PROJECT FINAL REPORT

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4.1   Final publishable summary report

Executive summary

The overall objective of the Bilat Silk project was to strengthen the science and technology cooperation between the EU and China. The project was a combination of two parts, one focusing on encouraging Chinese researchers to participate in the seventh Framework Programme (FP7) and the other a more long-term strategic policy.

In order to raise awareness of FP7 in China, a number of different information activities took place within the project. The most important were the nine information events that were arranged in strategic Chinese regions. In addition, newsletters and FP7 information packages were produced and distributed among Chinese researchers. This was also complemented by a dedicated Chinese FP7 website. To facilitate direct contact with Chinese researchers an FP7 helpdesk was established.

The development of Regional Contact Points (RCP) was considered to be of the highest priority as they are closer to the Chinese research constituency in their respective regions, and in hindsight more resources should have been directed to regional capacity building. The major barrier for Chinese researchers to participate in FP7 projects is to find and join suitable consortia. There is a need for a partner search system that works well, and to that end it is imperative to have continuous improvement of the National Contact Point (NCP) and RCP organisations. Furthermore, returning Chinese researchers were found to be important interlocutors for EU-China cooperation.

Methodologies and practices for Technology Assessment (TA) were discussed in workshops and roundtables with key representatives from TA institutes in the EU and China. This analysis led to the foundation of a strong TA network between the EU and China, with activities that will continue after the completion of the Bilat Silk project.

In the end, the identification of research priorities within Bilat Silk did prove to be too problematic. This highlights the difficulties in cooperating with third countries in these types of projects, mainly due to the fact that the priority-setting in the Framework Programme is a political top-down process and does not take into account the priorities of countries outside of the EU. The approach used in the Bilat Silk project did, however, encourage individual researchers to propose their own research fields, e.g. a bottom-up approach which presented valuable insights and information for the future.

The overall conclusion is that in many cases BILAT projects would benefit from having more focused objectives and, if necessary, being divided into two separate projects; one focusing on the practical NCP oriented activities and one on policy.

Summary description of project context and objectives

Introduction

China's research and development system has undergone a remarkable transition and expansion in the past 30 years. Few other countries have witnessed a similarly dramatic increase in knowledge resources as China's. R&D expenditure as a share of GDP has increased from 0.6% to 1.8% between 1996 and 2011. This is a staggering increase particularly when considering that at the same time GDP itself has grown by around 10% per year. The number of Ph.D. graduates in science and engineering has increased from less than 2 000 in 1993 to 26 000 in 2008. As a result of the virtual explosion of university graduates, China now produces more PhDs in science and technology annually than the US (or any other country in the world), though still less than the European Union. In terms of scientific publications and patenting, China has witnessed a similarly dramatic rise. China is today the second largest country in the world in terms of share of total scientific publications, having increased from 13th place in 1997. The Chinese share of the top ten percent most cited scientific publications is also increasing rapidly and among those articles there is also a dramatic increase resulting from international collaboration[1]. The number of patent filings has also grown by around 25% per year in the past decade.

The Chinese scientific collaboration with the European countries has increased, both concerning all articles and the ten percent most cited (Figure 1 and 2). Nonetheless, when looking at the development in relation to the total number of Chinese internationally co-authored publications it is clear that the European countries are on average losing ground (Figure 3 and 4). The decrease of the share for European countries is however, less pronounced for the top ten percent most cited publications.

The increase in Chinese-European collaboration does not appear to be reflected by an increase in the Chinese participation in the European Research Framework Programmes (FP). In FP6[2], China reached a participation level of 389 participations in 211 projects, reaching a total amount of EC contribution of around 35 million euros. Overall in FP6, China held the 28th position among all participating countries corresponding to 0.2% of all requested European Commission contribution. Compared to other third countries China was the third most participating country after Russia and United States. China placed itself on a second position after Russia if measured by amount of contribution requested from the EC.

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[1] Bibliometric analysis performed by VINNOVA, data from Thomson Reuters
[2] E-corda extraction date 2008 06 02

In FP7 China currently holds the 38th position among all participating countries, measured by the amount of contribution from the European Commission. As a share of all EC contribution granted until mid-June 2012, the Chinese share is only 0.1%. Compared to other third country participants, China finds itself on a third position after Russia and United States counting the number of participations in FP7. Measured by financial contribution from the EC, the country positions itself on a fifth position after Russia, United States, India and South Africa.

In China, the virtual 'explosion' of knowledge resources was triggered by fundamental reforms in its research system which was initiated by Deng Xiaoping in 1979. Prior to that, and beginning with the founding of People's Republic of China in 1949, a socialist centralized science and technology system was built in the 1950s by adding the Soviet Model of centralized planning onto the S&T system that had emerged in the Republic of China. The early period of the pre-reform science and technology system of the People's Republic of China was characterized by a disconnect between research and commercialization on the one hand, and between research and education on the other hand, and by priority-setting clearly geared towards national defence-related projects in strategically targeted areas, such as the hydrogen bomb, and the man-made satellite.

