

Impact Study on the EU-China Coal Mine Safety Training Program in the United Kingdom in 2008

October 2009

By: Wu Rongkang
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EU-CHINA

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Acronyms

DG EMPL	Directorate General for Employment, Social Affairs and Equal Opportunities of the European Commission, Brussels
PDSF	EU-China Policy Dialogues Support Facility
HSE	Health and Safety Executive, United Kingdom
NCICS	National Centre for International Exchange and Co-operation on Work Safety (China)
SACMS	State Administration of Coal Mine Safety
SAWS	State Administration of Work Safety, People's Republic of China

Executive Summary

The Impact Study on coal mining health and safety training is made in the context of the Memorandum of Understanding on occupational health and safety co-operation, signed by the Peoples Republic of China and the European Union in January 2009. It covers in particular the training received by 29 delegates from China in the United Kingdom and the observations made by these and other delegates who have been overseas to other countries for safety training.

These other countries included Japan, the United States, New Zealand and Australia. Around 90 delegates met at an international forum in Lanzhou on 17-18 September. The forum was financially supported by the EU Policy Dialogue Support Facility. Using questionnaires and interviews, as well as discussion at the forum with the trainees who visited the UK, the expert team writing this study concluded that this training was fully affirmed. They considered that it had been very effective in a practical way, with delegates implementing what they had learned, in their own mines, companies and regions of the State Administration of Coal Mine Safety.

The expert team found that the UK/EU project had been successful and made four recommendations: to continue the training, taking into account recommendations made for improvements by the delegates; to establish a number of pilot mine projects to implement UK/EU-style bottom-up risk assessment; to organize regional workshops on the UK/EU safety management system and in this context to organize a pilot training workshop for UK-style worker safety representatives in one region.

I. Introduction

Background and project

On 30 January 2009 the European Union and the Peoples Republic of China signed a Memorandum of Understanding with the declared

“.....common objective of improving working conditions and reducing the incidence of work-related accidents and illnesses, by creating safe working environments and occupational health services, while contributing to decent work for all, and adherence to agreed international standards.”

The two sides agreed to concentrate particularly on the coal mining sector. In advance of the signing, the two sides agreed to a training visit by a group of mine managers, engineers and government inspectors to study EU mine safety practice and regulations. In 2008 State Administration of Work Safety of China sent two delegations (29 delegates in total) to receive coal mine safety training in UK. On July 9, 2009 representatives from DG EMPL and SAWS held a meeting to discuss EU-China cooperation on work safety and decide to carry out the impact study on the coal mine safety training program in the UK in 2008. In order to guarantee the quality of the impact study and make an overall summary, the expert team designed questionnaires in the mid-August 2009 and asked the trainees to fill in. From August 25 to August 30 the expert team went to Anhui Province, Yunnan Province and Shaanxi Province to make interviews with delegates of the training to learn about what they had learned from the training, the impact of the training in their organizations and their suggestions and recommendations for future work.

The expert team attended the Forum on Experiences and Achievements of International Cooperation on Coal Mine Safety held by Department of International Cooperation, SAWS and EC Delegation in Lanzhou city during 17~18 September, 2009. At the forum the experts made a presentation on the training in coal mine safety received in the UK, the impact of this training and answered related questions.

Objectives

Below are the tables of objectives and outputs listed in the Report of the Overall Co-ordinator of the EU Coal Mine Safety Study Tours in the UK in 2008.

Table 1: Coal Mine Safety Study Tours: Objectives	
Global Objectives	1. Consolidate the basis for future cooperation between DG EMPL and SAWS
	2. By appropriate training measures contribute to effective accident prevention, control and emergency response system, which will

	enhance the mine industry's capacity in preventing accidents, and help reduce the accidents occurrence rate and the number of fatalities
Specific Objectives	1. Train a total of 29 qualified senior experts from China in issues related to risk assessment in coal mines and other relevant subjects
	2. Train these qualified senior and middle level mine managers to master coal mine safety measures and technical methods of EU countries, particularly in terms of risk identification, control and management and to promote and apply these measures back in China
	3. Train provincial government inspectors as part of the group in order to enhance their competence in hazards check and treatment, with further improvement of their inspection performance

