

UNDP/GEF-China
National Capacity Needs Self-assessment for Global Environmental Management
Sub-project on Cross-Cutting Areas

**National Capacity Self-Assessment Report
on Cross-Cutting Areas of Protecting Biodiversity,
Addressing Climate Change and Combating Desertification**

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Task Force for NCSA of Cross-Cutting Areas

Beijing, The People's Republic of China
April 2005,

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Appendix 1

Introduction to the Task Force for NCSA in Cross-Cutting Areas

Abbreviations

CDM	Clean Development Mechanism
GEF	The Global Environmental Facility
NCSA	National Capacity Needs Self-assessment for Global Environmental Management
UNCBD	The United Nations Convention on Biological Diversity
UNCCD	The United Nations Convention to Combat Desertification
UNDP	The United Nations Development Programs
UNFCCC	The United Nations Framework Convention on Climate Change

National Capacity Self-Assessment Report on Cross-Cutting Areas of Protecting Biodiversity, Addressing Climate Change and Combating Desertification

1. Brief introduction to the sub-project on NCSA crossing-cutting areas

1.1 Background

1.1.1 Cross-cutting issues

Biodiversity, climate change and desertification can all be characterised as complex and integrated environmental issues due to their occurrence, changing effects and impacts. The complex and integrated characteristics determine that, on the one hand, each issue intrinsically has its own specific behaviour and outlook, and on the other hand, each issue extrinsically interacts and inter-relates with the other two issues.

Long-term scientific research indicates that to comprehend all aspects of the phenomena and their working mechanisms of the above-mentioned serious environmental issues, knowledge about one single discipline is insufficient. Synergized and integrated multidisciplinary knowledge is necessary.

Human activities in the past also show proof that those serious global environmental issues cannot be dealt with independently. They need coordination and collaboration between and among efforts of various initiatives.

Because all things are generally inter-related, “cross-cutting areas” and “synergies” often exist in relationships. Therefore, in understanding and addressing these environmental problems under the three conventions, as a result of extensions and overlap of understanding policies and actions from the different perspectives of each, inevitably cross-cutting issues will form during implementation. Specific cross-cutting areas emerge for attention in national implementation of capacity building under the conventions.

1.1.2 Development of cross-cutting issue in international societies

“Cross-cutting areas” and “synergy” are issues only recently recognised in efforts for the implementation of the three conventions. Over the past several years, these topics have appeared more frequently. One may observe this from two aspects:

Firstly, a number of international workshops on these topics were held. For example, a UNCBD / UNCCD joint working-group meeting was held in Bonn, Germany in May 1-2, 2001, the UNFCCC Workshop on Synergies and Cooperation with other Conventions was held in Espoo, Finland in July 2-4, 2003, and a workshop on “Forests and Forest Ecosystems: Promoting Synergy in the Implementation of the three Rio Conventions” was held in Viterbo, Italy in April 5-7, 2004.

Secondly, some international negotiations touched on the relevant issues in the conferences to the parties for implementing the three Conventions. However, compare with the attention received on those issues directly related to implementing the three Conventions, the attention paid to these topics or issues related to “synergy” is much lower. Such a situation clearly indicates the positioning of “cross-cutting area” and “synergy” issues in

international societies.

There are different views as to what constitute the issues of “cross-cutting areas” and “synergies”. In the mean time, there are no very clear or exact answers for a number of questions: How to identify cross-cutting areas? How to achieve synergy in the cross-cutting areas? Are synergies in the cross-cutting areas able to facilitate the implementation of the three Conventions with marked effectiveness? An important reason to promote “cross-cutting area” and “synergy” is to avoid duplicating of efforts so as to raise cost-effectiveness of funding resources. However, are synergies in cross-cutting areas able to really support the improvement of cost-effectiveness? At current stage, no one can give satisfactory answers to these questions. To answer these questions, a process of learning by doing is required. It is anticipated that the answers to these questions would be diverse, taking into account the differences at global, regional and country levels, and considering the different situations in different countries.

Reviewing the discussions in those relevant international workshops and the negotiations in the conventions to the parties for implementing the three conventions, issues about “cross-cutting areas” and “synergies” were touched on at international and country levels. At international level, the secretariats for the three conventions are expected to harmonise their efforts. At country level, national policies and their practice are expected to be fitted with each other. About the latter one, “synergy” was formulated according to specific problem and conditions. For example, the main purpose of the Viterbo workshop was to encourage local level actions for forests, forest ecosystems and their related applications and protections according to the obligations and commitments under UNCBD and UNCCD, so as to push forward synergies for implementing the three conventions more effectively.

It should be noted that emergence of “cross cutting areas” and “synergies” issues dose not simply rely on the characteristics of stages and the trend in the process of implementing the three Conventions. In discussion in relevant workshops and negotiated in those conferences to the parties for the three Conventions, “cross cutting area” and “synergy” issues also touched on the financial responsibilities and obligations of developed countries supporting developing countries so that the latter ones can enhance their capacities to implement the three Conventions. Discussions also touched on the wishes that some countries to simplify or integrate procedures and actions under different conventions. It is also mentioned that at international level, each convention emphasized more on its own objectives and actions and little coordination and collaboration.

It should be noted that with the emergence of “cross-cutting area” and “synergy” issues, all the parties to the three Conventions should equally take actions and address these issues. Moreover, in seeking the answers to the questions related to “cross-cutting areas” and “synergy” issues, due to their higher social and economic development and stronger capacities to deal with environment problems, the developed countries should and can serve as models for developing countries. At present, international consultations and action on these issues are still too few.

All in all, upon the emergence of “cross-cutting area” and “synergy” issues, very complicated contents already existed within these issues. Complexities and difficulties are expected in the learning-by-doing process regarding “cross-cutting areas” and “synergy” issues, including difficulties to identify cross-cutting areas.

1.1.3 Implementing conventions and capacity building in the cross cutting areas in China

UNCBD, UNFCCC and UNCCD are three international conventions related to global environmental and developmental issues. They guide and help to merge environment protection concerns into actions of socio-economic development. Implementing these conventions not only relates to environmental issues, but also to socio-economic development. Therefore, it is required to take systematic national actions and to develop

international cooperation under the framework of sustainable development.

