REDUCING TOXIC EXPOSURES IN CHINA

Blacksmith Institute's 2011 – 2012 Activity Report
to the
Rockefeller Brothers Fund

APRIL 2012

I. About Blacksmith Institute

Blacksmith Institute is an international non-profit organization dedicated to solving pollution problems in low and middle-income countries, where human health is at risk. Since its inception in 1999, Blacksmith has completed more than 50 clean-up projects in 21 countries. Blacksmith works closely with national stakeholders, communities, industry and governments, and coordinates with key organizations such as the World Bank, United Nations Industrial Development Organization, the Asian Development Bank, and the European Commission, many of which provide funding.

Blacksmith focuses on locations throughout the developing world where human health is most affected by pollution. Blacksmith combines pollution management with legacy pollution remediation to reduce exposures to toxins to local populations, especially children.

Strategies include:

Inventorying toxic hotspots around the world.
To date, more than 2,200 locations in 50 emerging market countries have been identified where people are exposed to toxins at dangerous levels. A central on-line database coordinates information on each, and creates a platform for national and local governments, international agencies and Blacksmith to prioritize interventions.

Implementation of pilot and mid-scale cleanup projects.
Blacksmith's field work focuses on implementing environmental remediation projects, eliminating the threat of toxins in communities throughout the world. Each project is undertaken with the support of the government and local stakeholders. Projects are often chosen with the intent of replication or scaling-up by national or international agencies.

National capacity building.
Local and national agencies in most low and middle-income countries can benefit from the 40+ years of remediation experience from the US and Europe. As well as conducting technical workshops, Blacksmith assists countries to develop national strategies, focusing government efforts on public environmental health.

Collaborative platform with local champions.
Blacksmith focuses on solutions, and encourages full stakeholder participation in implementation, rather than litigation. Locals, passionate about the problem, implement Blacksmith's programs. Blacksmith provides resources and technical expertise.

Best science and best practices. A volunteer Technical Advisory Board of more than 50 senior experts in varying environmental, engineering and public health disciplines oversees each remediation project. They bring the latest and most cost-effective technologies, appropriate to local conditions.

II. BLACKSMITH INSTITUTE IN CHINA

Blacksmith Institute's China Program focuses on locations throughout China where human health is most affected by pollution. Blacksmith supports its local partners with more than just grants so that solutions can be implemented in the most cost effective and direct manner.

The basis for Blacksmith Institute's China Strategy

According to a survey on heavy metal soil contamination conducted by the Ministry of Environmental Protection (MEP), which covered 300,000 ha of farmland, there are 36,000 ha where concentrations of heavy metals exceeded national standards. Annual food loss due to heavy metal contamination is up to 12 million tons, resulting in direct economic losses of more than $20 billion. Data from the Ministry of Land Resources show that more than 10% of the country's cultivated land areas (about 150 million mu) have been contaminated by heavy metals. Use of polluted water for irrigation and dumping of solid waste has also caused contamination. A survey conducted by the China Academy of Environmental Sciences found that in some cities in southern China 50% of arable land is contaminated.

Recognising the challenges presented by heavy metal contamination, the State Council approved the 12th Five Year Plan for Integrated Control of Heavy Metal Pollution in February 2011, indicating the Government's commitment to focus on prevention, monitoring, cleanup and control of emissions of five heavy metals: mercury, chromium, cadmium, lead and arsenic. Priority areas include 14 key provinces: Inner Mongolia, Jiangsu, Zhejiang, Jiangxi, Henan, Hubei, Hunan, Guangdong, Guangxi, Sichuan, Yunnan, Shaanxi, Gansu and Qinghai, and 138 other areas. By 2015, the plan intends to set up a comprehensive system to deal with heavy metal pollution prevention, control, emergency response and environmental and health risk assessment. MEP will also set guidelines for the reduction of pollution from active industry.

Despite these positive developments, implementation has been slow due to public perception causing political problems for implementing agencies. Many local government officials and communities lack understanding of impact of heavy metal pollution on public health. There is insufficient knowledge about how to effectively engage affected communities in the development and implementation of remediation projects. There is also insufficient capacity in the design of remediation programs.

For these reasons, Blacksmith supports tangible remediation activities that develop the capacity of the local agencies and other stakeholders, including academic institutions, to replicate success in other provinces.

Blacksmith Institute provides:

- Technical Research: To bring the necessary resources to identify pollution problems and proposed solutions thoroughly. Blacksmith Institute partners with scientific and technical groups in China, the US and Europe that have demonstrated expertise in areas relevant to pollution remediation.
- Strategic Assistance: To assist in project planning and implementation, using similar experiences around the world to enable local champions.

- Networking Capabilities: To develop collaborative networking opportunities for national and international partners, linking them to the most appropriate resources to meet their needs politically, financially and technically.
- Financial Support: To provide seed money, and leverage continued support to projects that have demonstrated clear successes in pollution remediation.

Focused on tangible solutions, Blacksmith works closely with government agencies and other partners, including the private sector, to design and implement remediation projects in China. Resources are allocated to support critical activities relating to impact evaluation and the improvement of the technical capacity of partners. Consistent consultation with local partners is critical to Blacksmith's methodology to address emerging and urgent national needs and priorities.

Beginning in 2009, Blacksmith Institute has received funding from Rockefeller Brothers Fund to implement pilot projects related to toxic exposures, and build capacity within Chinese technical agencies to undertake environmental remediation. With pilots in Guangdong Province, Hubei and Guanxi, these projects dealt with pollution issues prevalent throughout China as well offered potential solutions that could be brought to scale.

Downriver from the DaBaoShan Mine, bioremediation techniques were successfully implemented in partnership with the Guangdong Institute of Eco-Environmental Sciences to remove heavy metals from farmland. The pilot site, in one of China's notorious "cancer villages", has yielded concrete, measureable results that can potentially impact hundreds of thousands of acres of polluted agricultural lands.

The Qingyuan electronic waste project created a clearinghouse of information on the most common formal and informal e-waste processing techniques in one of the major industrial hubs for this activity. The information researched through this study is being used to develop best management practices for the sector. The stakeholder group made up of companies, local government agencies and importers and lead by the Southern China Institute of Environmental Sciences is working with Provincial officials to build regulatory capacity. This project continues to engage the informal sector, in hopes of reducing occupational exposures amongst subsistence operators.

Additionally, Blacksmith received a small grant from Rockefeller Philanthropy Advisors to collaborate with the Chinese Research Academy of Environmental Sciences in Guanxi Province. Blacksmith provided technical support and guidance to CRAES to design a full-scale program to dredge the exceedingly toxic soil at the headwaters of the Diaojiang River. The tailings from the Nandan mine have contaminated thousands of acres of agricultural land along the River's floodplains. Based on the plan and success of the pilot restoration, the Ministry of Environmental Protection has given the Provincial Government USD $15 million to dredge and restore the worst contaminate parts of the River.

III. 2011-2012 China Program Activities

In 2011, RBF supported Blacksmith to take the partnership further, by promoting the importance of addressing environmental pollution issues at a national level. The goal was to develop and implement a strategy for engaging other actors in the field of environmental remediation issues across China. This program focused on bringing together prominent Chinese researchers, academics, practitioners and their institutions, to create a coalition. This group, known as the China Technical Advisory Board, is charged with providing technical advice to some of the worst polluted sites in China, while offering strategic guidance to the National authorities. In addition to the initiation of the CTAB, Blacksmith began two pilot projects with State Technical Agencies to trial technologies that will have wide applications beyond their locations in Jianxi and Hunan.

Over the past seven years, Blacksmith has slowly built a reputation of action and trust with Chinese agencies. However, given the scale of the environmental degradation across China, and the keen interest in governmental agencies to learn best practices from US and European experience, there is a need for a stronger effort by Blacksmith to meet the demand for remediation technologies. Blacksmith began it's efforts to bring these services to the national spotlight last year, and has demonstrated success in attracting the attention of China's most respected technical institutions including China Research Centre for Public Policy (CRCPP) and the Institute of Geographic Sciences and Natural Resources Research, China Academy of Sciences (IGSNRR-CAS)

A. Strategic Planning Toward a Sustainable China Program

To execute this expanded vision, it became essential to develop a strategic approach to building Blacksmith's network in China. Focusing on a 2011-2014 project cycle, the "2011-2014 China Country Programme Document" was developed to promote a cohesive and precise strategy toward achieving a sustainable China program. Building on past pilot projects and political discussions, Blacksmith's cooperation projects in China will gradually shift from one-off pilot project modules to a more balanced combination of pilot projects and upstream strategic alliances at provincial and national levels. The comprehensive unification will include pilot projects, capacity building exercises, policy dialogues, smart advocacy and targeted forums. At the center of this plan, is a focus on strengthening partnerships with Chinese research institutions, universities, think-tanks, and the Chinese government at the municipal, provincial, and central level.

The Country Programme Document will serve as a management tool for program coordination, implementation and monitoring. It has already led to the adoption of a participatory approach to project design, implementation and monitoring. This nature of evaluation ensures that the results of projects are well received by all partnering agencies, taking into account their various political sensitivities.

The Country Programme Document provides the guidelines for:

Identifying polluted places in China, with nominations received from partners. The priority is given to nominated sites where the most severe pathways to human populations intersect with the significant will of the central/local government to intervene. The practicality and replicability of a site is also taken into consideration.

Assessing the health risks at those locations.
Nominations are reviewed with a Technical Advisory Board of leading specialists on a rolling quarterly basis. Candidate sites with likely high health risks are visited and an Initial Site Assessment is conducted. This is a triage protocol that validates likely health implications, and enables the design of an intervention.

Designing and implementing a remediation strategy.
The design is tailored to the specifics of the site in question, using local champions to implement the project in a cooperative fashion. Technical assistance from Blacksmith China and Blacksmith US is provided to key stages of project lifecycle, including project formulation, technical review of key milestones and impact analysis.

Identifying opportunities to showcase this methodology**.**
A critical component to the National program is engaging political actors at various levels of influence. As Blacksmith continues to have successes in China, program staff will seek meetings, conferences and prominent forums in which to present our data and mission. Blacksmith will highlight opportunities for partnership in both the private and public sectors.

Providing Regional Coordination
Blacksmith Institute's China Country Team will establish a regional coordination mechanism to support the implementation of Blacksmith operations in China and keep informed of the latest regional developments. Geographically, South China, Central China, and Eastern China will be considered for establishing regional coordination mechanism. South China Institute, Huazhong University of Technology & Sciences, and Zhejiang provincial Academy of Environment Sciences or Shanghai Academy of Environment Sciences are being considered as candidates as regional focal points.

Blacksmith Institute Headquarters provides overall leadership on the implementation of the country program, while the Technical Advisory Board and China Technical Advisory Board provide guidance to technical issues. However, the China Country Director will take a prominent role in guiding the political growth of the organization. The China in-country team will focus on strengthening the capacity of sub-national authorities (such as provinces, municipalities and others) to implement the Government's development priorities and strategies. This includes a special focus on consolidation and dissemination of best practices and lessons learned from pilot projects to inform policies. Blacksmith Institute will support a variety of efforts at national and sub-national levels to support removal of barriers to the development of technical solutions to China's most severe pollution problems.

The "2011-2014 China Country Programme Document" is provided at the end of this report as Annex 1

B. China Technical Advisory Board

In 2011, RBF supported Blacksmith to take the partnership further, by promoting the importance of addressing environmental pollution issues at a national level. The goal was to develop and implement a strategy for engaging other actors in the field of environmental remediation issues across China. This program focused on bringing together prominent Chinese researchers, academics, practitioners and their institutions, to create a coalition. This group, known as the China Technical Advisory Board, is charged with providing technical advice to some of the worst polluted sites in China, while offering strategic guidance to the National authorities.

