GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

Naoko Ishii
CEO and Chairperson

July 18, 2014

Dear Council Member:

UNDP as the Implementing Agency for the project entitled: ***China: Enabling China to Prepare Its Third National Communication (3NC) and Biennial Update Report to the UNFCCC***, has submitted the attached proposed project document for CEO endorsement prior to final approval of the project document in accordance with UNDP procedures.

The Secretariat has reviewed the project document. It is consistent with the proposal approved by Council in November 2012 and the proposed project remains consistent with the Instrument and GEF policies and procedures. The attached explanation prepared by UNDP satisfactorily details how Council's comments and those of the STAP have been addressed. I am, therefore, endorsing the project document.

We have today posted the proposed project document on the GEF website at www.TheGEF.org. If you do not have access to the Web, you may request the local field office of UNDP or the World Bank to download the document for you. Alternatively, you may request a copy of the document from the Secretariat. If you make such a request, please confirm for us your current mailing address.

Sincerely,

Naoko Ishii

Attachment: GEFSEC Project Review Document
Copy to: Country Operational Focal Point, GEF Agencies, STAP, Trustee

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REQUEST FOR CEO ENDORSEMENT

PROJECT TYPE: FULL-SIZED PROJECT
TYPE OF TRUST FUND: GEF TRUST FUND

For more information about GEF, visit TheGEF.org

PART I: PROJECT INFORMATION

Project Title: Enabling China to Prepare Its Third National Communication (3NC) and Biennial Update Report to the UNFCCC			
Country(ies):	CHINA, People Republic	GEF Project ID:[1]	4882
GEF Agency(ies):	UNDP	GEF Agency Project ID:	5032
Other Executing Partner(s):	National Development and Reform Commission (NDRC)	Submission Date:	28 May 2014
GEF Focal Area (s):	Climate Change	Project Duration(Months)	48
Name of Parent Program (if applicable): ➢ For SFM/REDD+ ☐ ➢ For SGP ☐	N. A.	Agency Fee ($):	728,000

A. FOCAL AREA STRATEGY FRAMEWORK[2]

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Trust Fund	Grant Amount ($)	Co-financing ($)
CCM-6 CD-5	Adequate resources allocated to support National Communication enabling activities under the Convention	• China received GEF support for 3NC preparation. • China's 3NC completed and submitted to the UNFCCC • China Biennial Update Report completed and submitted to the UNFCCC	GEFTF	6,920,000	800,000
Project Management Cost_			GEFTF	360,000	100,000
		Total Project Costs		7,280,000	900,000

B. PROJECT FRAMEWORK

Project Objective: Strengthened capacity in integrating climate change concerns into national and sectoral development priorities while fulfilling obligations to the UNFCCC						
Project Component	**Grant Type**	**Expected Outcomes**	**Expected Outputs**	**Trust Fund**	**Grant Amount ($)**	**Confirmed Co-financing ($)**
Component 1: Updating of National GHG Emission	TA	Clearer understanding of the magnitude and causes of the GHG	-Completed and documented GHG emission inventories in the energy, industry,	GEFTF	3,950,000	506,250

[1] Project ID number will be assigned by GEFSEC.
[2] Refer to the Focal Area/LDCF/SCCF Results Framework when completing Table A.

Inventory and GHG Inventory Database, and Enhancement of GHG Emission Forecasting and Modeling Systems		emissions from the different sectors	agriculture, land use change and forestry, and waste sectors. - Updated GHG Emission Database/inventory year 2012. - GHG emissions projection and modeling systems.			
Component 2: Assessment on impacts of, vulnerability and adaptation to climate change	TA	Better understanding of China's vulnerability to the threats of climate change and predicted impacts in five sectors: agriculture, water resources, coastal resources, terrestrial ecosystems and human health and others.	- Completed assessments of climate change impacts and vulnerability in five sectors: agriculture, water resources, coastal resources, terrestrial ecosystems and human health. - Completed further researches on reducing vulnerability and adaptation to impacts of climate change on human health, as well research on the impacts of the frequency and intensity of extreme climate events on key social and economic aspects. - Integrated assessment on climate impacts, vulnerability, and adaptation.	GEFTF	115,200	7,800
Component 3: Updating of climate change mitigation, measures, options and actions	TA	Better understanding of the appropriate climate change mitigation options for China, and enhanced action plan to implement prioritized mitigation actions	- Completed report on the analysis of existing climate change policies, measures and action plan. - Recommended updated climate change mitigation policies and measures and action plan.	GEFTF	107,600	11,800
Component 4: Improving Public Awareness and	TA	Improving Public Awareness and Informing Policy	Capacity for mitigation and adaptation	GEFTF	150,000	28,750