China pays great attention on environment issues of biodiversity, climate change and desertification, and actively taking actions to implement the three Conventions. Under the sustainable development framework, China has integrated its efforts of dealing with these environment issues into national strategies, policies and actions for sustainable development. China actively involved in the establishment of UNCBD, UNFCCC and UNCCD, and developed wide international cooperation under the framework of the three Conventions. Just as seen in other countries, the realization for environment and development harmonization in China need a process of efforts. Furthermore, as a developing country that is experiencing high-speed socio-economic development, such a process inevitably will be a long one. It is well recognized by the international society that China has made active and effective efforts in such a process.

In order to enhance national actions for implementing the three Conventions and enhance her contributions to global environment benefits, China places emphasis to promote collaborated actions at both domestic and international level. National capacity building assessment in cross-cutting areas will be an important basis for China to effectively work with Global Environment Facility (GEF) and other international partners and to strengthen capacity building in cross-cutting areas and in aspects of collaborate actions.

1.2 Objectives

The objectives of this sub-project on cross cutting areas are:

- To facilitate the understanding about “cross cutting areas” and “synergy” issues, under UNCBD, UNFCCC and UNCCD and under the national framework of implementing the three conventions;
- To identify the emphases of capacity building in cross-cutting areas; and
- To propose, in cross-cutting areas, those capacity building orientations and contents in priority for a certain period henceforth, and to provide guidance for funding sources to support those capacity building activities in cross-cutting areas.

1.3 Implementation

“National Capacity Needs Self-assessment for Global Environmental Management” (NCSA) is a project funded by GEF. UNDP is responsible for project organization and implementation at the international level. On behalf of the Government of China, the International Department of the Ministry of Finance is the project coordination agency for the China project of NCSA. Closely working with other ministries and agencies in relation with UNCBD, UNFCCC and UNCCD, this agency also directly provides coordination for this sub-project, and jointly offers guidance for the implementation of the sub-project.

Through bidding procedure, a task force of senior experts with expertise of biodiversity, climate change and desertification areas was selected to carry out this sub-project, and to work out the assessment report. For more information about the task force, please see appendix 1.

1.4 Report Structure

This assessment report is composed of 5 sections. In the first section, some background information about the sub-project is introduced. In the second section, methodology that this sub-project applied is described. In the third section, the needs for capacity building under the three Conventions are reviewed. Those cross-cutting areas are identified in the fourth section. Finally, based on analyzing the bases already have and the barriers to be overcome, needs of capacity building in priority in five cross-cutting areas are presented.

2 Methodology and Working Procedures

The principles that this sub-project follows are intended to be simple and to be applicable, underlining the analyses and assessments based on the reports of other sub-projects of NCSA. By doing so, work within this sub-project is concentrated, and dealing with concrete matters relating to work is ensured.

For capacity building in cross-cutting areas, there is no designated contents that are well accepted internationally. Thus, the methodology and approaches for capacity building need assessments under the three Conventions cannot be completely followed. The most basic considerations in this sub-project are to sufficiently absorb the views and opinions from government sectors and from experts and to determine the contents of cross-cutting areas and relevant capacity building needs within them, based on the understanding about “cross-cutting area” and “synergy” issues and according to the awareness established in national capacity building need assessments under UNCBD, UNFCCC and UNCCD.

The working procedures that the task force have implemented during this sub-project are:

- (1) Formulating a work plan and an assessment report scheme;
- (2) Conducting deep desk-reviews on the reports of national capacity building need assessments under UNCBD, UNFCCC and UNCCD;
- (3) Discussing with UNCBD, UNFCCC and UNCCD related government officials, and working out the outline of the assessment report;
- (4) Drafting the assessment report of capacity building needs in cross-cutting areas;
- (5) Discussing with UNCBD, UNFCCC and UNCCD related government officials, and revising the assessment report; and
- (6) Finalizing the assessment report.

3 Brief introduction to the national capacity building needs under UNCBD, UNFCCC and UNCCD

3.1 Brief introduction to the national capacity building needs under the three Conventions

Through a process of assessment, national priority capacity building needs under UNCBD, UNFCCC and UNCCD were determined. A brief introduction is given here, and for more information in details, please refer to the full reports of national capacity building needs under UNCBD, UNFCCC and UNCCD.

3.1.1 National capability building needs under UNCBD

Based on thorough analyses and assessment, twelve areas in priority of capacity building were determined in the report of national capability building needs under UNCBD, including:

- Construction of related policies, laws, regulations and institutions;
- Identification, inventory and monitoring of biodiversity;
- *In situ* conservation of biodiversity;
- *Ex situ* conservation of biodiversity;
- Appropriate management of genetically modified organisms;
- Management and control of invasive alien species;
- Access to and benefit sharing from genetic resources and traditional knowledge;
- Scientific research, human resources and technology transfer;
- Publicity, education and public participation;

- Data management and information exchange;
- Capacity building of local government;
- Capacity building of non-government organizations.

3.1.2 National capability building needs under UNFCCC

Based on thorough analyses and assessment, eleven areas in priority and urgent needs of capacity building were determined in the report of national capability building needs under UNFCCC, including:

- Institutional and organizational capacity building;
- Creation and enhancement of enabling environment;
- China's national communication on climate change and national greenhouse gas inventory;
- National climate change program;
- Vulnerability and adaptation;
- Mitigation policy option assessment;
- Research and systematic observation;
- Technology development and transfer;
- Clean Development Mechanism (CDM);
- Education, training and public awareness;
- Information network and database.

Among them, the most urgent capacity building needs in the near term are as follows:

- Establishment of the CDM management center;
- Initiation of the second national communication, through which to enhance the national capacity in this regard.
- Formulation and development of national climate change strategy or national program, and policy studies with the aim of integrating climate change issues into the studies on national socio-economic development strategies and programs;
- Capacity for CDM project development and management;
- Development of integrated assessment models, and assessments on the mitigation options and mitigation technologies from social, economic, environmental and technological aspects;
- Further enhancement of the studies on adaptation to climate change;
- Enhancement of technology transfer, and development and implementation of pilot projects;
- Improvement of climate model development and application with regard to research and systematic observation;
- Enhancement of public awareness;
- Establishment and maintenance of integrated climate change information networks and databases.

3.1.3 National capacity building needs under UNCCD

Based on thorough analyses and assessment, nine areas in priority for capacity building were determined in the report of national capability building needs under UNCCD, including:

- To perfect institutions and to enhance management;
- To perfect laws and regulations, enhance law popularization, improve law implementing environment, and to strengthen law enforcement;
- To enhance program and project management to heighten benefits;
- To enhance human resources training;
- To enhance information sharing;
- To enhance scientific support capacity;
- To enhance capacity building in desertification monitoring;
- To enhance international cooperation;

- To improve negotiation capacity.