China Technical Advisory Board: Blacksmith Institute China Programme is supported by a Technical Advisory Board (TAB) made up of highly experienced professionals from a range of disciplines, which provide advice, insights and guidance to Blacksmith's strategy and operations in China. The members of the C-TAB are invited to participate on the basis of their expertise, experience and commitment to the goals of Blacksmith Institute. The membership of the C-TAB includes experts from national and sub-national institutions, and geographical coverage is being expanded to reflect Blacksmith's operational scope in China. The TAB also includes representatives of key partner organizations with whom Blacksmith operates closely.

The roles of the C-TAB are to provide: 1) Strategic advice to Blacksmith Institute management and operational staff; 2) Access to best practices in pollution management and remediation techniques; 3) Practical guidance on operational aspects of specific pilot projects. Key members of the US -TAB will also participate in C-TAB activities as appropriate.

The members of the C - TAB provide inputs on a routine basis or in response to specific requests. Regular conference calls are held to exchange information and opinions with operational management at Blacksmith. Specific issues are taken up as needed. Some C - TAB and US – TAB members participate in country operations to provide detailed guidance and technical expertise on critical projects at national and local levels.

Inception Meeting of the CTAB

On Feb 15, 2012, Blacksmith Institute officially launched its China Technical Advisory Board (C-TAB) with an initiation meeting in Beijing. C-TAB is the first Technical Advisory Board that Blacksmith has set up outside the U.S. C-TAB members from the China Academy of Sciences (CAS), China Academy of Environmental Sciences (CRAES), Chinese Center for Disease Control and Prevention (China CDC), China Research Center for Public Policy (CRCCP), and the Guangdong Institute of Eco-Environment & Soil Sciences participated in the meeting. U.S. representatives included Blacksmith Institute President Richard Fuller and Senior Advisor Karti Sandilya. The meeting reviewed and endorsed the Terms of Reference for C-TAB, announced membership and chairmanship of the C-TAB, reviewed and endorsed the China Country Strategy and discussed programming priorities and outreach strategy for Blacksmith's China Programme 2012 - 2014.

Blacksmith's two new projects were launched by a signing ceremony at the meeting. Leaders and representatives from Hunan and Jiangxi participated were present.

The establishment of C-TAB is a significant milestone of Blacksmith Institute's cooperation with policy-making bodies, academic research institutions and practitioners at all levels in China. This meeting comes at a time when the Chinese Government has released its ever first national five-year plan for addressing heavy metal pollution nationwide. Blacksmith Institute has gained strong support from partner institutions in initiating and implementing cooperation projects in past years. Its mission, objectives and value are recognized by partners in China. The establishment of the C-TAB is an opportunity to affirm Blacksmith's continuing commitment to work with China's counterparts on addressing heavy metal pollution. It will play a vital role in ensuring strategic advice and technical support to Blacksmith Institute's China Programme.

With the input and expertise of these well recognized C-TAB members, Blacksmith Institute cooperation projects in China will be more effective and play an even more important role in capacity building and knowledge exchange in the fields of heavy metal pollution prevention, cleanup and remediation, and health.

Meeting minutes and a participants list are provided at the end of this report as Annexes 2 and 3

C. Collaboration with the European Union

The strategic support provided by Rockefeller Brothers Fund led to the most significant opportunity since the inception of the RBF-Blacksmith partnership – a mid-scale €600,000 grant from the European Commission on Environment. In late March 2012, Blacksmith was selected to receive this award to aid in the EU's efforts to improve environmental governance in China. Blacksmith is currently seeking the $150,000 match from RBF and other partners. The China Environmental Governance Programme (EGP) is funding Blacksmith to encourage public engagement in the solutions to some of China's most pressing environmental issues in Jiangxi, Zhejiang, and Hunan Provinces. Through RBF's support in previous years, Blacksmith understands that RBF's vision in China is grounded in the strengthening of civil society networks in order to bring environmental issues into the spotlight. Additionally, this network is meant to work collaboratively with governmental agencies to affect real changes in environmental practices. This grant from the European Union is an opportunity for the Blacksmith-RBF partnership to realize this vision at a significant scale.

Promoting Environmental Governance in China

Public engagement during the environmental remediation process is important for a variety of reasons. The public is directly affected by the contamination and any activities to remove the exposure source. As a result, transparency and information sharing, as well as involvement in decision-making are important to strengthen trust in the government and the remediation work itself. This collaborative effort with the EU is meant to mitigate confusion and community unrest or conflict.

This project aims to demonstrate the positive impact of public participation in the environmental remediation process. The project will develop a tool for public engagement (i.e. a protocol) that is adapted to Chinese circumstances and sensitivities, and tested via two pilot remediation projects. In collaboration with Blacksmith advisors, Chinese environmental agencies will design and implement the protocol and its methodology. They will determine how engaging the public in an open, transparent manner can benefit the sustainability of remediation projects they implement. In the process, public participation in environmental decision-making will be enhanced, and local communities will benefit from reduced exposures to toxic pollution.

The project will collaborate with key agencies and experts, including ministries, academics, international organisations and the private sector. The two lead partner agencies for Blacksmith will be China Research Centre for Public Policy (CRCPP) and the Institute of Geographic Sciences and Natural Resources Research, China Academy of Sciences (IGSNRR-CAS)

In addition, project associates may include the Academy of Environmental Sciences and Design from Jiangxi, Hunan and Zhejiang Provinces, the Nanjing Environment Institute and the Southern China Academy of Environment Sciences. The project will engage China's top experts in the area of toxic pollution, many of whom are already linked to project partners

through existing networks and Blacksmith's China Technical Advisory Board. It also supports the strengthening of the Consortium for Heavy Metal Pollution Prevention and Remediation. This consortium is recognised by the Ministry of Sciences and Technologies CAS and has 30 member units from national to provincial levels.

Blacksmith recognizes the contribution of the Rockefeller Brothers Fund in uniting agencies in Southern China working toward a cleaner environment. For this reason, Blacksmith plans on engaging the other NGOs in the region to help with the advocacy efforts needed for this project.

D. Initiation of Two Pilot Remediation Projects

Through the work of the previous year, the China Country team identified two sites that are in need of immediate intervention.

Xiangjiang River basin, Hunan Province: Blacksmith is working with the Hunan Environmental Protection Science Research Institute, Chinese Research Academy of Environmental Sciences, and the Hunan Environmental Protection Bureau to remediate legacy chromium waste left by the banks of the Xiangjiang River. The waste site is in the middle of a residential area in Changsha City.

Site Background

Changsha chromium salt factory is located adjacent to the XiangJiang River in Changsha City, Hunan Province. The factory covers an area of about 11 hectares. In 2003, the factory was shut down by Changsha EPB. When in production, the factory's main products were sodium acid chromate, chromic anhydride, chrome oxide green and other chromium products to be used in ceramic production, printing, electroplating, leather production and medicines.

At the time of shutdown, a great amount of chromium residues remained at the site. A large slag pile was located in a basin only 70 meters from the Xiangjiang River, extending from about 5 meters below the surface to well above the surface, and covering an area of several hectares. There was another large slag pile in the area extending 8 meters above ground and 15 meters blow ground. These piles, with an estimated 420,000 tons of waste, were treated starting in 2005 to remove chromium, and the treated slag waste was deposited in a raised landfill on adjacent land northwest of the site. The landfill reportedly is lined and constructed to an advanced engineering standard and has monitoring wells around it (although none were seen during a site visit by Blacksmith Institute Technical Advisors.)

The entire site is heavily contaminated with chromium, both trivalent and hexavalent. While the chromium slag has been treated and the residue placed in the landfill, it is clear that the soil at the site contains significant chromium. The contamination appears to be ubiquitous both through the soil column, to an unknown depth, and across the site. Groundwater is also heavily contaminated likely both from past discharges and continuing releases as rainwater picks up contamination, particularly hexavalent chromium, from the site soil. There does not appear to be good hydraulic containment of contaminated groundwater, although a lot of groundwater clearly flows into the 15 meter hole from which it is pumped and treated. No groundwater monitoring wells were seen at the site, and characterization of the soil throughout the site has apparently not been done.

Intervention Summary

The recommended overall strategy to remediate the site is to wash the contaminated soil on site to remove hexavalent chromium, then to stabilize the trivalent chromium remaining in the soil so that it does not leach or convert to hexavalent. The key environmental and public health concern is the hexavalent chromium, which is toxic at very low concentrations and water soluble, thus presenting a public health and environmental risk. The trivalent chromium presents little health or environmental risk, providing it is immobilized and not allowed to convert to hexavalent. A key factor in the strategy is knowing exactly the soil characteristics so as to design optimal soil washing and fixation methods. Based on the soil characterization, a pilot test is planned to develop the best washing and fixation methods. Another key factor is understanding the depth of the contaminated soil to be treated, and this will require a number of borings or test pits. Above ground soil piles will need to be characterized as well.

Following washing and stabilization, the site should be covered with clean soil sufficient to allow planting for a nature area or park. This will also cover the stabilized soil, preventing any further exposures and helping assure that the fixated trivalent chromium does not convert to hexavalent.

Once the soil is treated, attention should be paid to the groundwater contamination. Groundwater can not be addressed before soil treatment because the contaminated soil is continuing to leach chromium into the groundwater due to rainfall. A series of groundwater monitoring wells or basins should be constructed and the site hydrogeology characterized in terms of depth of groundwater, levels of contamination, and direction and rate of groundwater movement. This information should be used to determine the risk that the site groundwater presents to the XiangJiang River or any nearby wells. Once the hexavalent chromium is washed and the soil stabilized, groundwater concentrations of chromium should naturally attenuate. The rate of decline should be modeled. It is possible that, due to high concentrations or slow attenuation coupled with significant groundwater migration to the XiangJiang River, measures will be needed to hydraulically contain the site and/or treat the groundwater (preferably through in-situ methods.)

The purpose of this pilot project is to provide guidance to remediate the Changsha Chromates Factory. The overall objectives are to:

1) Eliminate any risk of chromium (especially hexavalent chromium) contamination to the XiangJiang River.
2) Eliminate risk to the surrounding public or future site users due to chromium contaminated soil, groundwater or dust.
3) Allow redevelopment of the site as a natural area or a park.

Guixi City, Jiangxi Province: Blacksmith is working with the Jiangxi Academy of Environmental Sciences and the Guixi Environmental Protection Bureau to stop endemic lead poisoning and remove other heavy metals from one of the largest copper smelters in China. This work is conducting a risk assessment and testing soil remediation strategies in one of the most highly affected residential areas – ShuiDuiQuan Village.

Site Background

The Guixi Smelter is the largest copper-smelting factory in China. It was established at the beginning of the 1980's and contributes greatly to the local economy. However, it also has discharged significant pollution to the local environment, particularly metals (copper, cadmium, arsenic, lead and others) and acid gases (SO2 and H2SO4). 15 villages with a total population of 10,000 people are affected. The affected rice farmland area has been estimated at 132 hectares and vegetable farmland at 6 hectares.

Guixi City is in the North-East of Jiangxi province, along the Xinjiang River. The geology is cretaceous red sandstone with little groundwater. The ground water is mainly born in the soil, being perched and phreatic groundwater. The soil in the area and in particular in the project area is red soil and paddy soil.