Table 2: Coal Mine Safety Study Tours: Outputs	
1	29 senior personnel from China (Deputy Managers and Chief Mine Engineers, Senior Inspectors and Mine Rescue Personnel) trained in issues related to risk assessment in coal mines and other relevant subjects
2	Presentations by selected participants summarising the experiences and future perspectives at the 4th International Forum on Work Safety in Beijing 17 – 2- November 2008
3	Preparation of an Evaluation Report

Evaluation Report

The evaluation methodology used in the immediate post Study Tour period was: both pre-training and post-training questionnaires; assessment of the report by the UK Project Co-ordinator and interviews with the Overall Co-ordinator, two Group Leaders and a NCICS staff member on their return to China. The Evaluator was Dave Feickert.

The methodology for the Impact Study was similar: desk study of the documents and other materials used in the Study periods, the final reports of the Project and Overall Co-ordinators and the Evaluator, pre-interview questionnaires to the Study Tour participants, structured interviews of selected participants and assessment of the presentations made at the Forum on 17/18 September. Notes were taken during the interviews by the Senior Experts as required, as an aid to report writing but no verbatim record will be kept. Wu Rongkang and Dave Feickert were appointed as the Senior Experts, and Li Weixia as the Junior Expert.

Purpose of the Impact Study

The purpose of the Impact Study is to:

- a) determine if the project achieved its stated objectives and explain why/why not;
- b) assess the impact of the projects in term of sustained improvements achieved; provide recommendations on how to improve project performance, if the project were to be replicated in the future;
- c) identify lessons learned to inform future EU-China projects; and
- d) validate project strategy;
- e) assess the effectiveness of the training provided by the project, i.e., was knowledge transferred and were new behaviours formed as a result?

II. Basic introduction of the delegates' organizations

The delegates come from 11 organizations including:

SAFETY BUREAUS

- Anhui Coal Mine Safety Bureau,
- Guizhou Coal Mine Safety Bureau,
- Yunnan Coal Mine Safety Bureau,
- Jilin Coal Mine Safety Bureau,

GROUPS

- Shenhua Ningxia Coal Industry Group,
- Shaanxi Coal and Chemical Industry Group Co. Ltd,
- Yankuang Group Co. Ltd,
- Datong Coal Group Co. Ltd,
- Kailuan Group Co. Ltd,
- Yitai Group Co. Ltd and
- Coal Technician College of Huaibei Mining Group Co. Ltd.

There are four coal mine safety bureau and 7 coal enterprises (11 coal mines). According to the incomplete statistics of the questionnaires:

There are 2355 coal mines under the control or supervision of the 11 organizations with total design production capacity of 531.54Mt/a and 426.52 Mt of raw coal production in 2008.

Mining conditions of the organizations:

- Complexity of the geological structure: simple, 711 coal mines; medium-level, 112

coal mines; complex, 102 coal mines; extremely complex, 6 coal mines. Anhui, Yunnan and Datong do not provide their statistics.

- Hydrogeology: simple, 433 coal mines; medium-level, 117 coal mines; complex, 282 coal mines. Anhui and Datong do not provide their statistics, while Yunnan only states the number of coal mines with complex hydrogeology.
- Coal mine gas classification: low gassy, 1536 coal mines; high gassy, 507 coal mines; coal and gas outburst, 122 coal mines. Datong does not provide its statistics.
- Tendency of coal seam spontaneous combustion: not prone to spontaneous combustion, 218 coal mines; spontaneous combustion, 380 coal mines; prone to spontaneous combustion, 124 coal mines. Anhui and Datong do not provide their statistics, while Yunnan makes incomplete statement.
- Coal dust explosivity: non-explosive, 388 coal mines; explosive, 233 coal mines. Anhui, Yunnan and Datong do not provide their statistics.

The main dangerous and harmful factors of the relevant coal mines are: gas (mentioned by 16 delegates), dust (mentioned by 10 delegates), coal mine water (mentioned by 9 delegates), spontaneous combustion (mentioned by 9 delegates), rock (mentioned by 6 delegates), blast, electricity and gas, geothermal, poisonous gas, geological landslide, radioactive and so on. Generally speaking the major dangerous and harmful factors are gas, dust coal mine water, spontaneous combustion and rock.