3.2 Common shared priority areas and their comparisons

The priority areas common to all the national capacity building needs assessment reports under the three Conventions include:

- Policies, regulations, infrastructure and coordination;
- Public awareness;
- Scientific research;
- Monitoring and assessment;
- Information sharing and dissemination.

However, having shared priority areas does not mean that within each category of these areas, the national capacity building needs under the three Conventions are the same. Therefore, specific comparisons about the contents in each of these areas are necessary.

(1) regarding policies, regulations, infrastructure and coordination, the following needs are identified for:

- UNCBD: improving laws, policies, regulations and technical standards; revising national strategies and action plans; integrating biodiversity protection into national development strategies and plans; improving the coordination mechanisms between and among government sectors for convention implementation at both national and local levels; making assessments on institutional needs in aspects of biodiversity protection, research, monitoring and management, and strengthening relevant capacity buildings.
- UNFCCC: carrying out studies on national strategies and plans, analyses linking national macro-economic policies and climate change issues, and studies for formulating and improving regulations and standards; improving the construction in aspects of policies and institutions for Clean Development Mechanism (CDM) activities.
- UNCCD: improving laws, policies and regulations of combating desertification; enhancing the construction of enforcement regime for those laws, policies and regulations.

(2) in public awareness, the following needs are identified for:

- UNCBD: working out and carrying out promotion and education plans; further bringing the initiatives of mainstream channels, media and volunteers into play, and therefore improving public awareness for decision makers, professionals and social public in various ways such as training, publicizing science and common promotion; implementing studies on establishing rules of and systems of public consulting and hearing for government decision making in aspects of biodiversity related affairs; carrying out studies on policies and mechanisms, such as those for basic public and private sectors involvement; enhancing training of human resources.
- UNFCCC: putting emphasis on public awareness of local level stakeholders (particularly local decision makers, business persons, research and development institutions and so forth) and general public; enhancing training of human resources.
- UNCCD: enhancing training and improving awareness for understanding and coordination of desertification issues; implementing systematic training for local decision makers in areas with severe desertification; strengthening the publicizing of those combating desertification laws; raising public awareness on desertification issues; carrying out large scale training for practical techniques dissemination, and widely applying those techniques; enhancing training of human resources.

- (3) in scientific researches, the following needs are identified for:
- UNCBD: further enhancing basic studies, including those on climate change impacts on biodiversity' strengthening technology development and applications; conducting policy studies; improving biodiversity research and protection institutions, including basic infrastructure and scientific research capacity.
 - UNFCCC: building up and promoting scientific research teams, and of multi-disciplinary climate change studies; strengthening those capacities for development and application of climate system models.
 - UNCCD: further enhancing basic studies; pushing forward resolving of key technical problems for combating desertification; improving science and technology (S&T) research and transformation of S&T achievements in combating desertification activities; establishing and improving the service systems of technique dissemination for combating desertification.
- (4) as regards monitoring and assessment, the following needs are identified for:
- UNCBD: reinforcing the construction and maintenance of those monitoring systems for biodiversity and important specie resources in various types of ecosystems and in nature protection areas of the country.
 - UNFCCC: implementing surveys and investigations on monitoring network resources in all climate system related sectors; assessing the spatial coverage of regional climate monitoring, and assessing the completeness of monitoring elements; undertake an implementing plan of climate system observation in China; enhancing the capacity for understanding and assessing climate change impacts.
 - UNCCD: strengthening the studies on aspects of indicator systems, methodologies and techniques for desertification monitoring and assessment; enhancing human resource training and improving monitoring capacity; improving techniques of desertification monitoring networks, and reinforcing applications of techniques of Global Positioning System, Geographical Information Systems and Remote Sensing (3S); further developing desertification assessment techniques; further enhancing international exchanges and technological cooperation in aspects of desertification monitoring.
- (5) in information sharing and dissemination, the following needs are identified for:
- UNCBD: building up and improving national biodiversity information network and system and all kinds of databases, better utilizing those existing databanks in all sectors and institutions in a coordination mechanisms; establishing data exchange and sharing mechanisms; enhancing and improving China's national biodiversity information clearing-house mechanism (CHM), and on such a basis building up stable and smooth channels for international information exchange.
 - UNFCCC: improving and maintaining those on-going national level websites; setting up channels for information collection; making studies for proposals on improving and/or updating on-going relevant statistical indicators; in aspects of management infrastructure and techniques, developing measures and approaches for information sharing.
 - UNCCD: pushing forward information sharing activities within the country from the starting point of building up China desertification information networks; establishing pilot demonstrations of desertification information exchange and sharing mechanisms at provincial and/or county levels, and setting up mechanisms for data and information updating, exchange and sharing in domestic regions; establishing pilot demonstrations of scientific data exchange and sharing mechanisms, and setting up such mechanisms with the support of on-site monitoring stations.

The above comparisons indicate that in the need for national capacity building under the

three Conventions, the specific contents present big differences even though they are in the same category of priority area. There are some reasons behind this. National capacity building efforts under the three Conventions place different emphases on different aspect and focus of convention implementation activities and of that stakeholders show concerns. Meanwhile, resources employed and obstacles to be overcome differ from one to another. This fact shows clearly that it is not appropriate to define the cross-cutting areas by only simply referring to the similar category of priority. In addition, it indicates that the process of linking together priority areas under different Conventions is not in itself able to satisfactorily meet the capacity building needs for the country implementing the three Conventions.

4 Identification of cross-cutting areas

4.1 Criteria for identifying the cross cutting areas

Apart from the self-assessment practices of national capacity building needs under the three Conventions, there are no direct bases such as international decision documents or the long-term domestic experiences to guide the determination of capacity building cross-cutting areas.

At the same time, because of the difference between countries, it is difficult to design a single set of criteria, which can be apply to all the corners of the world, for determining capacity building cross-cutting areas.

There are shared areas but with different emphases in national capacity building needs under each of the three Conventions, as shown in the analyses in section 3. This report will determine capacity building cross-cutting areas based on such, and with the further considerations to facilitate national mainstream activities for implementing the three Conventions and to promote synergy and efficiency.

It needs to be stressed that the synergy within those determined capacity building cross-cutting areas should not lead to any cost increase in activities of implementing each of the three Conventions. One of the important considerations for promoting “cross-cutting” and “synergy” is to raise cost-effectiveness in use of any available funding sources. Such source include not only those from international cooperation channels but also from domestic resources for implementing the three Conventions.