After the end of the Cultural Revolution, the direction of China's development policy, and with it its science and technology policy, changed radically. The 1978 national science conference coincided with the launch of the economic reform and open door policy and was an important watershed event for science and technology in China. At the opening ceremony, then premier Deng Xiaoping declared that science and technology were 'the productive force' rather than an ideological category, thus reinstating scientists and academics as 'respectable' members of society after they had been reviled and attacked during the Cultural Revolution and laying the foundation for a politically favorable environment for science and technology. As China started the transition from the planned economy to market economy, this entailed a reconstruction of the science and technology institutes as well as the universities and in particular a modest connection between research and commercialization.
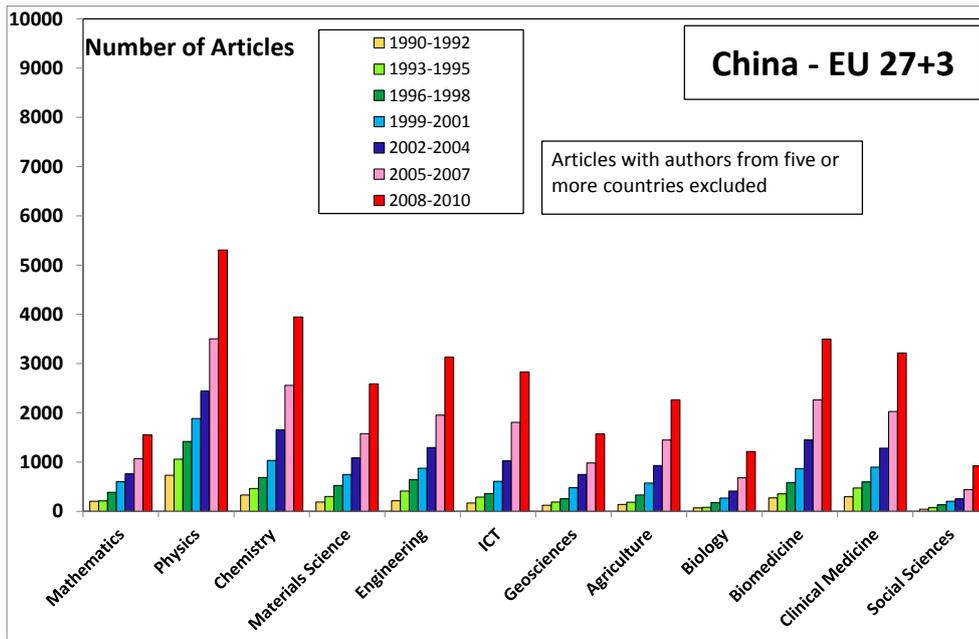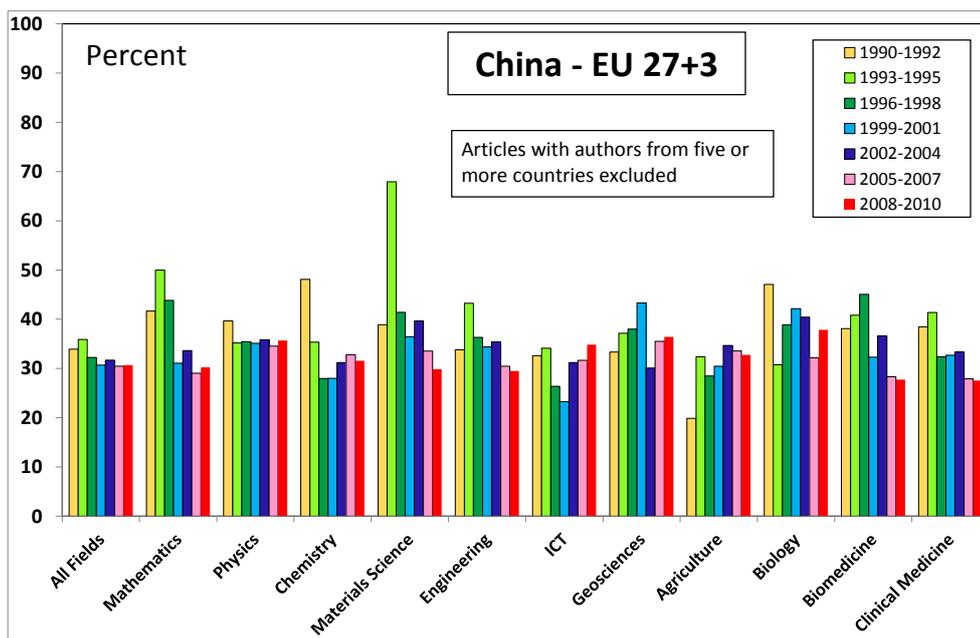
Figure 1. Development of the no of co-publications between China and EU 27 plus Norway, Iceland and Switzerland in different scientific fields, excluding articles from five or more countries
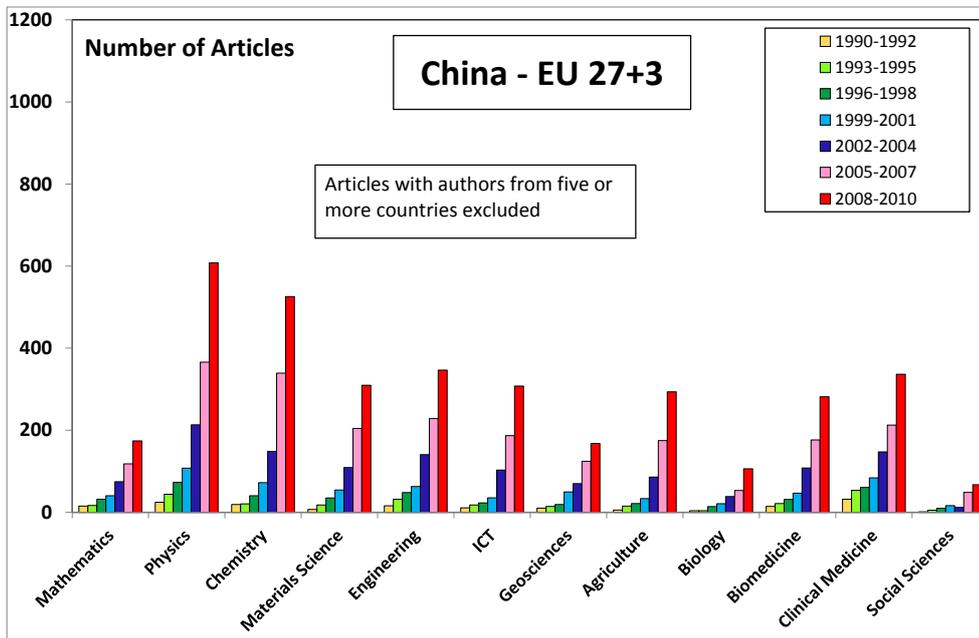
Figure 2. Development of the no of co-publications between China and EU 27 plus Norway, Iceland and Switzerland among the top ten per cent most cited scientific publications in different scientific fields, excluding articles from five or more countries
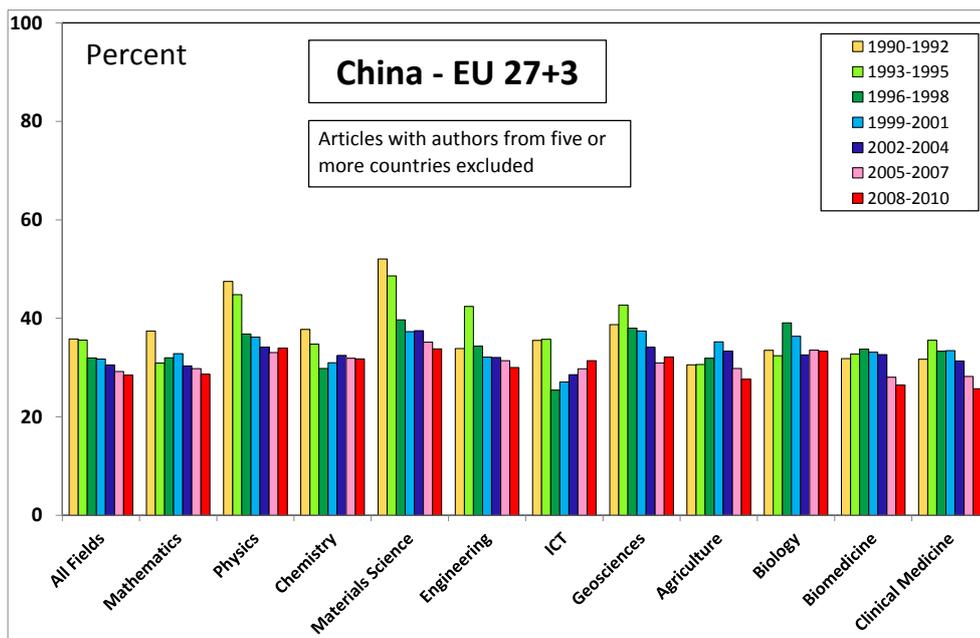
Figure 3. Development of the EU 27 plus Norway, Iceland and Switzerland share of the total number of Chinese international co-publications in different scientific fields, excluding articles from five or more countries

Figure 4. Development of the EU 27 plus Norway, Iceland and Switzerland share among the top ten per cent most cited scientific publications in different scientific fields, excluding articles from five or more countries

From the beginning of the reform period, science and technology constituted one of the 'Four Modernizations' identified by Deng Xiaoping (and earlier by Zhou Enlai) as pillars of the reform, the other three being agriculture, industry and national defense. Throughout the era, Chinese leaders

have pointed to science as a key to economic progress and competitiveness, most recently through the concept of 'Scientific Development' and the launching of the Indigenous Innovation Strategy. An important element characterizing the governance of China's science and technology system is the strong involvement of China's top leaders in science and technology decision-making. This is exemplified by the Leading Group on Science, Technology and Education of the State Council, created in 1998, and currently chaired by Prime Minister Wen Jiabao. The Ministry of Science and Technology (MOST) plays a key role both through its responsibility for formulating science and technology policy – for example in the Medium and Long-Term Plan and in the 5-year plans for S&T development – and as a key dispenser of research funds. In formulating policy, MOST has a number of research institutes at its disposal, such as the Chinese Academy of Science and Technology for Development (CASTED) but also the Institute for Policy Management at CAS and academics at selected universities, such as Tsinghua. The Development Research Center under the State Council (DRC), a think tank, also contributes to setting overall policy directions through its analyses. The National Development Reform Commission (NDRC) and the Ministry of Finance influence S&T policymaking through their responsibilities for overall economic policy and the budget, respectively. Finally, provincial governments and S&T Offices play an increasingly important role in setting priorities for industrial development, in funding research and in establishing research institutions.