III. Delegates' assessment on the impact of the coal mine safety training program in UK

28 out of the 29 delegates filled in the questionnaires.

1. Assessment on the coal mine safety and health training in UK

Subjects	Assessment				
Relevance between the program objectives and your organization	Very relevant	Relevant to a certain degree	No comment		
	13 delegates	14 delegates	1 delegates		
Necessity of the program	Very necessary	Necessary to a certain degree	No comment		
	24 delegates	3 delegates	1 delegate		
Practicality of the program	Very practical	Quite practical	Practical	No Comment	
	2 delegates	20 delegates	5 delegates	1 delegate	
Contributions made by the presenters in the UK	Very important	Quite important	Important to a certain degree	No comment	

	5 delegates	12 delegates	10 delegates	1 delegate	
Impact of the program on you and your work	Very influential	Quite influential	Influential to a certain degree	No comment	
	7 delegates	10 delegates	10 delegates	1 delegate	
Impact of the program on the work safety of your organization	Very influential	Quite influential	Influential to a certain degree	No comment	No response
	3 delegates	11 delegates	10 delegates	3 delegates	1 delegate
Dissemination effect	Very obvious	Quite obvious	More time needed		No response
	8 delegates	8 delegates	11 delegates		1 delegate

2. Assessment on training impact and effectiveness

Content	Assessment			
	Positive	Negative	No response	Others
Have got a better understanding of coal mine safety and risk management after the training	28 delegates			
Have you or your organization changed the way you work as a result of the training?	19 delegates	7 delegates	1 delegates	1 delegate (No obvious effects will be achieved in short period)
Have you use the training material developed for the program in your training?	25 delegates	3 delegates		
Do you expect accident rates or violations to be reduced as a result of actions you have taken following the program?	22 delegates	1 delegates	3 delegates	1 delegate (Difficult to identify), 1 delegate (No direct connection)
Do you foresee an impact on safety and health from the program over time?	24 delegates	1 delegates	1 delegates	1 delegate (Difficult to say), 1 delegate (Certain impact but not long-term)

3. Learning from the training

Through questionnaires and interviews, it is seen that the delegates speak highly of the

coal mine safety and health training in the UK. They are impressed by the coal mine safety management and realization of work safety after a long history in the UK, with their vision broadened and knowledge accumulated. The concept and experience of coal mine safety management in the UK plays an encouraging role to some extent in raising the safety management of Chinese coal enterprises and improving the coal mine work safety in China.

- ❖ Learn the history of the coal mine safety development in advanced industrial countries, which enhances the confidence to improve coal mine work safety in China. All the advanced coal production countries in the world experienced the period with high accident frequencies: the US 60 years from 1900 to 1960, Japan 26 years from 1948 to 1974, UK 100 years from 1850 to 1950 in their records. These countries fundamentally solved the safety management problem through a series of legislative changes and safety practice after a long period. It has been just over 30 years since China started its comprehensive industrialization. According to the law of development, due to the dramatic increase of production capacity, China is at the stage when the period with high accident frequency and tendency is transferring to the period with reduced accidents (In 2008, 292 coal mines, which make up of 31% of the total national production were built into safe and effective coal mines; in the first half of 2009, the fatality per million tonnes of China has reduced to the lowest level in the history of below 1 per million tonnes). Therefore, it is good to learn from the experience of the advanced coal production countries including UK to shorten the time when the work safety is insufficient and to achieve a fundamental change of coal mine work safety in China as soon as possible.
- ❖ Find out the fundamental reason for the realization of coal mine work safety in UK, which broadens the thoughts and methods of their own safety work. The maximum coal production capacity in the UK in the history reached just over 200 Mt. There were still over 200 coal mines in the early 1980s. At present the UK has much reduced production capacity of 25.0Mt/a and planned capacity of 15.0Mt/YR. Compared with the similar coal mines in China, the geological conditions, mining conditions and technical equipments of coal mines in UK are not so much better. The fundamental reason for the good work safety in UK is the safety concept and sound coal mine occupational health and safety law system and effective safety management mechanism. The value of life is number 1, prior to all others, and is the basis for all work.
- ❖ First of all the key of coal mine safety management in UK is bottom-up risk assessment. Coal mine risk assessment in UK has been integrated into laws and regulations. It is required by law that all employees, employers and government must make dynamic, specific and reliable assessment to dangerous factors, potential hazards that may cause harm to people's safety and measures taken to reduce hazards and avoid accidents at all levels from the whole mine to production systems and mining faces. This method is bottom-up, so it is "I want to be safe" instead of "you must be safe". Everybody knows the risks and measures to reduce the risks, which forms the solid foundation with spontaneous safety behavior; it