It should also be stressed that the cross-cutting areas and priorities determined in this report focus on the capacity building needs in only one period of time, and keep an open mind about capacity building needs and priorities in different time phases. Since any one project can only provide limited resource inputs and achieve limited outputs, doing so also reflects considerations that this report will guide GEF and other international funding organizations to select and support national capacity building projects.

4.2 Identification of the cross cutting areas

Based on the needs for national capacity buildings under the three Conventions, particularly the shared priority areas, the cross-cutting areas of capacity building proposed in this report are:

- (1) Policies, regulations, infrastructure and coordination;
- (2) Public awareness;
- (3) Science research (“science research” here referred to include researches in fields of natural science, humanities and social sciences);
- (4) Monitoring and assessment;
- (5) Information sharing and dissemination.

To determine the priorities in capacity building cross-cutting areas, the following aspects are considered in this report: (1) to develop capacity building in cross-cutting areas based on those national capacity building efforts under the three Conventions, and to ensure and facilitate the mainstream activities for implementing the three Conventions; (2) to seek synergy among national capacity building efforts under the three Conventions; (3) to be practical, i.e. to be capable of leading to specific issues and showing pilot demonstrations with good practices; and (4) to be able to enhance cost-effectiveness of using funding support, on the basis of the above three considerations.

5. Priorities of capacity building in cross-cutting areas

5.1 Policies, regulations, infrastructure and coordination

5.1.1 Bases

In order to implement UNCBD, UNFCCC and UNCCD, relying on her own resources and using the so-called “learning-by-doing” approach, China has gradually built up and improved her national-level infrastructure and mechanisms of coordination and management for implementing convention activities.

For UNCBD, in 1993, the Government of China approved establishment of a coordination mechanism the China UNCBD Implementation Coordination Group. This coordination mechanism, led by the State Environment Protection Administration and currently composed of 22 member Ministries and Agencies, is responsible for inter-ministerial coordination of affairs about biodiversity protection and management and of implementing UNCBD within the country.

For UNFCCC, in 1990, the Government of China established the National Climate Change Coordination Group, and later renamed it as the National Coordination Committee on Climate Change (NCCCC), with the National Development and Reform Commission (NDRC) as the lead agency. Currently, NCCCC is composed of 15 member Ministries and Agencies, and owns a standing office, the NCCCC Office in NDRC.

For UNCCD, after her signing UNCCD in 1994, the Government of China renamed the National Coordination Group on Combat Desertification that was established in 1991 the China National Committee for Implementing the United Nations Convention to Combat Desertification (CCIUNCCD) in international cooperation, so as to strengthen coordination & leadership in domestic desertification combating activities. Currently, CCIUNCCD is composed of 15 member Ministries and Agencies, and the State Forestry Administration acts as its lead agency.

Since their establishment, these national-level infrastructures have played key roles in organizing and guiding activities in aspects of involving China in international negotiations on global environment issues and of working out and coordinating relevant national policies and measures. Through formulating rules of official business on coordinating environment issue related countermeasures and setting up contacts between and among government sectors, national coordination mechanisms involved with multi-ministries and –agencies for implementing the three Conventions were built up preliminarily.

China has made continuous efforts to improve those infrastructures and coordination mechanisms, so as to push forward activities for and to enhance effectiveness of implementing the three Conventions. In such efforts, the “learning-by-doing” approach was followed.

There are considerable overlaps of ministry or agency members between and among above the three National Coordination Groups. Such a situation forms advantages for the Ministries and Agencies who are in overlaps to make integrated considerations on policy-making and taking actions to implement different Conventions, though those integrated considerations are still in an initial phase. In the meantime, because of this, the Government of China will not set up any new and higher-level “cross-cutting” and “synergy” infrastructure above the three National Coordination Groups.

To ensure national activities for implementation, China has big and relatively independent teams under each of the three Rio Conventions. Each team has large capacity building needs and large needs of financial support. While each carries out activities for implementing its specific convention, they also construct the bases of domestic activities for “cross-cutting” and “synergy” issues. However, team members who work across all three teams are few. This is a kind of reflection of those domestic activities for implementing the three Conventions at the current stage. With the enhancement of capacities within each team, team members will foster their understandings and methodologies, expand and coordinate their actions and activities, and therefore result in synergies in “cross-cutting” areas. If unbalance and/or over emphasized enhancement of policies and of teams in “cross-cutting” areas, the rational phase-by-phase arrangements will be unreasonably overdone, and thus bring about significant negative impacts on those domestic activities for implementing each of the three Conventions, including weakening the mainstream activities and specific financial support intensity for implementing each of the three Conventions.

Under the national framework for sustainable development, China, at both national and local levels, has formulated and enforced a number of laws, national development strategies and policies and regulations for protecting biodiversity, addressing climate change and combating desertification. Those laws, strategies, policies and regulations are still in a process of revision and improvement. With her socio-economic development, China wins recognition and reputation from the international society for her achievements in aspects of formulating and enforcing laws, strategies, policies and regulations. China GEF projects made their contributions to such a process by offering some financial and technical support.

5.1.2 Barriers and/or problems

- (1) The laws, policies and regulations at both national and local levels on protecting biodiversity, addressing climate change and combating desertification are not well developed and do not form a completed system in which all components mutually support each other. Moreover, the enforcement of those existing laws, policies and regulations is not strong enough.
- (2) Due to the impacts of sector by sector management regime of the country, the mechanisms at both national and local levels are still lacking or very weak in coordination among those government sectors who have roles for protecting biodiversity, addressing climate change and/or combating desertification
- (3) Local level capacity for formulating and improving laws, policies and regulations is weak. In the current context of the country, central government and related sectors guide and design national strategies, policies, rules, regulations, plans and schemes on protecting biodiversity, addressing climate change and combating desertification, and local governments are expected to follow up. In most provinces, local governments have not set up local systems of laws, policies and regulations according to specific local needs, and mostly copies those from central government and then have devised some specific regulations to enforce or implement those from central government.

- (4) Local governments are not active in environment protection activities. Most of the foci of local governments are on pursuing economic development as shown GDP indicators. To a large extent, activities on environment protection are often subordinate to the needs for local economic development.
- (5) Related institutions in local governments are not well developed and human resources are lacking. Local governments, especially at basic levels, have seldom set up specific institutions or arranged specific staff responsible for affairs of protecting biodiversity, addressing climate change or combating desertification. Related sectors at and below provincial level lack robust technical institutions or teams to provide support.
- (6) There is a lack of active exchange and interaction in activities and staff between and among the different institutions and teams for implementing the three Conventions.