Priority-setting in Chinese research policies and programs operates on different levels[3]. The first level concerns ideology and overarching national strategy. The Chinese Government's programmatic and overarching emphasis on a "Harmonious Society" and, more recently, on "Indigenous Innovation" as beacons of policy-making more generally, are examples of the first level of priority-setting, but also the fundamental policy stance on opening up China for trade and investment, for example through the accession to the WTO and the policy of attracting foreign technology and investments. The second level regards the formulation of medium and long-term plans. The latest MLP was presented in February 2006 and spans the period until 2020.[4] The third level regards the design of the national science and technology programs, while the fourth stratum is at the level of research organizations (i.e. Chinese Academy of Sciences) and funding agencies (i.e. the NSFC).

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[3] Li, Liu 2009. *Research priorities and priority-setting in China*. Swedish Governmental Agency for Innovation Systems (VINNOVA), Stockholm. http://www.vinnova.se/upload/EPiStorePDF/va-09-21.pdf and Benner, Mats, Li Liu and Sylvia Schwaag Serger, 'Head in the clouds and feet on the ground: Research priority setting in China', *Science and Public Policy* 39 (2012) pp. 258–270.

[4] For an analysis of China's latest medium and long-term plan see Schwaag Serger, Sylvia and Magnus Breidne. 2007. 'China's 15-year plan for scientific and technological development – a critical assessment'. Research note. *Asia Policy* 4, July, 135-164 and Cao, Cong, Denis Simon and Richard Peter Suttmeier, (2006) 'China's 15-yearscience and technology plan', *Physics Today*, 59: 38–45.

China has launched various national science and technology programs (jihua), with the most prominent ones being the National Key Technologies R&D Program established in 1984, the State High-Tech Research and Development Program, or 863 Program, initiated in 1986 and the State Basic Research and Development Program, or 973 Program, established in 1997. The 863 Program serves the goal of "leading to the future" by supporting the development of frontier technologies. Similarly the State Basic Research and Development Program (973) serve the same goal but by focusing on strengthening basic research that addresses national strategic goals or needs.[5] In addition, there are programs focusing on strengthening agricultural and rural development research, on promoting the development of high-tech SMEs, on creating or supporting research institutes and labs, on increasing international cooperation, etc. The medium and long-term plans and national S&T programs are not independent from each other; rather they are connected, with the former guiding and providing an overarching framework for the latter (in their five-year plans).

Project objectives

Against the background of the rapid development of China's research system described above, and the increasing importance of, and interest in (both in Europe and China), strengthening science and technology collaboration, there is a growing need, firstly, to promote and raise awareness of existing funding opportunities for research collaboration and, secondly, to gain a better understanding of potential areas for more targeted research cooperation between the EU and China.

The aim of the Bilat Silk project was to build on the increase in science and technology collaboration between the two regions, EU and China, with a focus on FP7. The overall goal of the project was to strengthen science collaboration through four different objectives:

  i. Awareness raising within the Chinese research constituency about FP7, through information days, publications, and newsletters. The main purpose for this is to clearly highlight the added value for China to collaborate with European scientific teams. Several other objectives in the Bilat Silk project helped European and Chinese scientists to have entry to the latest information contributing to the realization of expected impact.

  ii. Identification and dissemination of research areas of common interest between scientists in EU and China. The joint research themes can enhance the scientific and innovative cooperation in specific research areas.

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[5] For more information on the 863 and 973 programs, see the website of the Ministry of Science and Technology, http://www.most.gov.cn/eng/programs1/200610/t20061009_36225.htm and http://www.most.gov.cn/eng/programs1/200610/t20061009_36223.htm

iii. Studying state-of-the-art methodologies and practices for Technology Assessment (TA) in both China and Europe for Science and Technology (S&T) policy advisory. Furthermore common themes were identified together with a comprehensive list of TA organisations in regions with similar activities and potential for collaboration. In addition objectives lead to the establishing of a concrete plan of collaboration in scientific policy advisory resulting from the comparative evaluation of methods and impact in TA and based on the particular context and policy structures of regions.

iv. Enhancement of the expertise and capacity of Chinese National as well as Regional Contact Points (NCP/RCP). Specialised trainings in all important FP7 issues complemented with special trainings in providing NCP and RCP services. Furthermore, an updated NCP-website at CECO in order to provide information to the Chinese organisations. The NCP-website also includes partner searches where Chinese and European researchers can find partners for a project.

Description of the main activities[6]

i.   Raising awareness about FP7 within the Chinese research constituency

The aim was to improve the Chinese participation in the European Framework Programmes for Research and Innovation, by raising the awareness of Chinese organisations and to build the capacity to inform and inspire. To this end different actions took place throughout the project.

Nine information events were arranged in regions selected due to their importance in terms of R&D capacity, industrial cluster or economic development (Table 1). The most common type of participant in these information events was researchers (54 %), followed by government officials (19 %) and industry (15 %).

Place	Date	No. of attendees	No. of orgs
Shanghai	2010-09-06	150	74
Beijing	2009-06-22	110	32
	2010-07-23	88	34
	2011-06-23	139	15
Jinan/Shangdong	2011-06-21	200	60
Heilongjiang	2011-05-24	288	54
Hubei	2010-05-26	235	92
Anhui	2011-10-25	120	34
Shaanxi	2009-06-23	105	23
Total		**1435**	**418**

Table 1. Participants of Information events in China

Each Information event was held in different regions and had its own separate focus; however they shared some common features, such as:

- *High level representation from the local Chinese government as well as EU representatives.*
- *Conference participation from the research constituency in the region*
- *Each conference had plenary sessions with multi-media presentation and also Q&A sessions.*
- *Printed and electronic material was distributed.*
- *Networking among conference participants was encouraged during breaks and working lunches.*

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[6] A detailed description of all activities in the Bilat Silk poject can be found in the Periodic Reports and deliverables that can be requested from the European Commission.

Picture 1. FP7 information day in Shanghai, September 2010

In addition to the Information events, newsletters and FP7-information packages were produced and distribution among the Chinese researchers. The newsletters were distributed quarterly and during the project more than twelve newsletters have reached the target groups both through CECOs database and through the regional databases managed by the RCPs. The newsletters were designed to reach a broad Chinese audience with critical information and highlighted special opportunities for Chinese organisations. Both digital and traditional media have also been targeted for dissemination activities and that resulted in more than 100 articles in China reporting about the Bilat Silk project and its key activities.

Awareness of FP7 in China was also achieved via the CECO website which addresses two main user groups, public users and registered users. The public area focuses on establishing an online communication channel and presenting results. Visitors can get up-to-date information about development of FP7, including workshops, call information, and contacts. Downloadable documentation from the Information events is posted on the website. Registered partners are assigned with user name and password and can get access to the partner search database to find suitable partners. The database contains partner profiles and partner search requests.

CECO, as a National Contact Point (NCP), has also established an FP7 help desk and is since January 2009 aiming to provide professional consulting and advisory services for Chinese organizations and researchers interested in participating in FP7. In addition, the six selected Regional Contact Points (RCPs) under the leadership of CECO, functions as local help desk to provide fundamental technical assistance to local research communities.