reduces or avoids misconduct and solves potential safety hazards, fundamentally.

- ❖ Learn the effective coal mine safety management system in UK. In UK every mine has a safety committee, responsible for the supervision of work safety in the mine. The safety committee is made of coal mine management (general manager, chief engineer, etc.), and worker inspector representing the trade union. The government inspector attends as required. Major safety decisions of the coal mine (for example the Work Safety Plan) are co-decided by the three parties; when there are major accidents, three parties will do accident investigation independently, put forward accident causes, identify responsibilities and propose prevention measures together. When they cannot reach consensus, the government inspector or the workers' trade union can sue in the court, which will make the final judgment. This management mechanism can deepen and specify work safety and reduce unilateral and subjective decision-making. It also has the feature of mutual promotion and mutual supervision, which is beneficial for fair and justice and the protection of the legitimate rights and interests of employees.
- ❖ Learn the importance of occupational health to safety management and its relation with safety in UK which provides evidence to personal protection of employees and occupational health. The main characteristic of coal mine occupational health in UK is that it is integrated with work safety; occupational health is the base of safety. Occupation Health and Safety Management Regulation issued in 1999 clearly integrated occupation health and safety into the national law system which was already well developed in coal mine safety and health. Some delegates thought the UK safety and health law was more flexible and easier to use than Chinese law. It consolidates the foundation of work safety and improves the disaster-prevention capability of employees. For instance: maximum 48-hour (but in mining normally less) working time per week required by the law is beneficial to reduce employees' fatigue and preserve enough energy; it is required by regulations that miners must wear masks, leg protection equipment, shoes with steel bottom, anti-wind and dust glasses, ear plugs, and gas absorption detectors must be put in every working site; first-aid case should be carried by specially trained people and so on, all of which are aimed to create a good working environment for the employees, reduce and avoid the influence to the employee's body.

4. Application of what they have learned from the training

- As to dissemination, take advantage of their work to disseminate the advanced safety concept and scientific management method in UK, see the gap and broaden working vision, etc.
- As to working concepts, in the perspective of management, some delegates propose to hire experienced professionals as safety inspectors, some propose to integrate risk assessment into coal mine shift construction system to be legalized, and some propose to popularize the application of personal protection equipment and include it in the coal mine regulations; from the perspective of technology, delegates thought such technologies as coal mining in high water conditions,

preventing the surface collapsing, establishing data bases of mine waste and closed shafts, testing dust at underground working sites, setting up underground gas outburst alarming, etc are worthy of studying, and should be further implemented in future.

- As to application, some organizations have started the training of risk identification at mining faces, some attach greater importance to coal mine operation rules and the strengthening of risk assessment, some implement the quantitative and qualitative analysis of disaster classification and some put more emphasis on large state-owned coal mines managing small private coal mines, which enhances the safety management.

5. Suggestions and recommendations for the training itself

Generally, the delegates think the training courses and course content are rich; trainers are well-prepared, and the organization of the training is good, providing good study and living conditions.