The pilot project is adjacent to ShuiDuiQuan village, one of the severely polluted areas, southwest and directly downwind (in the prevailing wind direction) of the smelter factory. Water in the area formerly came from the Keshalong reservoir, which serves as a cooling and wastewater discharge point for the smelter, but now discharges from this reservoir are diverted around the project area via a canal and are discharged directly to the Xinjiang River. The project area now receives water from sa smaller reservoir construct below the Keshalong reservoir, which does not receive discharges form the smelter, although it may receive contaminated dishares from contaminated soil and several small other industrial sources. The project area was formerly used for wetland rice, but is now unused, although there are small fields in the area used for vegetables and a few rice paddies still in use nearby. There are 3 ditches from the lower reservoir to the village for the purpose of irrigation.

The project area soil is heavily contaminated with cadmium, copper, arsenic, and to a lesser extent lead. There has been extensive sampling. The worst contamination is related to cadmium, for which all soil samples were over the agricultural standard of 0.3 mg/kg, sometimes over by a factor of 10 or more. Water samples in the project area were tested and were over the irrigation water standards for arsenic and cadmium, with the arsenic levels being the worst. Rice grown in the area was also tested, with a result that 100% of samples were over the cadmium standard, and 37% of the samples were over the lead standard, though only one sample showed a small exceedence for arsenic.

Intervention Summary

The recommended overall strategy to remediate the site is fix the cadmium into the rice paddy soil such that it 1) will not migrate or leach to groundwater and 2) is not available to and will not be taken up by rice (or vegetable) plants. This will be accomplished by adjusting the soil pH and adding amendments (stabilizers and chemicals) to fix the cadmium. The key environmental and public health concern is the cadmium, which is toxic at very low concentrations and as testing has shown, is the primary contaminant taken up by the rice, present far over pollution-free standards in all rice samples taken. It is also well over agricultural standards in all soil samples and in 40% of the water samples in the project area.

Other metals of potential concern are copper, lead and arsenic. Copper is over soil standards for most soil samples, but not over water standards. However public health impacts are not considered very significant for copper soil contamination, and uptake into rice does not present at risk. Lead, while present, has been found to be mostly below standards in the soil and rice, and always below standard in the water. The fixation technology to be used for cadmium will also tend to fix lead and copper as well.

Regarding arsenic, 37% of soil samples in the project area were over the agricultural standard of 30 mg/kg, and 100% of water samples were over the irrigation water standard of 50 ug/l, sometimes by a factor of 7. However, the sampling was done in 2007 and since then levels of arsenic may have changed significantly. The diversion of effluent from the Keshalong reservoir directly to the Xinjiang River, bypassing the project area, should have resulted in elimination or great reduction in new arsenic loading to the project area. Since arsenic is soluble in water, if there is no significant new loading, arsenic levels in the soil and groundwater should naturally attenuate, particularly in view of the high levels of rainfall in the area (1,800 mm/year). Also, arsenic levels in the rice grown in the project area were below the standard for pollution-free rice (0.5 mg/kg) in all but one 19 samples, and the one exceedence was only at 0.6 mg/kg. Rice samples taken now could show lower levels due to natural attenuation.

Before any decision is made to address arsenic in remediation planning, further samples should be taken of the water now available for irrigation in the project area, as well as current levels in soil. Blacksmith considers it likely that testing will show that arsenic is not presenting a public health risk for the intended use of the area (agricultural) or to people in the area, and so remediation may not be necessary. If arsenic is still present above standards, investigation needs to be done to determine from where it is coming. In particular, potential sources feeding into the current small reservoir upstream of the project area would have to be investigated. In order to conduct the site remediation project, additional information will be needed to both assess the soil structure and chemical composition.

The purpose of this pilot project is to demonstrate technically and economically viable methods to remediate agricultural land, in particular rice paddies, contaminated with cadmium, copper, and arsenic in Guixi, Jiangxi Province. The contamination is due to heavy metal releases from a large copper smelter in Guixi. These releases were both to the atmosphere, resulting in deposition on the rice paddies, and into water used for rice paddy irrigation. The desired goal is to be able to restore the paddies sufficiently that they can return to agricultural use for food crops. The minimum goal is to remediate the land to meet the standard for urban land utilization and eliminate the risk of direct impact to human health and the environment.

IV. Conclusion

Blacksmith's workplan in China for 2012-2014 supports the Chinese government's initiatives to address toxic pollution by bridging policy initiatives and experiences from field pilot projects. In both pilot sites selected in Jiangxi and Hunan, there is strong will by the local government and related technical agencies to conduct remediation. It is for this reason, Blacksmith is bringing the two pilot project assessments conducted with RBF funding in 2011 to the EU project for full implementation. While undertaking remediation activities, the added resources from the EU will place a special focus will be on the development of a protocol for public engagement during environmental remediation will be adapted to the Chinese context.

The anticipated result is that the local environment and other government agencies have access to a public engagement tool that has proven to enhance the success and sustainability of environmental remediation projects. Local environment agencies will test the protocol via the two pilot remediation projects to see if it can strengthen community trust, reduce conflict and improve success of environmental remediation activities. Stakeholders needs, perspectives and concerns will be taken into account during remediation projects and incorporated into the protocol.

Blacksmith plans to fully utilize the expertise of the China Technical Advisory Board to fully integrate programmatic goals. It is clear that Blacksmith can play an important role in the process of land remediation in China as an accelerator of the advanced plans already supported by MEP. In nearly every province that Blacksmith has contacted, local agencies are highly anticipating capacity building support for remediation technologies and related issues, especially new methodologies, approaches that have demonstrated success in other countries.

Blacksmith will continue to strengthen its program activities in China, to be of service to its government and its people. The support of the Rockefeller Brothers Fund has been instrumental in building the presence of the organization in China, and we look forward to an expanded partnership in years to come.

ANNEXES

BLACKSMITH INSTITUTE

Country Programme Document 2011-2014

(Final)

Blacksmith Institute China Programme

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Blacksmith Institute China Country Programme Document

2011-2014

I. Situational Analysis

Background

Since 1979, with the introduction of reforms and opening up, China's GDP has grown at an average of 9.8% annually, per capita income has increased fiftyfold and some 500 million people have been lifted out of poverty. Rapid economic growth has come at a serious environmental pollution costs. In the past few decades, although China has invested enormous financial resources in pollution control, but development is still lagging behind the “green development”, leading to contamination of rivers and soil, and ecosystem degradation. China's globally significant biological diversity and ecological status of the system is under severe threats from the economic growth.

With China's accelerated urbanization process and the conduct of inter-regional transfer of industries, the pressure on environment from social services, energy, infrastructure and housing will continue to increase. Since the 1990s, large and medium cities in China have experienced massive relocation of industrial enterprises in the phenomenon. The relocation, closure and bankrupt of industrial enterprises left abandoned contaminated sites in the city centers, and caused infiltration of large amount of toxic harmful substances into the soil and groundwater and made the legacy site of the enterprises high and high-risk areas.

Most of the heavy metal pollution in China comes from the non-ferrous metal mining, smelting and post-processing enterprises. In South China, cadmium, mercury, lead, arsenic and other heavy metals are the main sources of heavy metal pollution. This often leads to prone cadmium, mercury and other heavy metal poisoning problem in economically developed and densely populated areas. The heavy metal of Yangtze River Basin comes mainly from Tuotuo River a large area with abnormal heavy metals, non-ferrous metal ore belt along the basin. In the Basin, mercury and lead are widespread in the cities and surrounding areas of the cities, and caused the formation of anomalies in the heart of the cities. Pollutions in major lakes appear harmful elements collection trends, Poyang Lake, Dongting Lake, Chaohu Lake and Dianchi lake experience serious pollution caused by cadmium, lead, mercury, arsenic and sulfur-based pollutants, and prominent eutrophication.

According to a sample survey on soil contamination caused by harmful heavy metals conducted by the State Department of Environmental Protection (currently Ministry of Environment protection), which covered 300,000 ha of basic farmland protection areas, there are 36,000 hectares of soil with heavy metal elements exceeded national standard, exceeding the rate of 12.1%. Water and soil pollution caused by heavy metals pose a serious threat to China's ecological environment, food safety, people's health and sustainable agricultural development. Annual loss of food due to heavy metal contamination is up to 12 million tons, resulting in direct economic losses of more than $ 20 billion. The data from Ministry of Land Resources show that more than 10% of the country’s cultivated land areas have been contaminated by heavy metals, i.e. about 150 million mu, and 3,250 mu of arable land is irrigated by polluted water, 2 million Mu arable lands is no longer arable due to dumped solid waste. Most of these polluted arable lands are located in the more economically developed regions. The survey conducted by China Academy of Environmental Sciences found that in some cities in southern China, 50 percent of the arable land has been suffered from cadmium, arsenic, mercury and other toxic heavy metals and organic pollutions in the

soil; some cities in the Yangtze River Delta region farmland is contiguously polluted by heavy metals, resulting in 10 % loss of the basic soil productivity.

2008 to 2009, Chinese heavy metal pollution turned into the period of frequent accidents, arsenic poisoning"," blood lead "," cadmium rice "and other events occurred and reported frequently, and heavy metal pollution in China was becoming one of the most talked about public events. During the period of 2008 – 2009, one after another five arsenic contamination incidents incurred and reported from Dushan County of Guizhou, Chenxi County of Hunan, Hechi County of Guangxi, Yangzonghai of Yunnan, Henan, and Dashahe of Henan. In August 2009, an incident of 851 children's blood lead was found and reported in three villages of Fengxiang County in Shaanxi Province found. This incident was seen as the biggest catalyst for development of the "the 12th FYP for heavy metal integrated pollution prevention and control". After outbreak incident of children lead blood in Huaining County of Anhui, China speed up development of the "the 12th FYP for heavy metal integrated pollution prevention and control".

Progress and Policy Environment

The 12th FYP for Integrated Control of heavy metal pollution", which was approved by China's State Council on 18 February, 2011, shows that the China will focus on prevention and control of mercury, chromium, cadmium, lead and other heavy metals. The Plan focus on monitoring and control of emissions of 5 heavy metals, namely, mercury, chromium, cadmium, lead and arsenic metals. In accordance with the "plan" requirements, pollutant emission from lead, mercury, chromium, cadmium, arsenic and other heavy metals will be reduced by 15 per cent in priority areas against baseline in 2007, and heavy metal pollutants emissions will be remained not exceeding 2007 baseline in "non-priority areas". The so-called "priority areas" include 14 key provinces, i.e. Inner Mongolia, Jiangsu, Zhejiang, Jiangxi, Henan, Hubei, Hunan, Guangdong, Guangxi, Sichuan, Yunnan, Shaanxi, Gansu and Qinghai, and other 138 priority areas for prevention and protection.

To achieve these goals, "plan" clearly states that China will build a sound system of heavy metal pollution prevention, emergency response systems and environmental and health risk assessment system to better respond to heavy metal pollution, By 2015, a complete heavy metal pollution control system will be basically in place. In addition, the Chinese Ministry of Environmental Protection will also optimize the industrial structure of heavy metals to reduce the sudden occurrence probability of heavy metal pollution.

Although the "Plan" requires equal attention on prevention and control, but clearly the priority of the "plan" is not the remediation and resolving historical issues, but focusing on solving problems related to heavy metal pollution in the enterprise, regulating small size enterprises development, to stabilize emissions of heavy metal pollutants by the enterprises.

The legislation in soil environmental protection and pollution control is in the form of scattered, subordinated and low levels of defects legislative status. This is often appearing in the forms of duplication in the contents, legislative conflict, the confusing principles, poor practicality, etc. At present, China still lacks the basic soil pollution prevention and control legal system. In 2006, while China launched a cost of several billion dollars of soil pollution survey, the drafting of the research work for "Soil Pollution Control Act" started. It is reported that five years of "Soil Pollution Control Act (draft by the expert group)" will be completed during the year 2011.