Informing Policy Decision Making on Climate Change		Decision Making on Climate Change				
Component 5: Inventory of GHG Emissions and Other Relevant Information on Climate Change in Hong Kong and Macao SAR	TA	Inventory of GHG Emissions and Other Relevant Information on Climate Change in Hong Kong and Macao SAR	- Updated GHG Inventories in Hong Kong SAR and Macao SAR for year 2010 and 2012 - Updated information on climate change in Hong Kong SAR and Macao SAR	GEFTF	300,000	77,500
COMPONENT 6: Supplementary Support for Achieving UNFCCC Objectives and Publication and Dissemination of the 3NC Report	TA	Supplementary Support for Achieving UNFCCC Objectives and Publication and Dissemination of the 3NC Report	3NC Report and completed capacity building activities	GEFTF	1,324,800	80,200
Component 7: Supporting China Biennial Update Reporting to the UNFCCC	TA	Supporting China Biennial Update Reporting to the UNFCCC	BUR Document and completed capacity building activities	GEFTF	892,400	87,700
Monitoring and Evaluation	TA	Project Evaluation and monitoring	Project financial and progress reports prepared and submitted	GEF TF	80,000	
			Subtotal	GEFTF	6,920,000	800,000
			Project Management Cost (PMC)[3]	GEFTF	360,000	100,000
			Total Project Costs		7,280,000	900,000

C. SOURCES OF CONFIRMED CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME ($)

Sources of Co-financing	**Name of Co-financier (source)**	**Type of Co-financing**	**Co-financing Amount** ($)
National Government	NDRC, related GOC ministries, universities & research and development institutes	In-kind	800,000
UNDP-China	UNDP-China	In-kind	100,000
Total Co-financing			900,000

D. TRUST FUND RESOURCES REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY[1] N.A.

[1]In case of a single focal area, single country, single GEF Agency project, and single trust fund project, there is no need to provide information for this table. PMC amount from Table B should be included proportionately to the focal area amount in this table.

[3] PMC should be charged proportionately to focal areas based on focal area project grant amount in Table D below.

[2] Indicate fees related to this project.

E. CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:

Component	Grant Amount ($)	Co-financing ($)	Project Total ($)
International Consultants	55,000	0	55,000
National/Local Consultants	2,387,700	250,000	2,637,700

F. DOES THE PROJECT INCLUDE A "NON-GRANT" INSTRUMENT? No.

(If non-grant instruments are used, provide in Annex D an indicative calendar of expected reflows to your Agency and to the GEF/LDCF/SCCF/NPIF Trust Fund).

PART II: PROJECT JUSTIFICATION

A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN OF THE ORIGINAL PIF[4]

A.1: National strategies and plans or reports and assessments under relevant conventions, if applicable, i.e. NAPAS, NAPs, NBSAPs, national communications, TNAs, NCSA, NIPs, PRSPs, NPFE, Biennial Update Reports, etc.

The State Council of P.R. China approved *the Working Program on Controlling GHG Emission in the Period of 12th Five Years Plan* by the end of 2011. It is required that to enhance GHG emission accounting work at national, provincial, and enterprise level. So in preparation of 3NC and BUR, one of important tasks is calculation of GHG inventory, so the outputs of this project will contribute more to national work, and the capacity that is enhanced in this project will play a big role in domestic actions and policies in climate change.

On the other hand, Chinese government now is very hard to push forward the work on addressing climate change, including low carbon development pilot program, establishment of carbon market, issuance of national adaptation plan, etc., which can also contribute to this project, and provide more important information for the contents and related analysis of 3NC and BUR.

A.2: GEF focal area and/or fund(s) strategies, eligibility criteria and priorities. N.A.