Suggestions and recommendations are as follows:

a. Training content

- Key content should be introduction, method and real operation of risk assessment. Some international standards like ISO standards should be only briefly introduced. Some should be combined, for example: accident case study can be combined with coal mine health and safety case study. The training content should include more practical operational courses.
- Add more introduction of basic conditions and safety management experience of coal mines in major coal production countries in Europe or the world.
- Add some comparison of risk management in China and UK.

b. Training methods

- Arrange more site visits to the coal mines;
- Provide more opportunities for the delegates to communicate with the working staff;
- The training time should be prolonged so as to give delegates enough time to digest what they have learned;
- Prepare good translated Chinese materials and give to delegates in advance. Interpreters should have some professional knowledge.

c. Other training-related issues

- Long-term China-EU training cooperation and regulated work mechanism should be established;

- Summary and exchange activities should be reinforced after the training, which will be helpful for the dissemination of the training achievements, the government, enterprises and scientific institutes' further recognition of the necessity and importance of training, and cultivation of public emphasis on coal mine training;
- Trainers should know more about the real condition of coal mines, laws, rules and regulations, concepts and method of safety management in China so as to make the training more specific and practical;
- Be aware of the composition of the delegates and link with the training purpose. Different trainings can be carried out according to different management level and work. Decision-makers should be the priority, and then trainings should aim at more professional and more harmful factor-treatment, for example: training on high gassy coal mines and coal and gas outburst coal mines, etc.
- A certificate should be issued by the training organization;
- Set up pilot coal mines, using EU/UK risk assessment in China.

IV. Assessment made by the expert team

1. The organizations, from which delegates of coal mine safety and health training in UK in 2008 come, include coal enterprises, coal mine safety bureaus and training organization of enterprises. Delegates are made of management of enterprises, technicians of coal mines and safety inspectors. Almost all the relevant departments of coal enterprise safety management are covered; therefore, their experience, opinions, suggestions and recommendations of training in UK can be regarded as representative.
2. According to incomplete statistics, there are 2355 coal mines under control or supervision of the organizations which took part in the training in UK in 2008, accounting for more than 10% of the total number of coal mines in China, with total design production capacity of 531.54Mt/a and raw coal production of 426.52 Mt in 2008 making up about 15% of the total national coal output. Mining conditions and technical equipment in Chinese coal mines are similar to that in UK. Therefore, the training on advanced safety management concepts and methods is good for improving coal mine safety management in China.
3. The experience and opinions of Chinese delegates reflect deep knowledge. They made the same responses and comments in questionnaires, interviews and at the Forum on Experiences and Achievements of International Cooperation on Coal Mine Safety. Their suggestions and recommendations to the training methods and contents is relatively objective and practical, conformed with their real need, and their suggestions and recommendations are beneficial for improving training quality and realizing training purpose. The organizers of training should take them it into consideration in the future.
4. The Forum on Experiences and Achievements of International Cooperation on Coal Mine Safety held in Lanzhou showed the enthusiasm and support of relevant Chinese

government departments and coal mine enterprises to coal mine training. Attendees were interested in the UK risk assessment and compared it with the safety management methods in China. The UK (EU) risk assessment is generally considered advanced and worthy of study. At the Forum the coal mine safety training in UK was fully affirmed, considered to be fruitful and effective and lay a solid foundation for further EU-China cooperation in work safety. EU risk assessment will be brought into China as the key content of EU-China cooperation in work safety training for the comprehensive improvement of the safety management in coal mine enterprises in China. EU-China cooperation in work safety training will undoubtedly be an important part of China's international cooperation in coal mine safety, and it is a big step forward for China's international cooperation in coal mine safety.

V. Recommendations

1. The expert team recommends to continue the training project of EU-China cooperation program and to carry out similar training in the future due to the following reasons:
 - China is one of the major coal production countries in the world. Its coal production in 2008 accounted for 44% of the world total coal output. The Chinese government has made great efforts to promote coal mine work safety and gained obvious achievements, but there is still some distance from the objectives of “fundamentally change in better direction” and “zero fatality” put forward by the government. Therefore, learning from the experience and practices of safety management in advanced coal production countries in the world including UK is beneficial for the work safety and sustainable development of China's coal industry.
 - Most of the delegates of the coal mine safety and health training in UK dispatched by SAWS think the training is necessary, the training objective is relevant or relevant to a certain extent with their work, and the training is quite practical.
 - The training plan is generally feasible, the work attitude and enthusiasm of British trainers are praised by delegates and UK has good conditions to deliver training.
2. It is necessary to set up pilot coal mines of risk assessment in China. There are two options: one is to choose three pilot coal mines, one large-scale, one medium-scale and one small-scale; the other is to choose one pilot coal mine and then enlarge the scale gradually.
 - Firstly, the safety culture concepts, safety management system and mechanism in China and UK are different to a certain extent, therefore, the implementation of the theory and methods of risk assessment in Chinese coal mines is undoubtedly good for the dissemination of UK safety management concepts, methods and experience.