Furthermore, awareness rising and information about the opportunities for Chinese researchers within FP7, has been promoted by the active participation in dozens of relevant forums, workshops, seminars and exhibitions both in Europe and China.

ii. Identifying research areas of common interest between EU and China

To facilitate additional collaboration between European and Chinese researchers, the project identified areas of interest for Chinese researchers in Science and Technology. This was done by analyzing existing public documents on scientific cooperation between EU and China and statistical data on the Chinese participation in FP7. To verify the results, feedback from the Chinese scientific community was collected. The result shows that there are four main areas of interest to the Chinese researchers. They are Biotechnology (KBBE), Environment, Health and Information Communication Technology (ICT). Within the areas, seven more detailed research topics of mutual interest between EU and China were identified (Table 2).

Research Topics			
Health	1	Electrical impedance-ultrasound imaging based on micro-bubble contrast agent	
KBBE	2	Spatial distribution and stabilization of organic carbon in the profiles of soil with long-term cultivation	
	3	Biology and control of Phytophthora infestans	
	4	Development of diagnostic tools and drugs based on antibody technology	
	5	Conversion of lignocellulose into Biomaterials or biofuels	
Environment	6	EU-China adaptive pattern of integrated natural resources management in (semi-)arid region	
	7	The effect of SO2 exhaust and atmosphere exhaust on environmental adaptability of materials	

Table 2. Identified research topics of mutual interest

The content of the subsequent information events were based on the identification of the common research topics and the areas of major collaboration between EU and China, leading to a focus on the two themes KBBE and Environment within FP7. The focus on these two themes also resulted in a

collaboration with the EU-projects BIOCIRCLE (Contract no. 227204) and SPRING (Contract no. 244156). Contacts with the project Access2China (Contract no. 244459) was also taken during the period in order to investigate possible synergies.

iii.   Studying methodologies and practices for TA for S&T policy advisory

In order to identify common themes and practices, representatives of key TA institutes in EU and China were brought together to describe their respective work in terms of institutional setting, formal location in policy, thematic focus, methodological parameters, aims and impact assessment issues. The first discussions and workshop took place in September 2010 in Beijing. The results from the workshop are summarized below and found in the report "List of comparative S&T policy themes and organizational capacities in Europe and China"[7]

Institutional Setting. As the trajectory of TA is different in the two regions it is apparent that the institutional settings differ accordingly. It is evident that Europe has a variety of settings to accommodate TA according to its target and preferred methodology. From the official setting of the European and German Parliaments where TA is directly linked to Parliamentary committees that order reports according to current debate needs, to semi-official settings such as the Rathenau and ITAS institutes where TA is performed both at the request of Government offices and as a result of internal initiatives, Europe shows a considerable diversity. In China on the other hand, TA is set almost exclusively as an affiliate to Government departments (mainly MOST) and functions as a service to policymakers with little flexibility in terms of own initiatives, methodology and structure of reporting.

Policy location. In this respect the discussions identified certain similarities but also considerable dissimilarities between the two regions. In Europe the location of TA in the official policy structures is similar to that of its institutional setting but it is not predetermined by it. The Parliamentary committees that oversee TA institutes provide a certain guarantee of TA's location in policy debates in the countries that follow such setting (e.g. Germany, UK, and France). Nevertheless, the location of TA as independent of official policy structures (e.g. Netherlands and Denmark) does not preclude its central location in the policy debates in these countries. Indeed one might argue that a certain level of independence has provided the means for TA to access and direct policy debates that involve a range of stakeholders. In China the location of TA in policy is strictly interpreted within the official decision making process and as such it has a key but inflexible role in policy making. TA reports ordered by MOST follow a strict structure that deals with legislative and innovation themes based exclusively on the needs of the client and not necessarily on those of public policy debates.

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[7] Bilat Silk project deliverable D 3.1

Thematic Focus. In terms of thematic focus, little divergence has been seen between the two regions. New S&T developments in Biotechnologies, Nanotechnologies and Food Technologies are the focus of current TA in the two regions. This practically reflects the international character and inter-dependency of new developments, the challenges of which they bring up, do not differ in the two regions.

Methodology. Methodological pluralism is evident in Europe while the opposite trend is evident in China. From "traditional" to "participatory", European TA covers a wide range of methodological underpinnings that are evident in the focus of its functions. Depending on the topic, scenario workshops, expert options analysis, citizens juries and consensus conferences, are some of the many methodologies that TA has at its disposal in Europe. In China on the other hand, the traditional methodologies of TA that are based on expert opinion and analysis is still the mainstream methodology followed. Participatory methods are nevertheless experimented upon and welcomed by new government initiatives that view public participation as a new and necessary function in decision making.

Aims. As with methodology, the aims of TA are intrinsically linked to its place and functions within the policymaking system. The core aim of TA to advice policy making and provide viable options for action in relation to new S&T developments is true in both regions. The main clientele of TA is still policy makers in both regions. The difference witnessed is the shift of TA aims in some European countries where the public and expert community are considered as a core clientele as well. Here, instigation of public debates with the participation of all relevant stakeholders is an aim at least as important as the traditional policy one. This trend is not replicated in all of Europe and certainly not in China.

Impact Assessment. Few European studies have attempted to evaluate the impact of TA either in policy or debates. The inherent challenges in evaluating a think-tank function are also evident here. Qualitative methods are inevitably preferred for such evaluations although occasionally targeted surveys have been used as well. No such action is evident in China so far, although the Chinese institutes are keen to undertake evaluation studies based on the European models.

The collaborative plan and roadmap resulting from the project was finalized through several round table discussions in Shanghai and Beijing in November 2011. Additional face-to-face discussions with foreign experts in Europe (Chinese embassy in UK and UNESCO) also contributed to the work

in developing the plan and roadmap. The results of these roundtable discussions and the extensive desktop research resulted in a report titled "Report on collaborative plan in S&T policy advisory"[8]. The report analysed further differences between the European and Chinese TA approaches that were found to be due to differences in perceptions of priority values in S&T and innovation systems. Moreover, it provided a list of thematic priorities that were identified during the overall project discussions. Finally, a collaborative roadmap was suggested for promotion by the S&T authorities in Europe and China.

The activities did instigate a strong TA network between Europe and China that continues its activities beyond the lifespan of the project, as initially planned for. The second report ("Report on collaborative plan in S&T policy advisory")[9] is the main reference point for the subsequent steps that TA institutes from both regions are taking in order to concretise their planned collaborative activities. The current exchanges focus on specific collaborations with focus on TA methodological exchanges, comparative public perceptions analysis, comparative values systems analysis, capacity building initiatives in participatory approaches and the creation of a permanent TA discussion platform under the auspices of European parliamentary TA offices and CASTED. At this stage there is a process to sign a Memorandum of Understanding between main TA institutes in Europe and CASTED to cement the collaborative roadmap in a concrete form featuring the focus as described above.

iv.   Enhancing the expertise and capacity of Chinese NCPs and RCPs

The Chinese NCP office, CECO, is established and has the necessary status and knowledge to provide support services about FP7 in their country. To ensure an optimal service and guidance also to the local researchers, the project selected six Regional Contact Points from regional S&T Commissions and/or Exchange Centers to cover the six geographic areas around these provinces, including Heilongjiang Province, Jiangsu Province, Hubei Province, Shanghai, Shandong Province and Shaanxi Province (Figure 2).

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[8] Bilat Silk project deliverable D 3.3
[9] Bilat Silk project deliverable D 3.3

Figure 2. Geographical spread of RCPs in China

The RCPs are responsible for:

- Acting as a local liaison office of the NCP to disseminate the knowledge and updated information of FP7.
- Raising public awareness of FP7 and related programs to promote EU-China cooperation under FP7.
- Providing local stakeholders with better service and guidance in the participation of FP7 and promote the scientific and technological cooperation under FP7.
- Providing full support to NCP on organizing the FP7 information days, disseminating the event information and inviting the key stakeholders based on their database.
- Working as local help desk for all stakeholders.