5.1.3 Needs for capacity building

On the basis of enhancing specific capacity building for policies, regulations, infrastructure and coordination under the three Conventions, the needs for capacity building in cross-cutting areas are:

- (1) To reinforce the development of laws, regulations and policies at both state level and local level. Focusing on specific issues and specific targets, it is needed to strengthen the integration of more comprehensive considerations on protecting biodiversity, addressing climate change and combating desertification into further laws, regulations and policies, to push forward the formulation, development and interlinking and continuous improvement, and to gradually set up a complete regime in which these laws, regulations and policies support each other. In the mean time, starting from specific issues and focusing on specific regions and targets, it is needed to encourage and promote strengthening, at local level, construction of laws, regulations and policies on the bases of the local natural conditions and of socio-economic development characteristics.
- (2) To improve the coordination of management activities between and among administrations at both state and local levels. Starting from specific issues and focusing on specific regions and targets, it is needed to promote those administrations to have comprehensive understandings and considerations on protecting biodiversity, addressing climate change and combating desertification, and to push forward the coordination, within the current infrastructure regime for implementing the three conventions, of management activities between and among administrations.
- (3) To encourage local governments to play a more active role in environmental protection activities and to enhance local institutions and their capacities for technical support. Starting from specific issues and focusing on specific regions and targets, it is needed to promote local government in aspects of gradually deepening their understanding, reinforcing their capability of management and technical supports, and realizing the local balance between environment and development, in an approach of comprehensively understanding and dealing with the relations of environmental benefits with social benefits, and especially with economic benefits in the efforts of protecting biodiversity, addressing climate change and combating desertification.
- (4) To enhance capacity of the infrastructure and teams that support implementing the three Conventions. Focusing on specific issues and targets, it is needed to promote those team members, who support implementing UNCBD, UNFCCC and UNCCD, to strengthen their comprehensive understandings on, and expansion and collaboration of their activities of protecting biodiversity, addressing climate change and combating desertification. In ways of formulating an expert roster etc., the communications among

and involvement of activities from different teams that support implementing the three Conventions should be enhanced, including fostering more experienced experts that can contribute to international negotiation and provide more technical support.

5.2 Public awareness

5.2.1 Bases

One key point in pushing forward sustainable development of the country is to raise public awareness and to guide rational public activities. Improving well-balanced relationship between socio-economic development and environment protection has been a concept widely accepted by the social public, and moreover, and has been gradually apparent in the common actions of the Chinese people.

In recent years, in the trend of information society development and globalization and under the framework of sustainable development, public awareness in China on protecting biodiversity, addressing climate change and combating desertification has been raised much more than previously. Such a progress effectively promotes improvement of social behaviors and activities within the national market economic system, and exerts profound impacts on socio-economic development. For example:

- (1) Government agencies and social organizations have undertaken many actions and activities through various websites, media, publications etc. to promote popularization of science and dissemination of knowledge to the general public. Doing this has resulted in improved social understanding on environment protection.
- (2) Education for environmental protection began to be included in the mainstream education system. There have been some vivid examples, but the number of such examples is still limited.
- (3) Being guided and orientated in social requirements and public activities, general public are absorbing the basics of environment protection education through various channels.

5.2.2 Barriers and/or problems

- (1) The general public still lacks a good understanding about relevant international environmental conventions and about related environmental issues. Many, if not most, people poorly understand the exact meaning of and detail of those conventions, and the exact relevance to their life and themselves. This will of course inevitably influence the extent of social public involving in and contributing to national implementation of those conventions on biodiversity, climate change and desertification issues.
- (2) In regions with backward socio-economic development, often the regions where environment conditions are fragile, enhancement of public awareness is given less attention, particularly on balancing the relationship between development and environment in basic local levels. Furthermore, current promotions mostly emphasize the possible or potential harms due to imbalance, and provide local people less operational alternative solutions. It is key how to link environment issues with their benefits in more approaches.
- (3) Promotion of public awareness lacks specific funding support. Owing to short of funds, many activities can hardly be continued.
- (4) Promotion and dissemination activities lack wide channels and diversified forms. Meanwhile, current promotion is not systematically organized and lacks effective support for more dissemination approaches.
- (5) Awareness and capacity for public involvement are still lacking. The reasons are mainly because:

- policies and mechanisms to encourage public involvement are not well developed;
- the channels for public involvement are not smooth; social atmosphere is not well developed for effective public monitoring; laws, policies and regulations requiring government agencies to have consultations with the public for their decision making related to environment issues are not well developed and improved.
- Limited by factors such as education level and capacity, the general public in many regions, particularly regions with backward socio-economic development and often being significantly influenced with or from problems of biodiversity, climate change and desertification problems, lacks interest and awareness for public involvement in managing public affairs. This negatively influences on the quality and effectiveness of public involvement.

5.2.3 Needs for capacity building

Capacity building to improve public awareness in cross-cutting areas is the extension of the enhancement of capacity building under the three Conventions. Based on the latter one, the capacity building needs to improve public awareness in cross-cutting areas include:

- (1) To set up and improve the connections between and among those contents and activities of capacity building for public awareness under the three conventions. Starting from specific issues and focusing on specific regions and targets, it is needed to extend and connect those contents and activities of capacity building of public awareness under the three Conventions, and to gradually strengthen public understanding on those contents and activities related to the three Conventions and on the obligations and responsibilities they should undertake themselves, so as to enhance the specific public involvement.
- (2) To strengthen environment education via mainstream channels of education. Starting from specific issues and focusing on specific regions and targets, it is needed to promote environment education via mainstream channels of education, such as compulsory education. By doing so, demonstration could be provided for further wide promotion of environment issues through mainstream educational channels in all regions of the country.
- (3) To promote public awareness in regions with backward socio-economic development conditions based on the national actions and national support to the infrastructure construction in those regions, such as remote education and widely spread compulsory education.
- (4) To improve laws and policies for public involvement, to enhance public understanding of rule-by-law for environmental protection, and to strengthen the guidance for public involvement actions.
- (5) To enhance the involvement of various media, especially mainstream media, in environment promotion on protecting biodiversity, addressing climate change and combating desertification.
- (6) To systematically strengthen science popularization and knowledge dissemination in the whole society.

