianping, President of Shanxi Chemical Design Institute
- (8) “Sustainable development of coking TVEs”  
Mr. Gao Zhicheng, President of Gaoping Coking Group  
Mr. Hou Kang, Deputy General Manager of Gaoping Coking Group