A.3: The GEF Agency's comparative advantage:

The Energy and Environment Unit of UNDP-China has adequate staff complement for supporting the implementation of projects related to the different GEF focal areas, including biodiversity, climate change, land degradation and chemical management. It is also supported with technical expertise available in the UNDP Asia-Pacific Resource Centre (APRC) based in Bangkok, Thailand. A professional staff from the UNDP-China will be responsible for oversight and project assurance and will represent UNDP in the Project Steering Committee. Expertise of other professional staff in climate change, renewable energy, natural resources management and land degradation issues will also be utilized, when necessary, to support implementation of the project. UNDP builds strong stakeholder coalitions to allow

[4] For questions A.1 –A.7 in Part II, if there are no changes since PIF and if not specifically requested in the review sheet at PIF
stage, then no need to respond, please enter "NA" after the respective question

participatory implementation of environmental protection and management programmes on a sustainable basis. Such partnerships include UN agencies, international funds, bilateral and multilateral organizations, China's national, regional, and local government bodies, national and international environmental NGOs, academic institutions and universities, local population and private sector. The UNDP Resident Representative ensures that the UNDP country office has an internal control system that allows it to monitor effectively the financial activity of the project and to support and monitor the progress towards achieving results.

A.4: The baseline project and the problem that it seeks to address:

Building from the experience gained and lessons learnt in the preparation of its two previous national communications, the proposed Third National Communication (3NC) and Biennial Update Report (IBUR) project will not only enable China to fulfill its obligations under the Convention but will also: (1) Improve further the country's capability in the development, systematic renewal and utilization of national communications as an important tool in guiding policies and actions to meet China's climate change mitigation and adaptation goals; (2) Enable China make new contributions to mitigation of global climate change based on national conditions and sustainable development strategy and policy; and, (3) Improve the country's capacity to meet the new reporting requirements under the Convention. The proposed project is composed of 7 components: 1) updating of national GHG emission inventory and GHG inventory database, and enhancement of GHG emission forecasting and modeling systems; 2) assessment on impacts of, vulnerability and adaptation to climate change; 3) updating of climate change mitigation, measures, options and actions; 4) improving public awareness and informing policy-decision making on climate change, 5) inventory of GHG emissions and other relevant information on climate change in Hong Kong and Macao SARs; 6) supplementary support for achieving Convention objectives and publication and dissemination of the 3NC report; and 7) supporting China Biennial Update Report to the UNFCCC. Considering the second and the third component are mainly for supporting for preparation on 3NC report and IBUR report, these two components will be implemented combine with component 6 and 7, together other related supportive activities, but the outcomes of these two components (including V&A analysis and mitigation policies) will be presented as separated sections in the 3NC report

The following is the timetable for the completion and submission of the BURs and the 3NC Report[5].

Report	Final Draft Completion	Final Document Submission	Remarks
First BUR (1BUR)	August 2015	2nd Quarter 2016	Stand-alone report submitted to UNFCCC
Second BUR (2BUR)	4thQuarter 2017	3rd Quarter 2018	As Annex to the 3NC Report
Third National Communication (3NC)	4thQuarter 2017	3rd Quarter 2018	Includes the 2BUR

A.5: Incremental /Additional cost reasoning: describe the incremental (GEF Trust Fund/NPIF) or additional (LDCF/SCCF) activities requested for GEF/LDCF/SCCF/NPIF financing and the associated global environmental benefits (GEF Trust Fund) or associated adaptation benefits (LDCF/SCCF) to be delivered by the project: N.A.

[5] This is as long as the CEO endorsement of the 3NC project and the disbursement of the grant funding is no later than August 2014.

A.6: Risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and measures that address these risks:

The potential risks that might hamper the smooth implementation of this project, the level of risks and mitigation actions are summarized in the following table:

Risks	Level of Risk	Mitigation Actions
(1) Potential delays in project approval, and delay in fund disbursement	Medium	GEF, UNDP and national executive agencies to simplify project approval processes, shorten project approval period, and approve the project and deliver disbursements in time. Related GOC agencies and departments shall strengthen cooperation in order to ensure the project implementation is always on track.
(2) Drastic negative changes in international climate negotiations	High	Concerning the uncertainty of frequency and contents that the current international climate negotiation requires for non-annex I countries in submitting their national communications, the execution period and reporting contents to be adjusted and according to the process of negotiations.
(3) Domestic organization alteration	Low	Coordination and communications with the relevant project stakeholders and partners to be strengthened to reduce the impact to the minimum level possible brought about by any unforeseen changes in the project implementation partners.
(4) Force majeure natural disasters	Low	The project implementing agency and all project partners and members (e.g., research experts) will make best endeavors to reduce impacts of force majeure events and natural disasters.
Overall Risk Level	Medium	