Currently relevant government departments and land developers in China provide majority of funds that is needed for investigation, assessment and remediation of contaminated soil. However the funds are limited and there is no guarantee. This has become a bottleneck/obstacle for carrying out soil remediation activities. At present, a task force on Chinese soil environmental policy research

under the China Council for International Cooperation on Environment and Development is conducting an ongoing research in this area. The Task Force recommends that in the next five to 10 years, China should explore a sound mechanism for rational allocation of funds for soil remediation through soil remediation pilot projects, taking into consideration of the characteristics of Chinese state-owned land resources and the "polluter pays" basic principles.

II. Past Cooperation and Lessons Learned

Blacksmith Institute has gained strong supports from partner institutions in initiating and implementing cooperation projects and its mission, objectives and value added have recognized by participating partners in its cooperation projects with China. Implementation of cooperation projects has been impressive with great commitment of involved institutions and professionals, e.g. CAS, CRAES, South China Institute of Environmental Sciences, Huazhong University of Science & Technology, Local Environment Academies, and EPBs at provincial and local levels.

Blacksmith Institute's pilot project fit well with China's current national policy and priority needs. Since 2002, Blacksmith Institute has supported eight projects in China with around $250,000 financial support. All of these projects are small-scale with maximum fund of $50,000. Overall, the pilot projects were completed its goals. Various projects in the implementation process have played a catalytic role, and are continuing to expand its influence. This has been affirmed by local partners at the recent concluded project completion workshop that was hold from 22- 23 July 2011, especially Blacksmith Institute’s responses to major incidents and the demonstrated flexibility.

Scientific and policy research components demonstrated important role in the pilot, especially in the process of selection of remediation options and enhancement of scientific research based policy process at local level, supported by in-depth scientific research and experiments at various scale. Combination of pilot implementation with scientific and government initiatives demonstrated great value in successfully implementing and accelerating domestically funded scientific initiatives and government plans. For example, the Guangdong Soil Science Research Institute, in partnership with provincial NPC members, made a recommendation to Provincial NPC about investing RMB 46 million to establish a waste water treatment plant for the purpose of eliminating heavy metal pollution. The recommendation was fully recognized by the Provincial Environment Protection Bureau. Blacksmith Institute China funded a partner-CRAES to develop a plan for the Environmental Protection Bureau of Nandan County, which facilitated the local EPB gain nearly RMB105 million from MEP to deal with the polluted Diaojiang River. The experiences of these projects needs to be better shared with Chinese experts and officials to assist in directing larger scope projects.

Blacksmith Institute will take 2011-2014 project cycle as an opportunity to enhance its operations in China. Building on rich experiences in pilot projects at site level, Blacksmith Institute's cooperation projects in China will needs to gradually shift from a single pilot project module to a more balanced combination of pilot projects and upstream and strategy works at provincial and national levels. The main strategy adopted should include pilot projects, capacity building, policy dialogue, advocacy, forums, recommendations, etc.. This will require further strengthening partnership and cooperation with research institutions, universities, think-tanks, the Chinese governments at all levels (provincial, municipal and central ministries), and international partners.

III. Strategy & Approaches for 2012- 2014

Blacksmith Institute China Programme focuses on locations throughout China where human health is most affected by pollution. Blacksmith Institute China Programme supports its local partners with

more than just grants so that solutions can be implemented in the most cost effective and direct manner.

Blacksmith Institute provides:

- Technical Research: To bring the necessary resources to research a pollution problem and its proposed solutions thoroughly. Blacksmith Institute partners with scientific and technical groups in China U.S. (and also in the US and Europe) that have demonstrated expertise in areas relevant to pollution remediation.

- Strategic Assistance: To provide help with project planning and implementation planning, using its experience in similar projects to enable local champions to describe a credible methodology for site remediation, and move forward with it.

- Networking Capabilities: To develop collaborative networking opportunities for our partners, linking them to the most appropriate resources to meet their needs, including multilateral organizations.

- Financial Support: To provide seed money, and potentially continue support to projects that have demonstrated clear successes in pollution remediation.

As a solution – exchange provider, Blacksmith Institute will work closely with government agencies and other partners, including private sector, to design and implement projects in China. Needed resources from the country programme will be allocated to support critical activities relating to its review and impact evaluation as well as learning of lessons from pilot projects, and the improvement of technical capacity of partners. In close consultation with partners, a percentage of the budget will be used to address emerging and urgent national needs and priorities.

IV. Proposed Programme

Based on China's current stage of development, especially characters of the heavy metal pollution and soil remediation, and pollution control policy measures taken, Blacksmith Institute will support pilot projects at provincial level and sub-provincial levels and knowledge and technology exchange platform at regional and national levels.

Policy advisory and analytical initiatives to support pilot projects will also receive support. Blacksmith Institute will focus on capacity building to strengthen capacity of sub-national authorities (such as provinces, municipalities and others) to implement the Government's development priorities and strategies, consolidation and dissemination of best practices and lessons learned from pilot projects to inform national and sub-national policies. Blacksmith Institute will support a variety of efforts at national and sub-national levels to support removal of barriers to development of technical solution and policy implementation.

1. Field Pilot Projects: Blacksmith Institute China Programme will support a number of pilots focusing on heavy metal pollution and soil remediation, for example, pilot on risk assessment and soil remediation (Cr contaminated site and an lead pollution) in Xiangjiang River Basin, Hunan Province, pilot on soil remediation of (cadmium and Arsenic pollution from a smelter factory in Jiangxi Province, and pilot on risk assessment and soil remediation (closed lead acid battery factories), Jiaxing City of Zhejiang Province.

2. Advisory and Analytical Supports: In the form of technical assistance, Blacksmith Institute China Programme supports bridging policy initiatives and experiences gained/consolidated from field pilot projects, i.e. supports capacity building and strengthening of Consortium for Heavy Metal Pollution

Prevention and Remediation, a consortium recognized by Ministry of Sciences and Technologies, CAS, with 20 – 30 member units from national to provincial levels.

Blacksmith Institute China Programme will also support a selected national level advisory & analytical initiative on heavy metal pollution prevention and soil remediation - a combined action oriented policy initiative.

3. Capacity Building: Blacksmith Institute China Programme will provide supports to capacity building of local partners in heavy metal pollution related issues, especially new methodologies, approaches and successful case studies in other countries, such as stakeholder analysis methodology, participatory appraisal and Sustainable livelihoods approaches for heavy metal pollution prevention and livelihoods recovery, as well as international environment cooperation methodology, and so on. Target groups of the capacity building will include research and scientific societies, government officials, industrial sector, business, and local community.

4. Experience Sharing: Blacksmith Institute China Programme supports international and domestic experiences sharing activities, such as inter-country exchange about latest development of technologies and methodologies in heavy metal pollution related field, and a regularized annual and biannual project meeting/workshop as a platform for capacity building through domestic experiences exchange. Apart from national participants, Blacksmith Institute in China should also invite participants from developed, developing countries to the workshops, depending on the components of capacity building and thematic topics of the regular meetings/workshops.

In order to upgrade results of the pilot projects and maintaining consolidated knowledge within the systems, e.g. government, research institute and communities, Blacksmith Institute China Programme will support development of case studies in China by summarizing successful experiences and best practices from pilot project implementation and initiatives that are funded by domestic financial resources, and national/regional level conferences on heavy metal pollution and remediation.

5. Communication/dissemination: Blacksmith Institute China Programme supports dissemination of pilot results within the government system and academic society, so as to make wise use of experiences and case studies that are generated by pilots and participating institutions. This is vital to improvement of cooperation efficiency and reflects priority consideration of key stakeholders/partners.

Blacksmith China Programme will release quarterly newsletter and biannual update.

V. Programme Management, Monitoring and Evaluation

Country Programme Document will serve as a management tool for program coordination, implementation and monitoring. We will develop and adopt a participatory approach to project design, implementation and monitoring and evaluation to ensure that results of projects is well received by partnering agencies.

Blacksmith Institute China Programs involve a multi-step process of:

- Identifying polluted places in China, with nominations received from partners. During which process, the proposed sites/pilot project with severe extent of pollution and significant attention by central/local government and practicality and replication of techniques and experience to be demonstrated will be given priority.

- Assessing the health risks at those locations by: 1) Reviewing nominations with a Technical Advisory Board of leading specialists on a rolling quarterly basis; 2) Visiting candidate sites with likely high health risk implication; 3) Conducting an Initial Site Assessment: a triage protocol that validates likely health implications, and enables the design of an intervention;

- Designing and implementing a remediation strategy tailored to the specifics of the site in question, using local champions to implement the project in a cooperative fashion. Technical assistance from Blacksmith China Programme will also be provided to key stages of project lifecycle, i.e. project formulation, technical review of key milestones of projects, impact analysis and so on.

Coordination, Management and Technical Supervision

With regard to the overall direction of the country programme, Blacksmith Institute Headquarters will provide leadership on implementation of the country programme, whilst Blacksmith Institute Technical Advisory Board and China Technical Advisory Board will provide technical guidance to programme related issues. In partnership with government, academic institutions, Blacksmith Institute China Programme team will coordinate and implement the country programme with technical and coordination supports by China Technical Advisory Board and Regional Coordinators stationed in priority regions of China.

China Technical Advisory Board: Blacksmith Institute China Programme is supported by a Technical Advisory Board (TAB) made up of highly experienced professionals from a range of disciplines, which provide advice, insights and guidance to Blacksmith's strategy and operations in China. The members of the C-TAB are invited to participate on the basis of their expertise, experience and commitment to the goals of Blacksmith Institute. The membership of the C-TAB includes experts from national and sub-national institutions, and geographical coverage is being expanded to reflect Blacksmith's operational scope in China. The TAB also includes representatives of key partner organizations with whom Blacksmith operates closely.

The roles of the C-TAB are to provide: 1) Strategic advice to Blacksmith Institute management and operational staff; 2) Access to best practices in pollution management and remediation techniques; 3) Practical guidance on operational aspects of specific pilot projects. Key members of the US -TAB will also participate in C-TAB activities as appropriate.

The members of the C - TAB provide inputs on a routine basis or in response to specific requests. Regular conference calls are held to exchange information and opinions with operational management at Blacksmith. Specific issues are taken up as needed. Some C - TAB and US – TAB members participate in country operations to provide detailed guidance and technical expertise on critical projects at national and local levels.

Regional Coordination in China: Taking into consideration of the expected results of Blacksmith Institute China Programme, expectation of partners in particular, e.g. government EPB, academic research institutes, and the need of expertise, Blacksmith Institute China Programme will establish a regional coordination mechanism to support implementation of Blacksmith Institute operations in China and keep breath of latest development at regional level. Geographically South China, Central China, Eastern China will be considered for establishing regional coordination mechanism. South China Institute, Huazhong University of technology & Sciences, and Zhejiang provincial Academy of Environment Sciences or Shanghai Academy of Environment Sciences are to be considered as candidature regional focal point institutes.

Monitoring & Evaluation

The country programme is intended to provide a basis for assessing the contributions of Blacksmith Institute to national, regional and local level efforts. The effectiveness of Blacksmith Institute in implementing the country programme will be subject to mid-term and final reviews, which will then be presented to C-TAB and the US TAB in the form of evaluations and reports.

Results-based management will be integrated into all of pilot projects supported by Blacksmith Institute China Programme. The monitoring and evaluation system adopted in the country programme is in line with Blacksmith Institute's monitoring and evaluation policies. This will include quarterly financial statement + quarterly progress report, final financial statement + completion report, etc.

VI. Key Partners

Collaborating with key agencies/experts will largely ensure delivery of potential impact of the pilot projects. Blacksmith Institute China Programme will closely cooperate with line ministries, academic society, international organizations and private sector to ensure optimizing resources utilization, and cooperation efficiency.