- Secondly, Shaanxi Coal and Chemical Industry Group, Anhui Coal Mine Safety Bureau and Yunnan Coal Mine Bureau have proposed to set up pilot coal mines of risk assessment in China. Shaanxi Coal and Chemical Industry Group actively hope to have the pilot coal mine in Shaanxi.
 - Thirdly, the geological conditions, mining conditions of large and medium-scale coal mines in China are similar to that in UK. Shaanxi Coal and Chemical Industry Group have 15 large-scale coal mines, 10 medium-scale coal mines and 3 small-scale coal mines, which means they have many options for the pilot coal mines.
3. It is necessary to call a series of regional workshops on the EU/UK safety management structure, which is based on the EU tripartite structure. These should be senior level workshops in China with EU experts, where the safety triangle of manager/worker safety representative/ government mines inspector is explored in detail, looking at case studies, both EU and Chinese. These workshops will help to clarify the present role in China of government inspectors and the worker safety representatives which exist in different forms in the different types of mines.
 4. Arising from the former point, there was an identified need to strengthen the role of the worker safety representatives which now exist in some form in most Chinese mines. The Yunnan delegates said that they were impressed with the UK role of worker safety inspector (the 123 Inspector, after Section 123 of the safety and health law). How could such a system be built in Yunnan and elsewhere, where 1200 of their 1400 mines are small private mines? Some training could be offered to these worker representatives, which looked at strengthening their relationship with government inspectors. There could be two pilot workshops, one in a predominantly small private mine region like Yunnan and the other for large state-owned mines, where the existing roles are stronger.
 5. It is necessary to change, renew and perfect the training plan.
 - Site training and communication with working staff should be increased if the conditions of UK coal mines permit.
 - British trainers change and renew their teaching material based on their further understanding of the real condition of Chinese coal mines.
 - If condition permits, more professional trainings such as training on THE treatment of gas, dust, spontaneous combustion, coal mine water and rock should be held in EU countries.
 6. After training, the training organization should issue certificates.

VI. Conclusion

The expert team judges that the project objectives were achieved. The project strategy has been validated by the way in which delegates have returned to their companies, organizations and region, and begun to implement what they learned during the EU/UK

training programme. Presentations of examples of this implementation were made by delegates at the Forum in Lanzhou.

As can be seen above the experts' assessment of the quality and delivery of the programme is that it was good. Delegates have made suggestions for improvements to future similar programmes and these have been indicated. The lessons learned have also been recorded. Finally, the expert team has made a number of recommendations, which it believes can be delivered just as effectively as the programme under review.

Appendix: Questionnaires Answered by the Delegates of Coal Mine Training
in UK

**EU - China Program to Improve Mine Safety
Questionnaire (Coal Mine Inspectors)**

This questionnaire is being distributed to all the participants from coal mine inspectors and coal mine enterprises in the visits to the UK in 2008. It will be used as a basis for follow-up interviews. The answers you make will be confidential.

In completing the questionnaire, please reply as a group where you come from the same mine or company or SAWS office. Individual responses will be accepted where only one person went on the exchange from a company or other organizations (such as local SAWS). You may wish to keep a copy for your own personal record.

Where you are asked to reply Yes or No, please tick one of them.

Where you are asked for a written comment, please keep your answers brief.

Thank you for your cooperation.