5.3 Scientific research

It needs to be indicated that “scientific research” here referred to include research in fields of natural sciences, humanities and social sciences.

5.3.1 Bases

To different extents, the three conventions all emphasize important roles of science and technology (S&T) to facilitate implementing the conventions, and illustrate with specific articles and items on S&T cooperation, including collecting, analyzing and exchanging information, carrying out S&T activities and technical transfers, setting up S&T committees as subsidiary bodies to the conventions to provide necessary S&T information and suggestions related to convention activities. Thus, carrying out S&T is one of the basic activities that all the three conventions have defined.

Fields for scientific research under the three Conventions are not only independent but also inter-related as well as interactive. Since mid-1950s, Chinese scientists have clearly pointed out many times that further development of environment related sciences need support of integrated studies; that advantage of integrated multi-disciplinary studies should be sufficiently applied; and that the importance of cooperation in all aspects between and among natural sciences, technology research and development and social sciences should be stressed. Since the mid 1980s, in her research programs on global and regional environment issues, China has implemented a series of projects based on multi-disciplinary and integrated studies specifically relevant to biodiversity, climate change and desertification.

In recent years, with GEF funding, China has worked on the national report on implementing UNCBD including research about national conditions, national strategies and action plans. China also completed and submitted her Initial National Communication on Climate Change, and for doing so, organized researches in cross-cutting fields across many specific areas and sectors such as on climate change, agriculture, forestry, transportation, construction and energy. Upon the request from and with very limited funding from UNCCD, China has worked out and submitted a progress report on implementing UNCCD with input from many sectors. This report more or less covered some researches in cross cutting areas.

Focusing on politics, economics, culture, law, and morality issues, humanities and social science more directly provide services for policy-making and social-system construction. On some specific issues related to protecting biodiversity, addressing climate change and combating desertification, China has developed research capabilities in humanities and social sciences to various extent, including some relatively stable research teams, some research results and research bases and gradually expanded international cooperation. Researches in humanities and social science in China started to touch some cross-cutting issues, but more often the issues extending from one research field to another, still lack comprehensive or thorough integrated study. Compared to nature sciences development on protecting biodiversity, addressing climate change and combating desertification, capacities in humanities and social sciences are much weaker.

5.3.2 Barriers and/or problems

China is a developing country. As such, the basis of scientific research, especially of humanities and social sciences faces several weaknesses:

- (1) Lack of comprehensive and systematic organization. On cross-cutting and integrated studies on protecting biodiversity, addressing climate change and combating desertification, China lacks comprehensive and systematic organization in aspects of strategy, planning, institution development, team building and project arrangement, and research teams is poorly distributed and not well organized. This has negative impacts on making breakthroughs in some key issues and on disseminating and applying research achievements.
- (2) Restraints caused by the current research system. Those limited teams

endeavoring to undertake cross-cutting and integrated studies are mainly distributed in national-level academic institutions and universities. However, under ministries or government agencies, there are also a number of research institutions. In many aspects, the researches of these latter ones over-emphasize the shades of academic disciplines and of sectors. This results in the limitation of their involvement in and contribution to cross-cutting studies.

- (3) Prejudices within academic disciplines. On one hand, researchers in the humanities and social sciences think that addressing climate change, protecting biodiversity and combating desertification are within the scope of nature sciences and are barely related with humanities and social science, and therefore, seldom touch on these issues. On the other hand, researchers of nature sciences think that humanities and social sciences are “soft sciences”. Such prejudice of academic disciplines also results in a lack of cross-cutting and integration research between nature science and humanities and social sciences in aspects of addressing climate change, protecting biodiversity and combating desertification.
- (4) Lack of leading researchers and unstable research teams. Though there are relatively a large number of research teams addressing climate change, protecting biodiversity and combating desertification, too few leading researchers deal with cross-cutting and integrated studies. Backbone teams have not been formed, and all several is unstable. Researchers capable of doing multi-disciplinary and integrated studies are particularly in short supply.
- (5) Insufficient source of funding.
- (6) Insufficient support in aspects of monitoring, assessment and information sharing, which are basic to meet research requests.
- (7) Insufficient capacity for international cooperation. Especially in aspect of humanities and social sciences, researchers lack relevant studies and research outputs to support international dialogue.

5.3.3 Needs for capacity building

China possesses a vast territory in which natural conditions show significant diversity and socio-economic development is impressively rapid but with remarkable imbalance among regions. In such a national context, it is especially important for China to strengthen scientific research capacities on protecting biodiversity, addressing climate change and combating desertification. Based on this, the capacity building needs for cross-cutting research and integrated studies includes:

- (1) Strengthening capacity for basic scientific research linkage. On specific requests of national sustainable development, choose key research areas and appropriate starting points and establish synergies among scientific studies on protecting biodiversity, addressing climate change and combating desertification, and to develop cross-cutting and integrated research in selected typical regions and on typical cases, especially the multi-disciplinary studies in areas between and among natural sciences, humanities and social sciences, for example, the multi-disciplinary studies on regional ecosystems or regional environment systems which include human activities and their impacts.
- (2) Enhancing the service of scientific research for national sustainable development. It is needed, through promoting cross-cutting and integrated studies, especially the multi-disciplinary studies in areas between and among natural sciences, humanities and social sciences, to strengthen the capacities of transferring research outputs and outcomes into policies and actions for national sustainable

development. This includes providing operational proposals and schemes of resolution, and to offer direct and effective services for both state level and local level efforts in making and enforcing law and policy, economic evaluation, reforming management regime, etc.

- (3) Emphasize fostering human resources who possess multi-disciplinary and comprehensive knowledge, to encourage inter-exchange of those human resources among different sectors, institutions and agencies, to push forward the reorganization of those human resources, and to concentrate those human resources to support cross-cutting and multi-disciplinary studies.
 - To foster human resources, education agencies and academic institutions should follow up the trends of scientific progress and to emphasize the development of basic sciences, and to enhance fostering human resources in cross-cutting areas. In all sectors, institutions and agencies, great attention should be paid to cross-cutting and multi-disciplinary studies and forming the basic teams that can undertake cross-cutting and multi-disciplinary studies.
 - Under the pre-conditions of keeping relatively stable teams, it is necessary to push forward academic institutions (including institutions belonged to all ministries and to industry sectors) to encourage inter-exchanges of researchers in various ways, and by doing so, to create cross-fertilization of academic ideas and to facilitate cross-cutting and integration of the knowledge in various subjects.
 - Though China possesses a number of academic institutions, most of them have narrow research scopes. It is necessary, for the development of cross-cutting and integrated studies, to reorganize human resources and facilitate the establishment and development of small-size and efficient key laboratories and research centers with multi-disciplinary scope(s).
- (4) To remove prejudice that researchers have towards other disciplines, it is needed to promote dialogue between and among researchers from natural sciences, humanities and social sciences, to strengthen researchers understanding about other disciplines and share their understanding, and to facilitate the establishment of those basic conditions for cross-cutting and integration between and among natural sciences, humanities and social sciences. Meanwhile, focusing on specific issues, it is necessary to push forward researchers from natural sciences, humanities and social sciences to work together within joint research projects.
- (5) Expand international cooperation, and to improve research methodologies and approaches.