Blacksmith Institute China Programme aims to establishing long term cooperation and partnership with key partners. These partners include line ministries (Ministry of Environment Protection, Ministry of Land Resources, Ministry of Health), academic society (China Council for International Cooperation on Environment and Development, China Academy of Sciences, China Academy of Environment Sciences, Nanjing Environment Institute, and Southern China Academy of Environment Sciences), and international organizations (the World Bank, European Union, UNEP, UNDP, UNICEF, WWF China, MSFF, etc).

Blacksmith Institute will also work together with private sector at national, regional and local levels.

Annex 1

Workplan and Budget for 2011 – 2014

Duration: 2011 - 2014 (1 September - December 2011, 1 January - 31 December for 2012 onwards)
Prepared by: Blacksmith Institute China Programme
Currency: 000 US Dollar
Date: 06 September2011

Budget Items	No	Unit Cost	Total Budget	2011	2012	2013	2014	Description about Budget Lines	Notes (Key Partners/participating institutions/participants/Issues)
Grand Total			**1,578.17**	**242.07**	**432.70**	**442.70**	**460.70**		
1. Pilot Project			**595.17**	**117.17**	**156.00**	**159.00**	**163.00**		
1.1 Ongoing projects	**2**		**28.17**	**28.17**					
- Environmental risk evaluation on leakage of pollutants from damaged chemical factories and mines in the earthquake areas in Sichuan Province	1		20.00	20				Budget approved and funds to be released in Oct. 2011	Institute of Geographical Sciences and Natural Resources Research (IGSNRR), Chinese Academy of Sciences (CAS)
- Research and demonstration of heavy metals contaminated soil remediation in Daye City, Hubei Province	1		8.17	8.17				Budget approved and funds to be released in Oct. 2011	Environmental Science Research Institute, Huazhong University of Science and Technology
1.2 New project for 2011 - 2012			**250.00**	**89.00**	**136.00**	**25.00**			
-Technical assistance to newly endorsed projects	5	15	75.00	25.00	25	25.00		Technical assistance to 3 pilots at provincial level and 2 national level initiatives	Experts from Blacksmith TAB, C-TAB, national consultants, CRAES, pilot provinces, Blacksmith China Country team
- On the Site Pilot Projects	5	35	175.00	64.00	111.00				
- Pilot on Risk Assessment and Land Remediation (Cr contaminated site and an lead pollution) in Hunan Province	1	35	35.00	17.00				The provincial level projects are to be launched from Oct. to Nov. 2011 and completed by Dec. 2012.	China Academy of Environment Sciences, Hunan Environment Protection Department, Hunan Academy of Environment Sciences, local EPBs at city level, private sector, etc.
- Pilot on Lead Mining Pollution Prevention and land remediation in Jiangxi Province	1	35	35.00	17.00					China Academy of Environment Sciences, Jiangxi Environment Protection Department, Jiangxi Academy of Environment Sciences, local EPBs at city level, private sector, etc.
- Pilot on Risk Assessment and Land Remediation (Closed Lead Acid Battery Factories), Jiaxing City, Zhejiang Province	1	35	35.00	10.00					China Academy of Environment Sciences, Zhejiang Academy of Environment Sciences, Shanghai Academy of Environment Sciences, local EPBs at city level, private sector, etc.
- Consortium for Heavy Metal Pollution Prevention and Remediation	1	35	35.00	10.00				The agreement with CAS to be amended by 30 Sept 2011 with a supporting workplan for remaining period of 2011 and 2012.	Institute of Geographical Sciences and Natural Resources Research (IGSNRR), Chinese Academy of Sciences (CAS), 12 members of the consortium including

Budget Items	No	Unit Cost	Total Budget	2011	2012	2013	2014	Description about Budget Lines	Notes (Key Partners/participating institutions/participants/Issues)
									ministries, research institutes and enterprises, etc.
- National level initiative on heavy metal pollution prevention and land remediation	1	35	35.00	10.00				A policy initiative at national level to be developed and commenced by Nov. 2011 and completed by Dec. 2012, in collaboration with MEP and China Research Center for Public Policy.	Ministry of Environment protection, Foreign Economic Cooperation Office, China Research Center for Public Policy, CDC of MOH
1.3 New Projects for 2013 - 2014			**292.00**			**134.00**	**138.00**		
-Technical assistance to newly endorsed pipelines	5	15	75.00			30.00	25.00	Technical assistance to 4 pilots at provincial level and 2 national level initiatives	Experts from Blacksmith TAB, C-TAB, national consultants, CRAES, pilot provinces, Blacksmith China Country team
- On the Site Pilot Projects	6	35	217.00			104.00	113.00		All pipelines are very indicative. Further study on project selection is to be conducted in course of 2012. This list only provides indicative budget estimation.
- Yunnan Pilot	1	35	35.00			18.00	17.00	The provincial level projects are to be launched from Feb to Mar. 2013 and completed by Dec. 2014.	Site and scope of the project are to be identified.
- Paper mill pollution legacy site remediation Project in Inner Mongolia Autonomous Region	1	35	35.00			18.00	17.00		Site and scope of the project are to be identified.
- Anhui Pilot	1	35	35.00			18.00	17.00		Site and scope of the project are to be identified.
- Hunan or Jiangxi	1	35	35.00			18.00	17.00		Site and scope of the project are to be identified.
- Consortium for Heavy Metal Pollution Prevention and Remediation	1	35	35.00			25.00	10.00	A workplan for 2013 and 2014 supporting the amended agreement with CAS is to be developed and approved.	Institute of Geographical Sciences and Natural Resources Research (IGSNRR), Chinese Academy of Sciences (CAS), 12 members of the consortium including ministries, research institutes and enterprises, etc.
- National level initiative on on heavy metal pollution prevention and land remediation	1	35	35.00			25.00	10.00	A policy initiative at national level to be developed and commenced by Feb. 2013 and completed by Dec. 2014, responding to emerging opportunities.	Ministry of Environment protection, Foreign Economic Cooperation Office, China Research Center for Public Policy, CDC of MOH
1.4 Technical assistance to newly endorsed pipelines for 2015 onwards			**25.00**				**25.00**	**Technical assistance to project formulation for 2015 onwards**	**Site and scope of the project are to be identified.**
2. Workshops, Meetings, Conferences			**192.00**	**36.00**	**52.00**	**52.00**	**52.00**		
- Training and exchange			42.00	6.00	12.00	12.00	12.00	1 workshop in 4th quarter of 2011, and 2	Participants and representatives from

Budget Items	No	Unit Cost	Total Budget	2011	2012	2013	2014	Description about Budget Lines	Notes (Key Partners/participating institutions/participants/Issues)
workshops with project partners								project workshops each year for 2012, 2013 and 2014	partner agencies involved in completed and ongoing pilot projects; invited speakers from academic and research institutes; Blacksmith China Country team
- Co-sponsoring national/regional level conferences			70.00	10.00	20.00	20.00	20.00	2 national/regional level conferences	Hosting agencies of the conferences, Blacksmith representatives including country team members and designated experts from pilot projects and national level initiatives.
- Semi-annual TAB meetings			40.00	10.00	10.00	10.00	10.00	Semi annual meetings in addition to quarterly meetings (teleconference, no cost)	C-TAB members, participants from selected pilot projects, Blacksmith China country team members
- Registration fee			40.00	10.00	10.00	10.00	10.00	Participation of country office staff in selected international and domestic conferences and workshops	Blacksmith China Country team members and designated experts from selected pilot projects
3. Consultancy			**155.00**	**17.40**	**43.20**	**45.20**	**49.20**		
- TAB members			26.00	2.00	8.00	8.00	8.00	4 TAB members, US$ 2,000/person/year	4 core C-TAB members who will heavily involve in project design, implementation, technical review of project reports, policy and communication papers, etc.
- Regional Coordinators			64.00	6.40	19.20	19.20	19.20	800/person/month, 12 months, 2 regional coordinators; 1 regional coordinator to be based in Gaungzhou City of Gaungdong province, 1 regional coordinator to be based in Wuhan City of Hubei province.	1. Regional Coordinator for South China, Ms. Du Ling from South Institute, CRAES; 2. Regional Coordinator for Central and Southwest China (To be identified from Huazhong University of Technology & Sciences and Zhongnan University of Economics and Law)
- Policy advisory & analytical initiatives			29.00	3.00	6.00	8.00	12.00	Advisory and analytical initiatives that are relevant to magnification and dissemination of results of Blacksmith programme in China at national level and linked with national and regional priorities.	Relevant national level ministerial, academic and policy advisory bodies, international NGOs, etc. A paper on heath risk and heavy metal pollution (case study based recommendations) will be considered for the period of Oct. 2011 - Jun. 2012. A consultancy on developing communication materials will be initiated at beginning of 2012
- Translation services			36.00	6.00	10.00	10.00	10.00	1. Translation of key documents (English to Chinese, Chinese to English; 2. Conference interpretation/	Contracted printing shops, translators and interpreters

Budget Items	No	Unit Cost	Total Budget	2011	2012	2013	2014	Description about Budget Lines	Notes (Key Partners/participating institutions/participants/Issues)
								simultaneous translation, etc.	
4. Travel			**55.00**	**13.00**	**14.00**	**14.00**	**14.00**		
- Domestic and international travels			40.00	10.00	10.00	10.00	10.00	International travel, domestic travels and accommodations	Blacksmith Country Team members and designated experts
- Local travel			15.00	3.00	4.00	4.00	4.00	Car rental, taxi and fuel tax in Beijing and neighboring provinces	Blacksmith Country Team members
5. Country Team Operations			**581.00**	**58.50**	**167.50**	**172.50**	**182.50**		
5.1Staff Salary and Benefits			**424.00**	**44.50**	**118.50**	**126.50**	**134.50**		
- Staff salaries	2		419.00	44.00	117.00	125.00	133.00	1. Full time salary package for the Country Director and Country programme Coordinator from 1 Oct. 2011 with annual salary increase rate 7% for 2013 onwards; 2. Full country team and office operational from Jan 2012; 3. a new staff is to be recruited and on board in Jan 2012;	Country director, country programme coordinator
- Staff benefit package	2		5.00	0.50	1.50	1.50	1.50	Local social benefit package for Country director, country programme coordinator from Jan 2012;	Country director, country programme coordinator
5.2 China Country Office Operations			**157.00**	**14.00**	**49.00**	**46.00**	**48.00**		
- Office rental			37.00		10.00	12.00	15.00	Annual office rental from Jan 2012 based on local market;	Country office operational costs
- Office supplies and equipments			30.00	5.00	15.00	5.00	5.00	Furniture and equipments etc. for China Country office;	Country office operational costs
- Printing			27.00	3.00	6.00	10.00	8.00	Printing papers, materials, folders, brochures etc. for China Country Office, locally purchased and printed;	Country office operational costs
- Communication			16.00	1.00	4.00	5.00	6.00	Tele-communication, fax, etc for China Country Office,	Country office operational costs
- Reception/hospitality			20.00	2.00	6.00	6.00	6.00	Hospitality and reception with partners, etc	Country office operational costs
- Miscellaneous			17.00	2.00	5.00	5.00	5.00	Electricity, water, Internet, post and etc. for China Country Office	Country office operational costs
- Unexpected expenses			10.00	1.00	3.00	3.00	3.00	Contingencies	Country office operational costs

Annex 2

Composition of China Technical Advisory Board (C-TAB)

Chairmen

1. Prof. Chen Yiyu, Academia, President, China Natural Science Foundation;
2. Prof. Sun Honglie, Academia, China Academy of Sciences;