To continuously improve the capacity and knowledge of the RCPs, they discuss issues they are unable to answer with CECO, the Chinese NCP. CECO regularly contact each RCP to ensure they have the latest information regarding FP7. This three-tier vertical management scheme has proven effective to provide local Chinese researchers with better service and guidance.
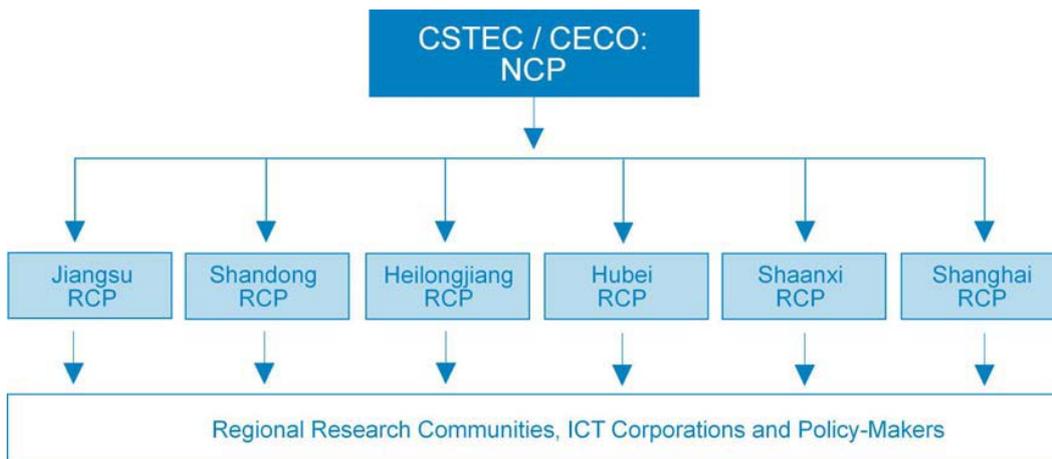
Figure 4. Management scheme of the NCP/RCP in China

CECOs help desk for FP7 has been active since 2009 and the six selected RCPs, functions as local help desk to provide assistance to local researchers. The European partners of the project functioned as a "Back-up Office" to provide know-how for Chinese organizations especially to address challenging issues that the Chinese help desks found difficult to tackle (Figure 5). The back-up office work closely with CECO and through CECO the service capacity of the RCPs has been improved as well.
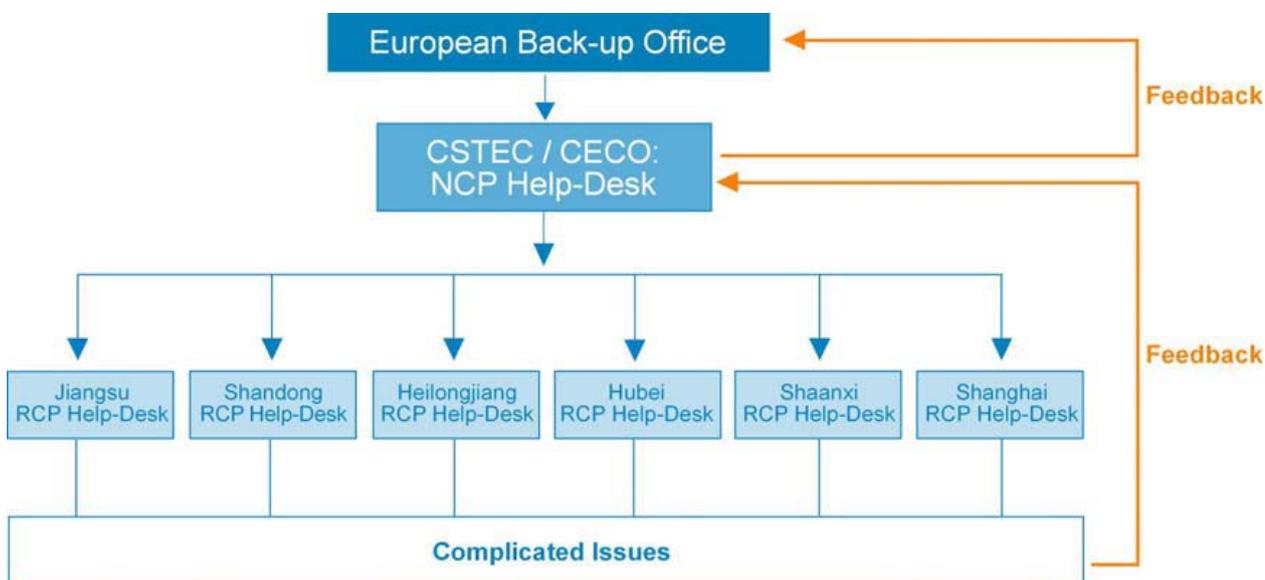
Figure 5. Management structure and work model of FP7 Help Desk

Internal trainings were arranged periodically within CECO so as to ensure almost all CECO officers are able to answer common questions raised by Chinese researchers regarding FP7. For this, Frequently asked questions (FAQs) and standard answers were developed as a useful tool for service provision. These FAQ includes:

- *What is the Framework Program?*

- *What are the general rules for participation in an FP7 project?*

- *What are the funding priorities of FP7?*

- *What is the overall budget for FP7?*

- *How can I get updated information of ongoing and future calls?*

- *What is Cordis? How can I quickly find the information I need?*

- *What is the evaluation criteria and process for the proposals?*

- *How to find European partners?*

- *What suggestions do you propose for a beginner? Any useful tips? Etc.*

The results of a survey (Table 3) have provided useful guidance to implement the project objectives and activities. This is particularly helpful for CECO as the NCP and national help desk and the six RCPs as local help desks to perform the consulting and advisory services. The amount of queries received has varied over time, but on the average about 5-10 queries a day arrives at CECO's help desk.

Questions	Percentage (%)
How to make use of CORDIS website	34
How to find European partners for joint proposals	26
How to participate in FP7 (general rules of participating)	22
How is FP7 structured	9
What is the overall budget for FP7	5
Other	4

Table 3. Percentage of the most frequently asked questions

During the project the Chinese NCP organization was further linked to the EU-system for NCPs, mainly through CECOs participation in the NCP meetings for International Collaboration (INCO) and through contacts with the European thematic NCPs engaged in the project.

One of the main obstacles for Chinese researchers is how to find and be engaged in consortia aiming at participating in FP7. To this end the Chinese NCP-website was improved by including a partner search database.

The partner search area is exclusive to registered users and is owned by the CECO website. Registered users can use the database for the following tasks:

- Publish partner searches: Partner searches are project ideas, from both EU and non-EU countries that are preparing or would like to participate in an FP7 proposal and are looking for partners from other countries. After registration, users get access to the database and start partner search.

- Find partners: After registration, users can search for partners and contact the ones with an idea which suits their needs.

In order to extend the coverage of partner searches, CECO contacted the S&T offices at universities and asked for their help to distribute searches to relevant departments and research groups.

The potential impact and lessons learned

Creating an Infrastructure for information and matchmaking activities for FP7-participation

A successful infrastructure encompasses assembling and disseminating correct information material and establishing networks of competent contact points. The Bilat Silk project has initiated a system where information about FP7 is dispersed by both national and regional contact points.

The most valued outcome of the project from a Chinese point of view was the establishment of the six RCPs and in hindsight more resources should have been directed at regional capacity-building. In addition, there should have been more interaction and exchange of knowledge and experience between the Chinese NCP-organisation, CECO, and the European thematic NCP-networks, especially within Space and ICT.