5.4 Monitoring and assessment

5.4.1 Bases

Monitoring and assessment are the bases for understanding and addressing significant environmental issues of biodiversity, climate change and desertification, and one of the basic supports for establishing analysis methodologies and tools and making predictions.

As indicated in the self-assessment reports on capacity building needs under the three conventions, China has had some preliminary activities in aspects of monitoring and assessment on biodiversity, climate change and desertification issues. Such activities include:

- (1) Support from operational business, science research and education. On one side, a number of national-, provincial- and local-level organizations (mainly research institutions) implemented many specific monitoring and assessment activities at all levels with targets on biodiversity, climate change and desertification issues.

- Preliminary preparations in aspects of human resources, techniques and equipment were thus realized. On other side, some universities and colleges which have set up majors related to biodiversity, climate change and desertification issues may provide supports for necessary potential human resources.
- (2) Support from monitoring sites. Several national-, provincial- and local-level monitoring site-based networks and a number of scientific experimental sites have preliminarily been established for biodiversity, climate change and desertification issues. However, specific indicators for monitoring must be identified and observation techniques and standards need to be upgraded.
 - (3) Support from international cooperation. In the past 20 years, international cooperation in aspects of monitoring and assessment has advanced related activities in China.

5.4.2 Barriers and/or problems

- (1) The overall level in aspects of monitoring is low. In China, modern monitoring activities have only recently been launched. Currently, those teams for monitoring belong to single different agencies or organizations, monitoring networks are not well developed, instruments and equipment are still insufficient and out of date, methodologies and techniques need to be updated, monitoring indicators need to be agreed upon, improved and standardized. The monitoring systems under each of the three conventions are in different phases of development. The above situations are not favorable to implementing collaborative or combined monitoring on biodiversity, climate change and desertification issues. Moreover, the international efforts of monitoring biodiversity, climate change and desertification remain rather independent.
- (2) Assessment standards and assessment systems are not well developed. At present, the assessment standards and assessment systems for respectively biodiversity, climate change and desertification issues are not well developed, and standards are not generally applied. Furthermore, attentions from one assessment field to other possibly and/or potentially related fields and to the impacts by other fields are not enough. In such a context, it is difficult to formulate integrated assessment standards and systems for those issues.
- (3) Funding for monitoring and assessment is inadequate and human resources are in short supply. As a developing country, China can hardly provide large sums of funding for monitoring activities, which is long-term, basic and expensive. In recent years, this situation has changed positively. However, funding at current levels for monitoring still cannot sufficiently meet the requirements either for implementing the three conventions or for national development. Systematic activities in aspects of monitoring and assessment on biodiversity, climate change and desertification issues are still at a starting point.
- (4) Current monitoring and assessment systems largely lack components about and services for socio-economic development. Because environmental issues of biodiversity, climate change and desertification bring about significant impacts on socio-economic activities handicap decision making and enforcement in socio-economic development at all levels.
- (5) It is imperative to enhance international cooperation. This gap shows itself in three aspects. Firstly, a lack of cooperation funding, which results in difficulties for setting up cooperation frameworks and platforms, for introducing and disseminating methodologies and techniques that could be acquired from international society. Secondly, there is a lack of an effective organizational system to support developing monitoring and/or assessment projects, which results in scattering of cooperation

resources. Thirdly, there is a lack of playing a leading role in international cooperation of regional monitoring and assessment, which creates negative influences for China to make more global and regional contributions in aspects of monitoring and assessment, taking into account that China is a big developing country that is influenced by other countries and transfers influences other countries through natural processes and human activities.

5.4.3 Needs for capacity building

With gradual development of monitoring and assessment on biodiversity, climate change and desertification issues, it is necessary to launch and develop comprehensive monitoring and assessment. Considering the current level reached in international activities and the current stage of domestic work, it is hard for the capacity of comprehensive monitoring and assessment to exceed focusing on individual environment issues. Therefore, capacity building in this aspect can only facilitate the launch of relevant domestic work. Capacity building needs in aspects of comprehensive monitoring and assessment include:

- (1) To strengthen demand and demonstration. Starting from specific issues and focusing on specific regions and targets, while undertaking monitoring and assessment on one of environment issues about biodiversity, climate change or desertification, it is needed to promote the possible consideration of associated activities on the other two conventions, for example, with the methodologies of comprehensively addressing regional ecosystems or regional environment systems in which include human activities and their impacts.
- (2) To enhance capacity building for comprehensive monitoring and assessment. Starting from specific issues and focusing on specific regions and targets, it is needed on the one hand to establish and improve indicators, standards and regimes to support monitoring and assessment on biodiversity, climate change or desertification, to push forward comprehensive considerations and improvements of indicators and standards within different monitoring and assessment regimes, and on the other hand, to strengthen construction of infrastructure, software and hardware for monitoring and assessment, and to develop and improve methodologies and techniques for monitoring and assessment. In the above two regards, it is needed to include establishing socio-economic monitoring and assessment regimes and enhancing relevant capacity.
- (3) To reinforce team building and improvement for monitoring and assessment. Focusing on specific issues, in the design and execution of monitoring and assessment on biodiversity, climate change or desertification, it is needed to facilitate those professionals to have comprehensive understandings on these issues.
- (4) To enhance capacities for international cooperation. While participating in international activities of monitoring and assessment on biodiversity, climate change or desertification, it is needed to strengthen capacity for participating in international activities for comprehensive monitoring and assessment.

5.5 Information sharing and dissemination

5.5.1 Bases

China pays great attention to national sustainable development. Though her economic development needs more resource inputs, China takes firm actions, including facilitating and supporting information capacity building, for implementing international environment conventions. The bases of information capacity building in cross-cutting area is built up in such a process.