Members

1. Prof. Wang Wuyi, Prof. Wang Wuyi, Chinese Academy of Sciences, Institute of Geographic Sciences and Natural Resources Research;
2. Mr. Yu Lifeng, Deputy Director General, Foreign Economic Cooperation Office, MEP;
3. Prof. Xi Beidou, Deputy Director, Chief Engineer Office, China Academy of Environmental Sciences;
4. Prof. Wang Yi, Deputy Director, Research Institute for Public Policy and management Sciences, CAS;
5. Prof. Lixiaoyun, Dean, College of Humanitarian and Development, China Agricultural University;
6. Prof. Jin Yinlong, Director, Institute of Health, CDC of MOH;
7. Prof. Li Fazhan, co-chair of Task Force on Chinese soil environmental policy research, CCICED;
8. Dr. Ding Qiong, Division Director, Foreign Economic Cooperation Office, MEP;
9. Prof. Ouyang Zhiyun, Deputy Director, China Ecological Center, CAS;
10. Dr. Yu Hui, President, China Research Center for Public Policy;
11. Dr. Fan Tianli, President, Tsinghua Environment Engineering Consulting Co. Ltd;
12. Dr. Wang Shengrui, Researcher, China Academy of Environment Sciences;
13. Prof. Chen Nengchang, Senior Researcher, Guangdong Institute of Eco-environment and Soil Sciences;
14. Ms. Liu Yi, National Coordinator, UNDP GEF Small Grant Programme;
15. Two US TAB members (To be nominated by Blacksmith HQs);
16. Dr. Sun Xuebing, Blacksmith Institute China Country Director

Coordinator

Dr. Sun Xuebing, Blacksmith Institute China Country Director

Annex 3

Terms of References for China Technical Advisory Board

Blacksmith Institute China Technical Advisory Board (C-TAB) is made up of highly well known and experienced professionals from a range of disciplines relating environment and development, especially heavy metal pollution, health, ecosystem services, engineering, integrated basin management and humanitarian & development, who provide advice, insights and guidance to Blacksmith's strategy and operations in China.

The mandate of the C-TAB are, in compliance with vision of Blacksmith Institute and in line with policies in heavy metal pollution management of China, to provide strategic and technical guidance to Blacksmith Institute China Programme, to review and advise on critical scientific and technical solution and action plan that are associated with design and implementation of Blacksmith Institute cooperation projects in China.

The roles of the C-TAB are to provide:

- Strategic advice to operation of Blacksmith Institute's cooperation in China, including operational management, and assessment of cooperation efficiency.

- Advisory and technical supports to Blacksmith Institute cooperation projects in China in areas of developing solutions for pollution control and prevention, and remediation; and access to best practices in pollution management and remediation techniques.

- Advisory supports and technical supports to identification and design, and reviewing of result and knowledge products from cooperation projects;

- Practical guidance on operational aspects of specific projects;

- Technical inputs to US TAB and participate in technical work of the US TAB (Selected members based on professional areas and demands from the US TAB).

The members of the C-TAB are invited to participate on the basis of their expertise, experience and commitment to the goals of Blacksmith. The membership of the C-TAB includes experts from national and sub-national institutions, and geographical coverage is being expanded to reflect Blacksmith's operational scope in China. The C-TAB also includes representatives of key partner organizations with whom Blacksmith operates closely in China, and 2 -3 members from the US-TAB.

The C-TAB is chaired by a chair person with supports from a national coordinator (Blacksmith Institute China Country Director). The term of Chairmanship is 2 years. Based on mutual agreement, the term of chairmanship can be extended for another 2 years. The coordinator is responsible for daily coordination and organizing activities of the C-TAB.

The members of the C-TAB provide inputs on a routine basis or in response to specific requests. Regular face to face meetings are held at least twice a year to review and update country programme document, review project identification and design, and results of projects implementation. Conference calls are held quarterly to exchange information and opinions with operational management at Blacksmith, field trips are organized at least twice a year to project sites

to review and guide project implementation. International tour is organized at least once year to exchange best practice through Blacksmith Institute network.

The C-TAB operates through sub-groups which include specific operational or geographic experience of particular relevance to current operations. Some C-TAB members participate in country operations to provide detailed guidance and technical expertise on critical projects.

Annex 4

Country Team Priorities for Quarter 4 of 2011

1. Finalization of Back to Office Report (4 August);
2. News release about the project completion workshop (4 August);
3. Refinement of Country Strategy and completion of a workplan for project implementation in next two years (16 August);
4. Completion of TAB ToR (16 August);
5. Development of proposals for the selected pilot projects for 2011-2012 (Middle September – End of December 2011);
6. Completion of in-the-country consultation on TAB establishment (Middle September);
7. Establishment of partner database in China (Middle October).

Initiation Meeting of China Technical Advisory Board and Project Signing Ceremony

Date: 15 February 2012

Venue: Gehua New Century Hotel, Beijing, China

Meeting participants

Blacksmith representatives:

1. Mr. Richard Fuller, President of Blacksmith Institute
2. Mr. Karti Sandilya, Senior Advisor of Blacksmith Institute
3. Ms. Wang Leyan, China Programme Coordinator of Blacksmith Institute

C-TAB representatives:

1. Prof Wang Wuyi, Director of Centre for Environment, Health and Development, Institute of Geographical Sciences and Natural Resources Research, China Academy of Sciences
2. Prof. Xi Beidou, Deputy Director, Chief Engineer Office, China Academy of Environmental Sciences
3. Prof. Jin Yinlong, Director, Institute of Health, CDC of MOH
4. Dr. Yu Hui, President, China Research Center for Public Policy, China Society of Economic Reform
5. Prof. Chen Nengchang, Senior Researcher, Guangdong Institute of Eco-environment and Soil Sciences
6. Mr. John Keith, Director of Operation, Blacksmith Institute (Participate by Skype)

Participants of the signature ceremony:

1. Mr.Chen Hongwen, Vice Dean, Jiangxi Academy of Environmental

Sciences

2. Mr.Wang Tao, PHD, Researcher, Jiangxi Academy of Environmental Sciences

3. Tian Shiqiang, Chief Engineer, Hunan Research Institute of Environmental Sciences

4. Mr. Chencan, Director, Project Supervising and Management Office

Other participants:

1. Mr. He Liansheng, Researcher, China Academy of Environmental Sciences

2. Mr. Luoyalong, China Research Center for Public Policy, China Society of Economic Reform

Translator:

Mr. Ma Jianbo

Meeting Minuets

Name of the meeting: Initiation Meeting of China Technical Advisory Board and Project Signing Ceremony, Blacksmith Institute
Date: 9:00-12:00; 15 February 2012
Venue: Gehua New Century Hotel, Beijing, China

Meeting participants

Blacksmith representatives:

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2. Mr. Karti Sandilya, Senior Advisor of Blacksmith Institute
3. Ms. Wang Leyan, China Programme Coordinator of Blacksmith Institute

C-TAB representatives:

1. Prof Wang Wuyi, Chair of C-TAB; Director of Centre for Environment, Health and Development, Institute of Geographical Sciences and Natural Resources Research, China Academy of Sciences
2. Prof. Xi Beidou, Member of C-TAB; Deputy Director, Chief Engineer Office, China Academy of Environmental Sciences
3. Prof. Jin Yinlong, Member of C-TAB; Director, Institute of Health, CDC of MOH
4. Dr. Yu Hui, President, Member of C-TAB; China Research Center for Public Policy, China Society of Economic Reform
5. Prof. Chen Nengchang, Member of C-TAB; Senior Researcher, Guangdong Institute of Eco-environment and Soil Sciences
6. Mr. John Keith, Member of C-TAB; Director of Operation, Blacksmith Institute (Participate by Skype)

Participants of the signature ceremony:

1. Mr.Chen Hongwen, Vice Dean, Jiangxi Academy of Environmental Sciences
2. Mr.Wang Tao, PHD, Researcher, Jiangxi Academy of Environmental Sciences
3. Tian Shiqiang, Chief Engineer, Hunan Research Institute of Environmental

Sciences
4. Mr. Chencan, Director, Project Supervising and Management Office

Other participants:
1. Mr. He Liansheng, Researcher, China Academy of Environmental Sciences
2. Mr. Luoyalong, China Research Center for Public Policy, China Society of Economic Reform

Translator:
Mr. Ma Jianbo

Recorder:
Wang Leyan

On Feb 15, 2012, Blacksmith Institute officially launched its China Technical Advisory Board (C-TAB) with an initiation meeting in Beijing. C-TAB is the first Technical Advisory Board that Blacksmith has set up outside the U.S

C-TAB is made up of highly well-known and experienced professionals from a range of disciplines related to the environment and development, especially heavy metal pollution, health, ecosystem services, engineering, integrated basin management and humanitarian development, at national, regional and local levels within China, as well as members of the U.S. Technical Advisory Board.

C-TAB members from the China Academy of Sciences (CAS), China Academy of Environmental Sciences (CRAES), Chinese Center for Disease Control and Prevention（China CDC), China Research Center for Public Policy (CRCCP), and the Guangdong Institute of Eco-Environment & Soil Sciences participated in the meeting. U.S. representatives included Blacksmith Institute President Richard Fuller and Senior Advisor Karti Sandilya.

The meeting reviewed and endorsed the Terms of Reference for C-TAB, announced membership and chairmanship of the C-TAB, reviewed and

endorsed the China Country Strategy and discussed programming priorities and outreach strategy for Blacksmith's China Programme 2012 - 2014.

Blacksmith's two new projects were launched by a signing ceremony at the meeting. Leaders and representatives from Hunan and Jiangxi participated were present.

The meeting covers these contents in details:

1 Mr. Richard Fuller announced the establishment of the C-TAB. There are 14 members for the first session. Prof. Wang Wuyi is appointed as the chair. 6 members participated the opening ceremony. One participated by Skype. Mr. Richard Fuller awarded the members with the letters of appointment.

2 Mr. Karti Sandilya introduced Blacksmith's work on the global context, and Blacksmith's efforts and achievements to partner with the international agencies and local government and counterparts to address the chemical toxic in the past years, as well as its vision in future.

3 The attendants introduced themselves, their specialty and their projects.

4 Prof. Cheng Nengchang helped to go through the China Country Strategy by PPT demonstration.

5 In the liberal technical discussion session, there are several suggestions and questions raised by the participants:
   1) The necessity of development of webpage to introduce Blacksmith's work in China and globally.
   2) The Institute should work not only on technical pilot level, but also on policy level.
   3) Since the institutional resource is limited, the focus should be well defined.
   4) To integrate the government's priority to design Blacksmith's project. Some local project has been gained government subsidy, however, there's room for the efficiency of the utilization. Blacksmith could

provide some value-added technical assistance to the local government and counterparts.

5) How to communicate with the local government efficiently? In some situation, the pilot is successful, however, it could not lead to the solution to the whole problem.
6) There are duplicate projects, which waste the resources. Blacksmith could do some research work and analysis work to coordinate and integrate the resources, and make them to be used more efficiently.
7) The central government has endorsed the pollution control plan on heavy metals and groundwater just recently. If Blacksmith could provide advanced technologies and methodologies, these technology and methodology will be have good chance to be included in the plan and regulations. It will increase BI reputation greatly.
8) Members should meet regularly for the exchange.

6 Dr. Chen Can from HRAES and Dr. Wang Tao from JAES present the two projects outline.

7 Tian Shiqiang, chief engineer of Hunan Research Institute of Environmental Sciences and Mr. Chen Hongwen, vice dean of Jiangxi Academy of Environmental Sciences signed the project cooperation contracts with the Richard Fuller, president of Blacksmith Institute.