Conclusions from the project indicate that it is central to synchronise information on FP7 with the time schedule of the annual work programmes, since it is important to inform about possibilities and opportunities within the work programmes well ahead of dead-lines. The Chinese researchers need time to find relevant partners to interesting calls and that is usually more complex and time consuming than for European researchers. Several factors affect the networking ability between EU and China in this respect, but the main challenges for a Chinese team when joining a European consortium for FP7 lies within this activity being constantly on going in Europe and thus complicated to tap into from a distance.

In the future, workshops could be arranged at regional level as soon as the orientation papers from the framework programme are published. The webcasts held by the Commission in connection with the publications of the annual work programmes needs to be wider known. It is also of importance to further inform the Chinese research constituency about the strategies and methods to form project consortia, and also the importance to work on their international network well in advance.

One of the results of this project was the creation of a partner search database hosted at the CECO website. The partner search database is of great importance to the Chinese research constituency, as the database includes both Chinese and European researchers in need of contacts with China. The Commission's own partner search database has been regarded as less useful for Chinese researchers. An added value with the CECO partner search is the possibility for them to extend the search to relevant departments and research groups at Chinese Universities.

The partner search database has been shown to be an effective way to promote FP7, but unfortunately it is also costly to maintain and would require further resources in order to expand it

with e.g. more data on Chinese researchers in different areas and to link it to the CSTEC European science attachés, which are important contact points in EU.

More information about the benefits of becoming an expert evaluator of EU-projects is also needed. Being an expert gives the possibility to increase one's network, to understand the process of evaluation and how successful proposals are written. To date very few Chinese researchers have been experts and efforts should be directed at increasing the numbers.

An important group of Chinese researchers not involved in this project is the Chinese researchers residing in Europe. They are more familiar with the European funding system in general and the framework programmes in particular. CSTEC has a program supporting returning Chinese researchers and it would be beneficial to increase the collaboration with the European NCP-organisations in order to enhance participation and inform returning Chinese researchers about the support and networks.

Priority setting, from theory to implementation

The attempt to identify research priorities within this project proved to be impossible to implement. This was in part due to the national context of the priorities and in part due to differences in working methods. In order to identify relevant research priorities, direct contact with universities S&T offices or directly with researchers within specific field is necessary. Priorities may also differ significantly between regions, it is therefore important to acknowledge that this is not as much a national priority setting, but rather a regional and local process.

The problem encountered highlights the problem to cooperate with third countries within the Framework Programme in general, as the priority setting in the Framework Programme is a political top-down process and does not effectively take into account the needs/priorities of countries outside EU. Well before Horizon 2020 starts there should be dialogues with important countries such as China to identify priorities of common interest. This should be facilitated with the new challenge driven approach.

Overall, the processes surrounding priority-setting in China's national S&T programs are characterized by formal and elaborate processes with an emphasis on input by scientific experts particularly when it comes to the selection of thematic areas, but also formal processes for input by other stakeholders and, increasingly, public consultation, not dissimilar to the consultation processes

surrounding European Union programs for research and development[10]. In general, when identifying joint priorities it is very important to take into account the differences in priority setting and even if there are similarities both 'systems' are very complex.

Promoting EU-China collaboration in S&T policy advisory
The Bilat Silk project has uncovered similarities and dissimilarities between the S&T advisory structures and functions in EU and China, and also identified synergies and possible future collaborations:

- *Technology assessments are key processes in policy processes in both China and Europe.* TA is a strategic undertaking that permeates most S&T development plans and as such it is a key process in promoting common policy features.

- *Technology assessment is a suitable area for future collaboration.* The type of discussions preformed during the project, which brought together key TA players, allowed for a frank exchange based on mutual respect for each other's work and standing in the global stage. It is evident that TA is ripe for direct collaborative activities between the two regions as the issues and challenges it is required to solve are practically identical. The analysis of the Nanotechnology case study, for instance, showed that, despite apparently different political systems, the actual development in policy making and the issues that it is faced with are basically the same. This is certainly replicated in other technologies that China and Europe are considered of equal developmental status, such as biotechnologies, food technologies, energy, synthetic biology, etc. In addition, it is evident that China could learn from the plethora of TA methodologies that have been employed and tested already in Europe. This will necessitate a form of collaboration that includes capacity building aspects, particularly in methodologies that target public participation. The wealth of experience in Europe in this respect should be passed on to China that is in the process of adopting such procedures in its own decision making structures. The more narrow methodological scope in China is also likely to have led to in depth expertise of interest to European TA-players.

- *Understanding differences in value systems are key for fruitful collaborations.* One key issue that surfaced in the later stages of the project discussions was that of differences in the values systems in Europe and China. The technology development trajectory is very similar nowadays in the two regions but the historical development underpinning this trajectory is

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[10] Andrée, Dan 2009. *Priority-setting in the European Research Framework Programmes.* VINNOVA Analysis 2009:17,VINNOVA, Stockholm. http://www.vinnova.se/upload/EPiStorePDF/va-09-17.pdf

not. Further mutual learning of the values systems that govern the current policy thinking is necessary in order to achieve a deeper and more fruitful collaboration.

Despite the identified differences recognized in TA discussions between European and Chinese experts, these differences do not present significant problems for collaborations for two main reasons. Firstly, the TA approaches found within Europe are almost as varied as the approaches seen between European countries and China. As European TA collaboration is flourishing, for instance as apparent through the work of the European Parliamentary Technology Assessment group, it shows that divergent institutional approaches can work together and there is no reason to believe that there is a different case between Europe and China. Secondly, the methodologies used in TA are a more significant indicator for successful collaboration and they align well between Europe and China particularly in relation to new high-tech S&T developments like biotechnologies and nanotechnologies.

Conclusions

<u>General conclusions</u>

BILAT projects in FP7 are a major instrument to support the implementation of activities within S&T cooperation agreements between the EU and third countries. They have challenging tasks from arranging practical information days about FP7-calls to more policy related tasks such as identifying common priorities and stimulating and sharing best practices. In addition it entails cooperation with third countries often not necessarily familiar with EU and the Framework Programme. In Horizon 2020 the challenges could be even more demanding as the Commission has proposed a more restrictive approach to funding of partners from third countries combined with efforts to facilitate funding of participants through their national programmes.

The Bilat Silk project was a combination of a practical part focusing on stimulating participation of Chinese researchers in FP7 and a more longer term strategic policy part.

Our main conclusion is that BILAT-projects in general would in many cases benefit from having more focused objectives and if necessary divided into two projects; one focusing on the practical NCP-oriented activities and one on the more policy side objectives.

In particular events in China, with mainly researchers taking part, should focus on the practical aspects of taking part in the framework programme and not try to cover all aspects of the project, i.e. the policy oriented parts.

Taking into account the ambitious goal, the budget of the project could be higher enabling more partners to participate in order to cover a wide range of activities. In addition, it seems like the Commission knows rather well what they would like to achieve and one could consider using Call for tenders instead of Call for proposals. In Bilat Silk, it was sometimes difficult to interpret signals from the Commission. A more detailed description of a tender could possible solve this problem.

We believe there is further scope for making BILAT-projects and their activities known in Member States. There should also be more collaboration and exchange of views between on one hand similar projects with China and on the other hand between e.g. different BILAT-projects. The previous should be a requirement by the Commission to assure synergies and complementarities between

relevant projects. The latter could maybe be arranged through an annual workshop in Brussels building on e.g. ERA-NET days.

Conclusion related to the different tasks

In order to effectively inform the Chinese researchers of the opportunities within FP7, it is important to match the information days with the publishing of the annual work programmes and to distribute the orientation papers through the NCP/RCP network. To make this easier, direct contact between Chinese NCPs and the EU counterparts is advisable.