(1) Bases of information capacities at national-level

- Communication and network capacities. Both wire and wireless communication developed very rapidly in China. High-speed optical-fiber networks have extended to county-level, and computer network capacity began to extend to rural areas. Those basic infrastructure construction activities have provided favorable conditions for information collection and dissemination.
- More foci are gradually put into studies on and development of relevant standards. However, the progress in this aspect is limited.

(2) Bases at related sectors

- Information resources. As indicated in the self-assessment reports on capacity building needs under the three Conventions, there are different kinds of information resources, albeit limited, for nationally implementing convention activities, including information collection systems and databases.
- Equipment. Both in government sectors and research institutions, the basic capacity of infrastructure and equipment have been developed to some extent for information management, dissemination and application. However, supportive capacity and service capacity of the software component and hardware component and capacity as a whole integrated system are still low.
- Human resources. There are, to some extent, human resources in government sectors and research institutions to support information collection, management and dissemination. However, the structure of those human resources is not well balanced.

5.5.2 Barriers and/or problems

Based on the information capacity building under each of the three Conventions, there are still a series of barriers to information sharing and dissemination in the cross cutting areas.

- (1) Requirements for information capacity building are not very clear. The objectives and tasks are clear in aspect of information under each of the three conventions, and therefore there are clear relevant requirements for information capacity building under the conventions to guide implementation. However, information capacity building in cross-cutting area can not be just the mosaic of all those needed under each of the three conventions, but should be for serving higher level integrated information and for facilitating finding resolutions about those issues in cross-cutting areas. Since the issues to be addressed in cross-cutting areas are not clear the results in the information needs are also not clear.
- (2) It is difficult to construct a general system of information capacity due to lack of coordination and cooperation specifically on cross-cutting areas. China possesses vast territory and diverse natural environmental components. Thus, a general integrated system of information capacity must be build up based on the gradual enhancement of coordination and cooperation between and among mechanisms of implementing each convention. At present, one can hardly find a single institution that can shoulder such a responsibility.
- (3) Standards are not well developed. Firstly, at both national and sector levels, there are no general standards on information affairs. Though some standards were issued within some specific fields, the country has not accepted them as generally applied. Even in the same field, such standards still lack the same restrictions under different government sectors, or relatively independent standards are still applied in different sectors. Secondly, the country lacks information sharing policies. Currently, there are no such of policies being issued. Therefore, with the conditions of information sharing being difficult within all specific fields, one cannot optimistically expect to easily realize information sharing between and among different fields and sectors.

- (4) Understanding about information capacity building in cross-cutting areas is insufficient. Within the scopes of protecting biodiversity, addressing climate change, combating desertification or their cross-cutting areas, almost all issues are interconnected, and whichever issue on science or on policies or measures to deal with specific issues will connect with other issues. Owing to insufficient research and specific actions, staff do not reach high enough level of understanding about information capacity building in cross-cutting areas.
- (5) There is no platform to support information transfer, exchange and service in cross-cutting areas. A fact is that even under the three Conventions, such kinds of information platforms are inadequate. The supports for establishing such platforms in cross-cutting areas are insufficient.
- (6) Human resources for information collection, management, application and service are inadequate. Human resources are one of the key supports for information capacity building in cross-cutting areas, there should be teams with comprehensive capabilities and with specific knowledge and skills about information technology and about more aspects of cross-cutting areas. Currently, human resources that can meet such a requirement are in short supply.

5.5.3 Needs for capacity building

On the bases of strengthening information capacity building under each of the three conventions, the needs for information capacity building in the cross cutting areas include:

- (1) To make clear the relationship and reasonable work allocation between and among information capacity building within cross-cutting areas and under the three conventions, and to clearly understand the demands for information capacity building within cross-cutting areas. There are close linkages between the information capacity building at comprehensive level and that at specific issue level. However, such linkages could not be used as the reasons for their substitution with each other. Therefore, starting from specific issues and focusing on specific regions and targets, it is needed to explore aspects of determining the functional roles and their relationship of the information capacity building at the above mentioned two levels, screening information demands, and formulating specific regimes of criteria and of standards.
- (2) To establish the systems to support information acquisition. On the bases of the systems under the three conventions to support information acquisition, starting from specific issues and focusing on specific regions and targets, it is needed to supplement more necessary types of information, and to improve information acquisition systems.
- (3) To study and develop coordination mechanisms for collecting comprehensive information. Starting from specific issues and focusing on specific regions and targets, it is needed to carry out studies on and develop coordination mechanisms for collecting comprehensive information.
- (4) To facilitate the establishment of favorable environment for developing information sharing policies. On the basis of absorbing international experiences, and launching from specific issues and addressing specific targets, it is needed to promote the efforts for formulating information sharing policies at both state and agency level.
- (5) To establish information network systems. Starting from specific issues and focusing on specific regions and targets, it is needed to study and establish information network systems for cross-cutting issues, and to explore the ways to realize information collection, management, sharing service and development based on distributed information resources and in a “physically distributed and logically unified” approach.

Such systems may be composed of unified regimes of criteria and of standards, meta-data databanks, software and hardware systems for information collection, management, sharing service and development, and the professional teams to support information management, development and application, and sharing services.

Appendix 1

Introduction to the Task Force for NCSA in Cross-Cutting Areas

The assessment of NCSA in cross-cutting areas is carried out by a task force composed of senior experts who have rich experiences in fields related to biodiversity, climate change and desertification issues.

The task force for NCSA in cross-cutting areas accepts the guidance from the International Department of the Ministry of Finance and from other ministries and agencies related to UNCBD, UNFCCC and UNCCD, and sufficiently absorbs their suggestions and comments.

Task Force Members

Name	Organization	Role in Task Force
WEN Gang	Institute of Atmospheric Physics, Chinese Academy of Sciences (CAS)	Team Leader
LIN Hai	National Natural Science Foundation of China	Member
CHEN Panqin	Bureau of Science and Technology for Resources and Environment, CAS	Member
MA Zhong	School of Environment and Economics, Renmin University	Member
REN Qingshan	School of Environment and Economics, Renmin University	Member
PAN Jiahua	Research Center of Sustainable Development, Chinese Academy of Social Sciences	Member
SUN Jiulin	Institute of Geographic Sciences and Natural Resources, CAS	Member
ZHOU Guangsheng	Institute of Botany, CAS	Member
XU Jianhui	CAS Website Support Body	Member