Name: _____		Organization: _____		Position: _____	
I. Brief introduction of your organization (including main responsible area, the number of coal mines your organization is responsible for, the number of safety inspectors etc.)					
II. Basic information of the coal mines					
Design overall production capacity: _____ Mt/a			Actual overall output in 2008 : _____ Mt		
Complexity of geological structure (number of coal mines)	Simple _____	Middle-level _____	Complex _____	Extremely complex _____	
Hydrological condition (number of coal mines)	Simple _____	Middle-level _____	Complex _____		

Coal mine gas classification (number of coal mines)	Low gassy _____	High gassy _____	Coal (rock) and CO ₂ outburst _____	
Coal seam spontaneous combustion tendency (number of coal mines)	Not prone to spontaneous combustion _____	Spontaneous combustion _____	Prone to spontaneous combustion _____	
Coal dust explosivity (number of coal mines)	Non-explosive _____		Explosive _____	
Main dangerous and harmful factors in the coal mine: (Ranking 1, 2, 3... based on the degree of danger and harm)				
() Gas	() Spontaneous combustion	() Dust	() Rock	() Mine water
() Blast	() Electricity	() High temperature	() Geological landslide	() Noise
() Poisonous gas	() Radioactivity	Others: _____		

III. Evaluation of coal mine safety training in UK

Relativity between the program objectives and your organization	<input type="checkbox"/> Very relevant	<input type="checkbox"/> Relevant to a certain degree	<input type="checkbox"/> Barely relevant	<input type="checkbox"/> Irrelevant	<input type="checkbox"/> No comment
	Please describe what you see as the main objectives of this program, which objective or objectives are most relevant to your group and whether the objectives have been met.				
Necessity of the program	<input type="checkbox"/> Very necessary	<input type="checkbox"/> Necessary to a certain degree	<input type="checkbox"/> Barely necessary	<input type="checkbox"/> not necessary	<input type="checkbox"/> No comment
	Please list one or two examples.				
Practicality of the program	<input type="checkbox"/> Very practical	<input type="checkbox"/> Quite practical	<input type="checkbox"/> Practical	<input type="checkbox"/> impractic	<input type="checkbox"/> No Comment

				al	
Please list one or two examples.					
Contributions made by the presenters in the UK	<input type="checkbox"/> Very important	<input type="checkbox"/> Quite important	<input type="checkbox"/> Important to a certain degree	<input type="checkbox"/> Not important	<input type="checkbox"/> No comment
Please list one or two examples.					
Impact of the program on you and your work	<input type="checkbox"/> Very influential	<input type="checkbox"/> Quite influential	<input type="checkbox"/> Influential to a certain degree	<input type="checkbox"/> No influence	<input type="checkbox"/> No comment
Please list one or two examples.					
Impact of the program on the work safety of your organization	<input type="checkbox"/> Very influential	<input type="checkbox"/> Quite influential	<input type="checkbox"/> Influential to a certain degree	<input type="checkbox"/> No influence	<input type="checkbox"/> No comment
Please list one or two examples.					
Dissemination effect	<input type="checkbox"/> Very obvious	<input type="checkbox"/> Quite obvious	<input type="checkbox"/> Obvious	<input type="checkbox"/> Not obvious	<input type="checkbox"/> More time needed
IV. Training impact and effectiveness					
1. Have you got a better understanding of coal mine safety and risk management after the training? <input type="checkbox"/> Yes <input type="checkbox"/> No					
2. Have you or your organization changed the way you work as a result of the training? <input type="checkbox"/> Yes <input type="checkbox"/> No					
3. Have you use the training material developed for the program in your training?					

Yes No

4. Do you expect accident rates or violations to be reduced as a result of actions you have taken following the program?

Yes No

5. Do you foresee an impact on safety and health from the program over time?

Yes 否 No

6. Please elaborate as detailed as possible the application of the concept, knowledge and technology you learned during the training, its impact and your future plan. (Please add another piece of paper to answer this question.)

7. How would you change a similar, future program to improve it? Please list one or two changes.

8. What are your suggestions for alternative, future programs? Please list one or two proposals

EU - China Program to Improve Mine Safety

Questionnaire (Coal Mine)

This questionnaire is being distributed to all the participants from coal mines in the visits to the UK in 2008. It will be used as a basis for follow-up interviews. The answers you make will be confidential.

In completing the questionnaire, please reply as a group where you come from the same mine or company or SAWS office. Individual responses will be accepted where only one person went on the exchange from a company or other organizations (such as local SAWS). You may wish to keep a copy for your own personal record.

Where you are asked to reply Yes or No, please tick one of them.

Where you are asked for a written comment, please keep your answers brief.

Thank you for your cooperation.