The major barrier for Chinese researchers to participate in FP7-projects is to find and join suitable consortia. There is a need for a well-working partner search system and to that end the continuous improvement of the NCP and RCP-organisations is imperative. Thus, the following steps are suggested:

- Continue with training and stimulate networks in order to strengthen the knowledge of the RCPs
- Appoint staff with experience and knowledge of the Framework Programmes in order to provide service and guidance to local stakeholders
- Increase meetings between CECO and the RCPs in order to ensure effective communication and to further develop the capacities of the RCPs
- Stimulate the interaction between Chinese NCPs and EU NCPs. In selected areas even thematic Chinese NCPs could be meaningful.

Chinese organisations, especially universities, could benefit from having long term strategies for EU collaboration. The strategy could include identifying areas in the Framework Programme that complement the national 5-year plan for S&T development, but also start an iterative process where participation in the Framework Programmes could start by the registration as an expert and assist in evaluations, then continue to Marie Curie fellowships within the People programme and then, based on the acquired networks and experiences participate in a collaborative R&D-project. In this context it is important to engage returning Chinese researchers, as indicated above.

The identification of research priorities within Bilat Silk proved to be unachievable. This highlights the difficulties to cooperate with third countries in these types of projects, as the priority setting in the Framework Programme is a political top-down process and does not take into account the

priorities of countries outside EU. The approach used in the Bilat Silk-project encouraged individual researchers to propose their own research fields, i.e. a bottom-up approach. Before Horizon 2020 starts there should be dialogues with selected countries, such as China, to identify priorities of common interest.

Overall, the Technology Assessment analysis led to the building of a strong TA network between EU and China, with activities that continue even after the end of the Bilat Silk-project. However, as pointed out above, this part of the project had few synergies with the other parts of the project and a future direction of the Bilat programme could benefit from distinguishing between information-exchange and policy-making aspects and separate them into different entities with strong links.

4.2   Use and dissemination of foreground

Section A (public)

				LIST OF DISSEMINATION ACTIVITIES				
NO.	Type of activities[11]	Main leader	Title	Date	Place	Type of audience[12]	Size of audience	Countries addressed
1	Workshop	CECO	Workshop on Promotion of China-EU S&T Cooperation	15-16 January 2009	Beijing	Scientific	50	China, Sweden, Italy, Greece, United Kingdom
2	Workshop	CECO	Meeting with Director of International Affairs & Innovation, Erasmus University Rotterdam	9 March 2009	Beijing	Scientific	15	China
3	Workshop	CECO	EU's Seventh Framework Programme seminar	18 March 2009	Beijing	Scientific	50	China

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[11] A drop down list allows choosing the dissemination activity: publications, conferences, workshops, web, press releases, flyers, articles published in the popular press, videos, media briefings, presentations, exhibitions, thesis, interviews, films, TV clips, posters, Other.

[12] A drop down list allows choosing the type of public: Scientific Community (higher education, Research), Industry, Civil Society, Policy makers, Medias ('multiple choices' is possible.

4	Workshop	CECO	CHIESER S&T Expo Inaugurated	19 March 2009	Beijing	Scientific	50	China
5	Workshop	CECO	Meeting with CBBC, China-Britain Business Council	April 2009	Beijing	Scientific	20	China, United Kingdom
6	Workshop	CECO	Workshop on Upcoming FP7 calls	22 June 2009	Xi'an	Scientific	150	China, Sweden, Greece, Italy
7	Workshop	CECO	Workshop on Upcoming FP7 calls	22 June 2009	Beijing	Scientific	150	China, Sweden, Greece, Italy
8	Conference	CECO	FP7 Information day	22 June 2009	Beijing	Scientific	110	China
9	Workshop	CECO	CECO Joins Hands with VTT and VINNOVA	23 June 2009	Beijing	Scientific	30	China, Sweden, Finland
10	Conference	CECO	FP7 Information day	26 June 2009	Shaanxi	Scientific	110	China
11	Workshop	VINNOVA	EU FP7 NCP and RCP Training Seminar	23-25 June 2009	Beijing	Scientific	40	China, Sweden, Italy, Greece
12	Conference	CECO	EU's Seventh Framework Programme seminar	23 November 2009	Shanxi	Scientific	30	China

13	Workshop	CECO	Info Day and Seminar on EU FP7 and S&T Diplomatic Service Program	26 May 2010	Wuhan	Scientific	150	China
14	Conference	CECO	FP7 Information day	26 May 2010	Hubei	Scientific	210	China
15	Workshop	HF	First Cooperation Forum of National Contact Point	6-8 June 2010	Athens	Scientific	15	China, Greece, Italy, Sweden
16	Workshop	CECO	EU-CHINA science and technology week world Expo	14-18 June 2010	Shanghai	Scientific	?	China
17	Workshop	CECO	Information Day and Seminar on EU FP7 and S&T Diplomatic Service Program	13 July 2010	Nanjing	Scientific	250	China
18	Workshop	CECO	51 new FP7 calls for proposals launched	22 July 2010	Beijing	Scientific	150	China
19	Conference	CECO	FP7 Information day	23 July 2010	Beijing	Scientific	90	China
	Workshop	CECO	External S&T cooperation	28 July 2009	Bijie	Scientific	100	China

	Workshop	CECO	CSTEC training workshop	27 August 2009	Yinchuan	Scientific	60	China
20	Conference	CECO	FP7 Information day	6 September 2010	Shanghai	Scientific	150	China
21	Workshop	CECO	Partner Searches within Health presented	September 2010	Beijing	Scientific	?	China
	Workshop	CECO	International Platform	28 October	Dongguan	Scientific	150	China
	Workshop	CECO	S&T exchange workshop	6 November 2009	Xiamen	Scientific	100	China
	Workshop	CECO	FP7 lectures	23 November	Yangling	Scientific	100	China
22	Workshop	CECO	EU-China Science and Technology Joint Committee	November 2010	Brussels	Scientific	?	China, EU
23	Workshop	CECO	Kickoff Meeting of ChinaAccess4EU	12 January 2011	Beijing	Scientific	50	China, EU
24	Conference	CECO	1st STF Conference: "EU-CHINA RESEARCH: A NEW APPROACH"	17-18 March 2011	Beijing	Scientific	150	China, EU
25	Workshop	CECO	Join European members states	May 2011	Beijing	Scientific	50	China, EU

			Science & Technology (S&T) counselors					
26	Conference	CECO	FP7 Information day	25 May 2011	Heilongjiang	Scientific	290	China
27	Conference	CECO	FP7 Information day	21 June 2011	Jinan	Scientific	200	China
28	Conference	CECO	FP7 Information day	23 June 2011	Beijing	Scientific	140	China
29	Conference	CECO	Launch of plant breeding partnering project 'OPTCHINA'	June 2011	Changsha	Scientific	?	China
30	Workshop	CECO	Sino-European workshop on Environmental Research	5-6 July 2011	Beijing	Scientific	150	China, EU
31	Workshop	CECO	China-UK Workshop on New Energies	2 September 2011	UK	Scientific	50	China, UK
32	Workshop	CECO	China-EU Business and Technology Cooperation Fair	18-21 October 2011	Chengdu	Scientific	200	China
33	Conference	CECO	FP7 Information day	25 October 2011	Anhui	Scientific	120	China

Section B – not applicable (IPR)

4.3   Report on societal implications

A General Information *(completed automatically when **Grant Agreement number** is entered.*	
Grant Agreement Number:	222 800
Title of Project:	Bilateral Support for the International Linkage with Kina
Name and Title of Coordinator:	Johan Lindberg, Programme Manager