The establishment of C-TAB is a significant milestone of Blacksmith Institute's cooperation with policy-making bodies, academic research institutions and practitioners at all levels in China.

This meeting comes at a time when the Chinese Government has released its ever first national five-year plan for addressing heavy metal pollution nationwide. Blacksmith Institute has gained strong support from partner institutions in initiating and implementing cooperation projects in past years. Its mission, objectives and value are recognized by partners in China. The establishment of the C-TAB is an opportunity to affirm Blacksmith's continuing commitment to work with China's counterparts on addressing

heavy metal pollution. It will play a vital role in ensuring strategic advice and technical support to Blacksmith Institute's China Programme.

With the input and expertise of these well recognized C-TAB members, Blacksmith Institute cooperation projects in China will be more effective and play an even more important role in capacity building and knowledge exchange in the fields of heavy metal pollution prevention, cleanup and remediation, and health.

BLACKSMITH INSTITUTE

Back to Office Report

Completion Workshop of Pilot Project and Scoping Mission to Hunan, Jiangxi, Zhejiang Province and Shanghai City, China

China Country Director, Xuebing Sun, China Project Coordinator, Leyan Wang

2011/08/03

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www.blacksmithinstitute.org

Back to Office Report

Completion Workshop of Pilot Project and Scoping Mission to Hunan, Jiangxi, Zhejiang Province and Shanghai City, China

Mission Members: Dr. Xuebing Sun, China Country Director; Ms. Leyan Wang, China Programme Coordinator; Dr. Du Ling, Consultant.

Location: Guangzhou City, Guangdong Province; Changsha City, Hunan Province; Nanchang City, Jiangxi Province; Jiaxing City, Hangzhou City, Zhejiang Province / Shanghai City.

1. Summary

The purposes of the mission are to participate in the first project completion workshop and conduct a scoping mission to central Yangtze Basin Area for project development.

From 21 – 22 July 2011, the first project completion workshop was organized to summarize the finished projects, exchange the experience among the project partners and further strengthen partnership with Chinese partners. The participant organizations include Institute of Geographic Sciences and Natural Resources Research-CAS, Guangdong Institute of Eco-Environment and Soil Sciences, Huazhong University of Science and Technology, and Guangdong University of Technology. RBF's Southern China representative-Madam Shenyu also participated the whole workshop.

From 23 – 29 July 2011, a scoping mission was conducted by Blacksmith China Country Director--Dr. Sun Xuebing and Mrs. Wang Leyan, the program coordinator, with assistance from China Research Academy of Environment Sciences. The scoping mission visited Hunan, Jiangxi, Zhejiang and Shanghai. Some potential partner organizations and potential project sites were visited in Hunan, Jiangxi, Zhejiang provinces and Shanghai City

Hunan is the key province with the most severe heavy metal pollution problem. It is the battlefield of the national heavy metal control and treatment initiative in the Twelfth Five Year Plan. A field site visit was conducted in Changsha City, the capital city of Hunan province. It's an abandoned chromium factory with severe pollution risks. The local municipal government has already invested a bulk of fund to remove the residues to some safe yard, the soil and ground water pollution however still remains. Local counterpart shows interest to seek assistance from Blacksmith to implement pilot for the solutions. Blacksmith team visited Hunan EPB also and had a meeting with Mr. Liu Rengui, Director of pollution control department of Hunan EPB.

Jiangxi province is another hotspot of heavy metal problem in China. Jiangxi Provincial Academy of Environmental Science is the tentative counterpart. The mission was well received by Dean of Jiangxi Provincial Academy of Environmental Sciences, Mr. Peng Kunguo, and the Vice Dean Chen Hongwen. They cordially welcome Blacksmith's participation in local heavy metal treatment work. During the visit, two sides discussed about possible areas and sites for future cooperation in the near future.

Jiaxing City of Zhejiang province is a city close to Shanghai City. There are some legacy polluted sites from closed factories, due to the upgrade of the industrial structure, that leave potential environment

risks to the city, especially local residence. The mission met with Mr. Luo Yong, the head of management department, Nan Hu District EPB of Jiaxing City, EPB, and his team. Accompanied by EPB staff, the mission visited a closed lead acid battery factories. The local government and the environment department were found interested in partnering with Blacksmith Institute, as well as Chinese Academies including Tsinghua University, Zhejiang Provincial Academy of Environment Sciences and Shanghai Academy of Environment Sciences, in land remediation and risk assessment. Mr. Sun visited HSBC and ArcelorMittal in Shanghai for the purpose of understanding sustainable development strategies of these two international firms in China and sharing works of Blacksmith Institute China.

After visiting Jiaxing City, per cordial invitation of Mr. Jin Jun, vice president of Zhejiang Province Academy of Environment Sciences and Research, Mr. Sun paid a visit to Hangzhou City of Zhejiang Province. During the visit, two sides exchanged ideas about formulating cooperation project in Zhejiang Province with special focus land remediation on legacy sites of lead acid battery industries.

Before starting of the mission, on 21 July, Dr. Xuebing Sun met with MSFF China Office to discuss about possible areas of cooperation. Two sides discussed about these issues and roles of different types of international organizations, including, NGOs, bilateral and multilaterals, in China and possible approaches for these organizations to improve working efficiency. MSFF is conducting a strategic analysis for its strategy development in China. However it seems that they are experiencing some difficulties in getting sufficient information and have been bothered by developing appropriate approach for them to work with government. Mr. Sun shared with them his experiences and agreed to further communicate as appropriate regarding strategy development.

2. Key Findings

2.1 According to the recent approved environment scientific development plan of the 12th FYP, national government will allocate some 14 billion for pollution prevention and land remediation, capacity building of academic society and sub-national government. Land remediation rehabilitation just started under overall guidance of the 12th FYP, especially the master plan for heavy metal pollution prevention. However, the plan requires high counterpart funding ration. This will bring very heavy pressure on local financing capacity and challenges in realizing the committed funding supports to the implementation of the plan.

2.2 Comparing with national interest, local government is more driven by economic incentive. This will bring more hard work for Blacksmith to do for the purpose of leveraging sufficient human resources supports and political will in implementing the agreed pilot initiatives. It is apparent that there is need to collaborate with other environmental NGOs so as to ease implementation of the pilots and enlarge project impact.

2.3 Blacksmith Institute has gained strong supports from partner institutions in initiating and implementing cooperation projects and its mission, objectives and value added have recognized by participating partners in its cooperation projects with China. Implementation of cooperation projects has been impressive with great commitment of involved institutions and professionals, e.g. CAS, CRAES, South China Institute, Huazhong University of Science & Technology, Local Environment Academies, and EPBs at provincial and local levels.

2.4 Scientific and policy research components demonstrated important role in the pilot, especially in the process of selection of remediation options and enhancement of scientific research based policy

process at local level, supported by in-depth scientific research and experiments at various scale. Combination of pilot implementation with scientific and government initiatives demonstrated great value in successfully implementing and accelerating domestically funded scientific initiatives and government plans. For example, the Guangdong Soil Science Research Institute, in partnership with provincial NPC members, made a recommendation to Provincial NPC about investing RMB 460 million to establish a waste water treatment plant for the purpose of eliminating heavy metal pollution. The recommendation was fully recognized by the Provincial Environment Protection Bureau.

3. Recommendations

3.1 Strategy Development: There were difficulties in involving key stakeholders caused by lack of understanding to policy and priority agenda of key stakeholders. There is need to develop a refined Blacksmith Institute China Country Strategy that illustrates guiding principles for programming. The strategy should include: objectives, methodology, pilot project identification, criteria for evaluating cooperation efficiency - monitoring and evaluation indicators for evaluating performance of the cooperation projects.

Overall plan and strategy are equally crucial for Blacksmith Institute in China. A couple of key factors must be taken into account: 1) Local context: New concept, master plan, and of course mission & vision of Blacksmith. In another word, top design is needed. 2) Communication with national and international experts. 3) Use the strategy to guide Blacksmith operation in China. 4) Combining Blacksmith Institute with national and provincial initiatives, this will ease coordination and communication with local partners.

These efforts will be helpful for building up trusts and credibility of the Blacksmith at national and sub-national levels, and with practioners, research and policy makers.

3.2 Technical Assistance: Aside from the supports to be provided by China Technical Advisory Board, there is a need to further enhance project formulation by including technical assistance component in the whole project lifecycle. This will include: project formulation, technical review of key milestones of projects, impact analysis and so on. These components should be designed as integral part of the project design. Technical assistance can be provided in the forms of capacity building and technical assistance to programme design and implementation, e.g. new concept, methodology and approach + instruments, and so on.

3.3 Capacity Building & Experience Sharing: It is clear that Blacksmith can play an important role in the process of land remediation in China as an accelerator and sources of knowledge for capacity building. It is found that local agencies are expecting to receive more capacity building in heavy metal pollution related issues, especially new methodologies, approaches and successful case studies in other countries. For example, local agencies demonstrated very strong willingness in learning stakeholder analysis methodology, participatory appraisal and Sustainable livelihoods approaches for heavy metal pollution prevention and livelihoods recovery, as well as international environment cooperation methodology. Provision of information about latest development of technologies and methodologies and latest development of technologies in heavy metal pollution related field are urgently needed. Target groups of the capacity building include research and

scientific society, government officials, industrial sector, business, and local community. The capacity building component should be also designed an integral part of the overall project design.

It is also recommended that Blacksmith Institute regularizes annual and semi-annual project meeting/workshop as a platform for capacity building. Some capacity building activities can be combined with these regular nationwide meetings/workshops. There is high demand of cross country experiences sharing, e.g. case studies about successful and failure cases. Apart from national participants, Blacksmith Institute in China should also invite participants from other countries, i.e. developed, developing countries and emerging economies, depending on the components of capacity building and thematic topics of the regular meetings/workshops.

3.4 **Communication/dissemination:** Many pilots have been implemented over past years. However all experiences and case studies are hold only at site and participating institute levels. There is need to disseminate results of pilots within the government system and academic society. Communication among Blacksmith Institute staff, institutes and local partners, e.g. government environment agencies, is to be strengthened to further enhance cooperation efficiency and reflect priority consideration of key stakeholders/partners. Thus there is need to enhance communication efforts, e.g. newsletter, monthly update or quarterly update or semi-annual update.

There is a need also to develop case studies in China by summarizing successful pilot project implementation. This will be helpful for upgrading results of the pilot projects and maintaining consolidated knowledge within the systems, e.g. government, research institute and communities.

3.5 **Staffing and Regional Coordination in China:** There is need for establishing regional coordination mechanism to support implementation of Blacksmith Institute operation in China and keep breath of latest development at regional level. An arrangement of volunteer or consultant as focal points should be considered. Geographically Huanan Region, Central China, Eastern China should be considered for establishing regional coordination mechanism. South China Institute (Dr. Du Ling), Huazhong University of technology & Sciences, and Zhejiang provincial Academy of Environment Sciences or Shanghai Academy of Environment Sciences are to be considered as regional focal point institutes.

Relating to regional coordination arrangement, there is also a need of strengthening staffing level of Blacksmith Institute in China. The current staffing level of Blacksmith in China is insufficient comparing to the expected results of its operation in China, expectation of partners in particular, e.g. government EPB, academic research institutes, and the need of expertise. There is need to recruit additional one professional in the pollution prevention field within 2011.

4. Project Site Selection

Through the scoping mission, it was decided by Blacksmith Institute China that following projects will be selected for 2011 – 2012:

4.1 Pilot on Risk Assessment and Land Remediation (Cr contaminated site and an lead pulloution) in Hunan Province, Xiangjiang River Basin;

4.2 Pilot on Lead Mining Pollution Prevention and land remediation in Jiangxi Province;

4.3 Pilot on Risk Assessment and Land Remediation (Closed Lead Acid Battery Factories), Jiaxing City of Zhejiang Province;

4.4 Supports to Consortium for Heavy Metal Pollution Prevention and Remediation, a consortium recognized by Ministry of Sciences and Technologies, CAS, with 20 – 30 member units from national to provincial levels.