Name: _____	Organization: _____	Position: _____
I. Brief introduction of your organization (including safety management mechanism, safety management staff etc.)		
II. Basic information of the coal mine		
Design production capacity:_____Mt/a	Actual output in 2008:_____Mt	
Complexity of geological structure	<input type="checkbox"/> Simple	<input type="checkbox"/> Middle-level
	<input type="checkbox"/> Complex	<input type="checkbox"/> Extremely complex
Hydrological condition	<input type="checkbox"/> Simple	<input type="checkbox"/> Middle-level
	<input type="checkbox"/> Complex	

Coal mine gas classification	<input type="checkbox"/> Low gassy	<input type="checkbox"/> High gassy	<input type="checkbox"/> Coal (rock) and CO ₂ outburst	
Coal seam spontaneous combustion tendency	<input type="checkbox"/> Not prone to spontaneous combustion	<input type="checkbox"/> Spontaneous combustion	<input type="checkbox"/> Prone to spontaneous combustion	
Coal dust explosivity	<input type="checkbox"/> Non-explosive		<input type="checkbox"/> Explosive	
Main dangerous and harmful factors in the coal mine: (Ranking 1, 2, 3... based on the degree of danger and harm)				
() Gas	() Spontaneous combustion	() Dust	() Rock	() Mine water
() Blast	() Electricity	() High temperature	() Geological landslide	() Noise
() Poisonous gas	() Radioactivity	Others: _____		

III. Evaluation of coal mine safety training in UK

Relativity between the program objectives and your organization	<input type="checkbox"/> Very relevant	<input type="checkbox"/> Relevant to a certain degree	<input type="checkbox"/> Barely relevant	<input type="checkbox"/> Irrelevant	<input type="checkbox"/> No comment
Please describe what you see as the main objectives of this program, which objective or objectives are most relevant to your group and whether the objectives have been met.					
Necessity of the program	<input type="checkbox"/> Very necessary	<input type="checkbox"/> Necessary to a certain degree	<input type="checkbox"/> Barely necessary	<input type="checkbox"/> not necessary	<input type="checkbox"/> No comment
Please list one or two examples.					

Practicality of the program	<input type="checkbox"/> Very practical	<input type="checkbox"/> Quite practical	<input type="checkbox"/> Practical	<input type="checkbox"/> impractical	<input type="checkbox"/> No Comment
Please list one or two examples.					
Contributions made by the presenters in the UK	<input type="checkbox"/> Very important	<input type="checkbox"/> Quite important	<input type="checkbox"/> Important to a certain degree	<input type="checkbox"/> Not important	<input type="checkbox"/> No comment
Please list one or two examples.					
Impact of the program on you and your work	<input type="checkbox"/> Very influential	<input type="checkbox"/> Quite influential	<input type="checkbox"/> Influential to a certain degree	<input type="checkbox"/> No influence	<input type="checkbox"/> No comment
Please list one or two examples.					
Impact of the program on the work safety of your organization	<input type="checkbox"/> Very influential	<input type="checkbox"/> Quite influential	<input type="checkbox"/> Influential to a certain degree	<input type="checkbox"/> No influence	<input type="checkbox"/> No comment
Please list one or two examples.					
Dissemination effect	<input type="checkbox"/> Very obvious	<input type="checkbox"/> Quite obvious	<input type="checkbox"/> Obvious	<input type="checkbox"/> Not obvious	<input type="checkbox"/> More time needed
IV. Training impact and effectiveness					
6. Have you got a better understanding of coal mine safety and risk management after the training?					
<input type="checkbox"/> Yes <input type="checkbox"/> No					
7. Have you or your organization changed the way you work as a result of the training?					
<input type="checkbox"/> Yes <input type="checkbox"/> No					

8. Have you use the training material developed for the program in your training?

Yes No

9. Do you expect accident rates or violations to be reduced as a result of actions you have taken following the program?

Yes No

10. Do you foresee an impact on safety and health from the program over time?

Yes No

6. Please elaborate as detailed as possible the application of the concept, knowledge and technology you learned during the training, its impact and your future plan. (Please add another piece of paper to answer this question.)

7. How would you change a similar, future program to improve it? Please list one or two changes.

8. What are your suggestions for alternative, future programs? Please list one or two proposals