B Ethics	
1. Did your project undergo an Ethics Review (and/or Screening)? • If Yes: have you described the progress of compliance with the relevant Ethics Review/Screening Requirements in the frame of the periodic/final project reports? Special Reminder: the progress of compliance with the Ethics Review/Screening Requirements should be described in the Period/Final Project Reports under the Section 3.2.2 *'Work Progress and Achievements'*	*No*
2. Please indicate whether your project involved any of the following issues (tick box) :	*YES*
RESEARCH ON HUMANS	
• Did the project involve children?	No
• Did the project involve patients?	No
• Did the project involve persons not able to give consent?	No
• Did the project involve adult healthy volunteers?	No
• Did the project involve Human genetic material?	No
• Did the project involve Human biological samples?	No
• Did the project involve Human data collection?	No
RESEARCH ON HUMAN EMBRYO/FOETUS	
• Did the project involve Human Embryos?	No
• Did the project involve Human Foetal Tissue / Cells?	No
• Did the project involve Human Embryonic Stem Cells (hESCs)?	No
• Did the project on human Embryonic Stem Cells involve cells in culture?	No
• Did the project on human Embryonic Stem Cells involve the derivation of cells from Embryos?	No
PRIVACY	

• Did the project involve processing of genetic information or personal data (eg. health, sexual lifestyle, ethnicity, political opinion, religious or philosophical conviction)?	No
• Did the project involve tracking the location or observation of people?	No

RESEARCH ON ANIMALS

• Did the project involve research on animals?	No
• Were those animals transgenic small laboratory animals?	No
• Were those animals transgenic farm animals?	No
• Were those animals cloned farm animals?	No
• Were those animals non-human primates?	No

RESEARCH INVOLVING DEVELOPING COUNTRIES

• Did the project involve the use of local resources (genetic, animal, plant etc)?	**No**
• Was the project of benefit to local community (capacity building, access to healthcare, education etc)?	**No**

DUAL USE

• Research having direct military use	No
• Research having the potential for terrorist abuse	No

C   Workforce Statistics

3.   Workforce statistics for the project: Please indicate in the table below the number of people who worked on the project (on a headcount basis).

Type of Position	Number of Women	Number of Men
Scientific Coordinator		
Work package leaders	1	5
Experienced researchers (i.e. PhD holders)	1	4
PhD Students	0	0
Other	1	

4. How many additional researchers (in companies and universities) were recruited specifically for this project?	**0**
Of which, indicate the number of men:	0

D Gender Aspects

5. **Did you carry out specific Gender Equality Actions under the project?**

O	Yes
X	No

6. **Which of the following actions did you carry out and how effective were they?**

		Not at all effective				Very effective
❏	Design and implement an equal opportunity policy	O	O	O	O	O
❏	Set targets to achieve a gender balance in the workforce	O	O	O	O	O
❏	Organise conferences and workshops on gender	O	O	O	O	O
❏	Actions to improve work-life balance	O	O	O	O	O
O	Other:					

7. **Was there a gender dimension associated with the research content – i.e. wherever people were the focus of the research as, for example, consumers, users, patients or in trials, was the issue of gender considered and addressed?**

O Yes- please specify

X No

E Synergies with Science Education

8. **Did your project involve working with students and/or school pupils (e.g. open days, participation in science festivals and events, prizes/competitions or joint projects)?**

O Yes- please specify

X No

9. **Did the project generate any science education material (e.g. kits, websites, explanatory booklets, DVDs)?**

O Yes- please specify

X No

F Interdisciplinarity

10. **Which disciplines (see list below) are involved in your project?**

X	Main discipline[13]: All fields of FP7		
O	Associated discipline[13]:	O	Associated discipline[13]:

G   Engaging with Civil society and policy makers

11a	**Did your project engage with societal actors beyond the research community?** *(if 'No', go to Question 14)*	O	Yes
		X	No

11b	**If yes, did you engage with citizens (citizens' panels / juries) or organised civil society (NGOs, patients' groups etc.)?**		
	O No		
	O Yes- in determining what research should be performed		
	O Yes - in implementing the research		
	O Yes, in communicating /disseminating / using the results of the project		

11c	**In doing so, did your project involve actors whose role is mainly to organise the dialogue with citizens and organised civil society (e.g. professional mediator; communication company, science museums)?**	O	Yes
		O	No

12.	**Did you engage with government / public bodies or policy makers (including international organisations)**		
	O No		
	O Yes- in framing the research agenda		
	O Yes - in implementing the research agenda		
	O Yes, in communicating /disseminating / using the results of the project		

13a	**Will the project generate outputs (expertise or scientific advice) which could be used by policy makers?**		
	O Yes – as a **primary** objective (please indicate areas below- multiple answers possible)		
	O Yes – as a **secondary** objective (please indicate areas below - multiple answer possible)		
	O No		

13b	**If Yes, in which fields?**

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[13] Insert number from list below (Frascati Manual).

Agriculture	Energy	Human rights
Audiovisual and Media	Enlargement	Information Society
Budget	Enterprise	Institutional affairs
Competition	Environment	Internal Market
Consumers	External Relations	Justice, freedom and security
Culture	External Trade	Public Health
Customs	Fisheries and Maritime Affairs	Regional Policy
Development Economic and Monetary Affairs	Food Safety	Research and Innovation
Education, Training, Youth	Foreign and Security Policy	Space
Employment and Social Affairs	Fraud	Taxation
	Humanitarian aid	Transport

13c	**If Yes, at which level?**		
	○ Local / regional levels		
	○ National level		
	○ European level		
	○ International level		

H   Use and dissemination

14. How many Articles were published/accepted for publication in peer-reviewed journals?	**0**
To how many of these is open access[14] provided?	**0**
How many of these are published in open access journals?	**0**
How many of these are published in open repositories?	**0**
To how many of these is open access not provided?	**0**
Please check all applicable reasons for not providing open access:	
❑ publisher's licensing agreement would not permit publishing in a repository ❑ no suitable repository available ❑ no suitable open access journal available ❑ no funds available to publish in an open access journal ❑ lack of time and resources ❑ lack of information on open access ❑ other[15]: ……………	

15. How many new patent applications ('priority filings') have been made? *("Technologically unique": multiple applications for the same invention in different jurisdictions should be counted as just one application of grant).*	**0**

16. Indicate how many of the following Intellectual Property Rights were applied for (give number in each box).	Trademark	**0**
	Registered design	**0**
	Other	**0**

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17. **How many spin-off companies were created / are planned as a direct result of the project?**	**0**
Indicate the approximate number of additional jobs in these companies:	**0**

18. **Please indicate whether your project has a potential impact on employment, in comparison with the situation before your project:**

❏	Increase in employment, or	❏	In small & medium-sized enterprises
❏	Safeguard employment, or	❏	In large companies
❏	Decrease in employment,	X	None of the above / not relevant to the project
❏	Difficult to estimate / not possible to quantify		

19. **For your project partnership please estimate the employment effect resulting directly from your participation in Full Time Equivalent (*FTE = one person working fulltime for a year*) jobs:**	*Indicate figure:*
Difficult to estimate / not possible to quantify	X

I   Media and Communication to the general public

20. **As part of the project, were any of the beneficiaries professionals in communication or media relations?**

     X   Yes   O   No

21. **As part of the project, have any beneficiaries received professional media / communication training / advice to improve communication with the general public?**

     O   Yes   X   No

22 **Which of the following have been used to communicate information about your project to the general public, or have resulted from your project?**

❑	Press Release	❑	Coverage in specialist press
❑	Media briefing	X	Coverage in general (non-specialist) press
❑	TV coverage / report	❑	Coverage in national press
❑	Radio coverage / report	❑	Coverage in international press
❑	Brochures /posters / flyers	X	Website for the general public / internet
❑	DVD /Film /Multimedia	X	Event targeting general public (festival, conference, exhibition, science café)

23 **In which languages are the information products for the general public produced?**

❑	Language of the coordinator	X	English
X	Other language(s)		