4.5 It is also recommended that Blacksmith Institute China Programme also support a selected national level initiative on heavy metal pollution prevention and land remediation. This will be a combined action oriented policy initiative. Initial discussion was made with MEP and China Research Center for Public Policy, further discussion about thematic areas for cooperation are to be identified through follow-up discussions.

5. Follow-up Plan

5.1 Finalization of Back to Office Report (4 August);

5.2 News release about the project completion workshop (4 August);

5.3 Refinement of Country Strategy and completion of a workplan for project implementation in next two years (16 August);

5.4 Completion of TAB ToR (16 August);

5.5 Development of proposals for the selected pilot projects for 2011-2012 (Middle September – End of December);

5.6 Completion of in-the-country consultation on TAB establishment (Middle September);

5.7 Establishment of partner database in China (Middle October).

6. Annexes

6.1 Annex 1 Mission Programme

6.2 Annex 2 Agenda of Project Completion Workshop

6.3 Annex 3 Outline of Presentation by Pilot Project

6.4 Annex 4 Key Topics for the Panel Discussion

6.5 Annex 5 Namelist of the Meetings/Mission

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Annex 1 Mission Programme

Date	Day	Travel Arrangement	Activities
July 21	Thursday	Beijing to Guangzhou by Airplane	
22 July	Friday	Guangzhou City	Project Completion Workshop
23 July	Saturday	Guangzhou to Changsha by Train	Scoping Mission to Hunan
24 July	Sunday	Changsha City	Scoping Mission – Meeting with Hunan Provincial Academy of Environment Sciences, Site visit,
25 July	Monday	Changsha to Nanchang by Train	Meeting with Provincial EPB, meeting with Jiangxi Provincial Academy of Environment Sciences
26 July	Tuesday	Nanchang to Shanghai Pudong by airplane; Shanghai Pudong airportto Jiaxing City by car, Jiaxing city to Shanghai by car	Meeting with EPB of Nanhu District of Jiaxing City , site visit
27 - July	Wednesday	Meeting with HSBC	Meeting with HABC
28 July	Thursday	Meeting with ArcelorMittal	Meeting with ArcelorMittal
29 July	Friday	Meeting with WWF Shanghai Office	Meeting with WWF Shanghai Office
29 July	Friday	Shanghai to Hanzhou City by train	
30 July	Saturday	Hangzhou City	Meeting with Zhejiang Provincial Academy of Environment Sciences
31 July	Sunday	Hanzhou to Beijing by Train	

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Annex 2 Agenda of Project Completion Workshop

Day	Time	Agenda	Facilitator/Speakers
21 July	15:00-22:00	Registration	Ms. Wang Leyan / Ms. Du Ling
	18:00	Dinner	
22 July	09:00--09:10	1. Introduction to purpose, agenda and participants by Ms. Wang Leyan; 2. Remarks by Mr. Sun Xuebing	Ms. Wang Leyan
	09:10--09:30	Presentation by Da Bao Shan Pilot, Guangdong Province	Mr. Chen Nengchang
	09:30--09:50	Presentation by Da Ye Pilot, Hubei Province	Mr. Lu Xiaohua
	09:50-10:10	Presentation by Diao Jiang Pilot, Guangxi Province	Mr. Wang Shengrui
	10:10-10:30	Coffee Break	
	10:30-10:50	Presentation by Qingyuan Pilot, Guangdong Province	Mr. Xie Wuming
	10:50-11:10	Presentation by Yunnan Pilot	Henry
	11：10-11:30	Presentation by Sichuan Pilot (earthquake stricken area)	Mr. Liao Xiaoyong
	11:30-12:30	Lunch	
	14:30-14:50	1. Recap of the morning session; 2. Presentation about Blacksmith and its operations 3. Introduction to the panel discussion structure	Mr. Sun Xuebing
	14:50-16:20	Panel Discussion (Two sessions: Topics 1 – 5, Topics 6 – 10)	Mr. Sun Xuebing / All Participants
	16:20 – 16:40	Coffee Break	
	16:40-17:00	Wrap-up and conclusion	Mr. Sun Xuebing
	18:00	Dinner	
23 July	Before 12:00 PM	Checkout	

Annex 3 Outline of Presentation by Pilot Project

1. Background and justification;
2. The project - purpose, objectives, targets and priorities and problems that the project focused on (pollutants, target groups, etc.);
3. Objectives, measures and plans;
4. Results/achievement and its impact;
5. Follow up and ideas / plan for post project period;
6. Key experiences and lessons learnt during the project cycle.

Annex 4 Key Topics for the Panel Discussion

Session 1:

1. Understanding to BLACKSMITH INSTITUTE cooperation project;
2. How to identify incremental support of the pilots to priorities of implementing agencies / partners and ensure value added of the pilots;
3. Practicality, efficiency and implementing modality of technical assistance under the cooperation projects;
4. Reporting mechanism: Quarterly and completing reports – what should be analyzed and reported;
5. Financial reporting: Budget and financial statements;

Session 2

1. The role and contribution of Stakeholder Group;
2. Experiences sharing: successful experiences in project identification, formulation and implementation, and dissemination, challenges and difficulties encountered and means for overcoming;
3. Recommendations to Blacksmith Institute for improving cooperation efficiency and development of cooperation in China;
4. Updates from participants on the latest policy development and best practices by key stakeholders;
5. Other topics participants are interested in

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Annex 5 Namelist of the Meetings/Mission

Name	Title	Organization	Meetings/Mission	Note
Meeting with MSFF				
Mr. GillesIsard	Head of Misison	Medecins Sans Frontiers – French Section	Meeting in MSFF in Beijing	
Ms. Charlotte Cailliez	Consultant	Medecins Sans Frontiers – French Section		
Ms. Ye Minling	Head of Mission Assistant	Medecins Sans Frontiers – French Section		
Project Completion Workshop				
Mrs. Lu Xiaohua	Professor	Huazhong University of Sciences and Technology	Daye Pilot Project in Hubei	
Ms. Wang Linling	Assistant Professor	Huazhong University of Sciences and Technology	Daye Pilot Project in Hubei	
Mr. Chen Nengchang	Vice President, Research Fellow	Research Institute of Ecological Environment and Soil, Guangdong Province	Dabaoshan Pilot, Guangdong Province	
Mr. Zheng Yuji	Senior Engineer	Research Institute of Ecological Environment and Soil, Guangdong Province	Dabaoshan Pilot, Guangdong Province	
Mr. Xie Wuming	Assistant Professor	Guangdong University of Industry and Sciences	Qingyuan Pilot, Guangdong Province	
Ms. Yin Guangcai	Assistant Professor	Guangdong University of Industry and Sciences	Qingyuan Pilot, Guangdong Province	
Ms. Yan Xiulan	Asistant research Fellow	Institute of Geography and Natural Resources Research, China Academy of sciences	Sichuan Pilot (Chemical Management)	
Mr. He Liansheng	Senior Engineer	China Research Academy	Daojiang Pilot in	

Mr. He Liansheng	Senior Engineer	China Research Academy of Environmental Sciences	Daojiang Pilot in Guangxi	
Mr. Wang Shengrui	Senior Engineer	China Research Academy of Environmental Sciences	Daojiang Pilot in Guangxi	
Ms. Guo Shengyu	South China Director	Rockefeller Brothers Foundation	Guangdong Province	
Mr. Yang Gang	Project Officer	Rockefeller Brothers Foundation	Guangdong Province	
Mr. Sun Xuebing	China Country Director	Blacksmith Institute		
Ms Du Ling	Consultant	Blacksmith Institute		
Ms. Wang Leyan	China Programme Coordinator	Blacksmith Institute		
Scoping Mission to Hunan, Jiangxi and Shanghai				
Mr. Sun Xuebing	China Country Director	Blacksmith Institute		
Ms. Wang Leyan	China Programme Coordinator	Blacksmith Institute		
Mr. He Liansheng	Senior Engineer	China Research Academy of Environmental Sciences	Hunan Province	
Mr. Chen Can	Deputy Director	Hunan Academy of Environmental Sciences	Hunan Province	
Mr. Liu	Division Chief	Hunan Provincial Environment Administration	Hunan Province	
Scoping Mission to Jiangxi Province				
Mr. Sun Xuebing	China Country Director	Blacksmith Institute		
Ms. Wang Leyan	China Programme Coordinator	Blacksmith Institute		

Mr. Wang Shengrui	Senior Engineer	China Research Academy of Environmental Sciences	Hunan Province	
Scoping Mission to Zhejiang Province and Shanghai City				
Mr. Sun Xuebing	China Country Director	Blacksmith Institute		
Ms. Wang Leyan	China Programme Coordinator	Blacksmith Institute		
Mr. Luo Yong	Head of Management	EPB of NAnhu District, Jiaxing City, Zhejiang province		
Mr. XXX	Head of Qixing Town	Qixing Town, Nanhu District, Jiaxing City, Zhejiang Province		
Ms. Bai Lin	Project Officer	EPB of Nanhu District, Jiaxing City, Zhejiang province		
Mr. Jin Jun	Vice President	Zhejiang provincial Academy of Environment Sciences	Zhejiang Province	
Ms. Cathy Wong	Senior Programme Officer	Public Affairs Department, HSBC		
Mr. Wang Limin	Head of Office	WWF China Shanghai Office	Shanghai City	
Ms. Wu Jing	Programme Officer	ArcelorMittal in Shanghai	Shanghai City	

BLACKSMITH INSTITUTE

Project Completion Workshop Held in Guangzhou City of Guangdong Province

On 22 July 2011, to summarize the completed projects and exchange experiences among the partners, Blacksmith Institute organized a Project Completion Workshop was held in Guangzhou City of Guangdong province.

Some 14 representatives from China Research Academy of Environment Scie nces, Institute of Geographic Sciences and Natural Resources Research-CAS, Guangdong Institute of Eco-Environment and Soil Sciences, Huazhong University of Science and Technology, and Guangdong University of Technology, participated in the workshop. RBF's Southern China Programme Director, Madam Shenyu Guo also participated in the workshop.

The project representatives presented achievements/results from respective projects, and shared the experience and lessons learned in the areas of programming, stakeholder participation, capacity building of domestic academic institutes and government agencies during the process of project implementing. Constructive recommendations to Blacksmith Many great suggestions are raised through the workshop. This workshop furthered partnership among participating agencies, enhanced the mutual understanding, and provided valuable reference to further development of Blacksmith's strategy in China.

Dr. Sun Xuebing, Blacksmith Institute China Director chaired the worksh op and facilitated the liberal discussions. Dr. Sun said, "the workshop is successful and fruitful. The government attaches more and more attention to curb the heavy metal pollution problem recently. As an international NGO, we established our role as a facilitator and accelerator to provide technical assistant in responding to local demand. We have the confidence to go further by working with the partners to contribute more to Chinese environment protection and pollution remediation cause."

Blacksmith has finished several pilot projects on heavy metal pollution control and remediation in China in the last few years. Blacksmith Institute in China is developing new projects and partnership with national and sub-national agencies in the course of commencement of the 12th Five Year Plan of China, especially commencement of the master plan for heavy metal pollution prevention and remediation. Upon completion of the workshop, Blacksmith Institute in China and China Research Academy for Environment Sciences conducted a joint scoping mission to South China where suffers seriously from heavy metal pollution.