A.7: Coordination with other relevant GEF financed initiatives

The project will strengthen coordination with other relevant projects in China, such as the Carbon Balance Research to Address Climate Change Project by Chinese Academy of Sciences, Climate Change Special Research Program organized by Ministry of Science and Technology (MOST) and National Development and Reform Commission (NDRC), and cooperative research project with other international organizations, etc. The research work that will be carried out under the 3NC3NC will benefit from the experiences from other projects and thus it will ensure close coordination with the above mentioned projects and with other institutions that are currently planning projects/programs that are relevant to the formulation of China's 3NC3NC Establishing and strengthening linkages with all of these projects will help to ensure more focused and regular consultations with the various stakeholders of the projects both at the national and local government levels. Moreover, the 3NC3NC project will be developed in close cooperation UNDP-GEF Regional Coordination Unit (RCU) for Asia-Pacific in Bangkok. The UNDP-China country office will be fully involved in the project development through its participation in the various stakeholder consultation meetings and workshops during project implementation. Consultations will also be done with UNDP-GEF, New York during the project development phase.

B. ADDITIONAL INFORMATION NOT ADDRESSED AT PIF STAGE:

B.1: Describe how the stakeholders will be engaged in project implementation

The intention and starting point of this capacity building project is to absorb a wide range of views and to draw on collective wisdom, in order to develop a national GHG inventory with scientific methodology, transparent data, consistent format and comparable results. The 3NC3NC will contain information

regarding national circumstances, national GHG inventory, climate change impacts and adaptation, analysis on policies relevant to climate change mitigation and analysis on MRV system, other activities undertaken to meet the target of the Convention and public awareness improvement, etc. The report will reflect China's national circumstances related to climate change. Therefore, effective implementation of this project requires full engagement of the NLGCC members, as well as the participation of local governments, civil societies, research institutes, universities, non-governmental organizations (NGOs). The NDRC will be in charge of this project on behalf of the Chinese government.

B.2: Describe the socioeconomic benefits to be delivered by the Project at the national and local levels, including consideration of gender dimensions, and how these will support the achievement of global environment benefits (GEF Trust Fund/NPIF) or adaptation benefits (LDCF/SCCF):

The social economic benefits that will come from the implementation of the project includes: Firstly, it will enable China to fulfill its obligation to the UNFCCC, and introduce China's efforts in addressing climate change on a full scale in the international context. Secondly, it will provide statistical support to fulfill the target of decreasing 40%-45% CO2 emission intensity per unit of GDP by year 2020 using as basis year 2005. Thirdly, it will provide guidance on compiling local GHG emission inventories and establishing local climate change action plans. Fourthly, it will establish a platform to improve the public awareness and participation in actions addressing climate change. Fifthly, the implementation experience will provide research references and lessons learned at the global level, which would be particularly useful for other developing countries in compiling national communications. Similar to the SNC project, the 3NC project will continue to involve the best technical experts of both genders with the view of ensuring gender balance. In this regard, the project implementation will identify expertise to be deployed considering the qualifications of both men and women. The 3NC project will address gender concerns by building adaptation capacities of both men and women (and children) to cope with the adverse impacts of climate change and reduce negative effects on household welfare and environmental sustainability. More specifically, the 3NC project will: 1) Systematically analyze and address the specific needs of both women and men by identifying targeted interventions to enable both genders to participate in -and benefit equally from -development efforts; and, 2) Address any gaps in attaining gender equality particularly in the context of adaptation to impacts climate change by identifying strategies and policies to close the gaps.

B.3: Explain how cost-effectiveness is reflected in the project design:

Although incremental cost analysis is not applicable to the project the proposal design team pays much attention to cost-effectiveness issue in implementation of the project.

C. DESCRIBE THE BUDGETED M &E PLAN:

Type of M&E activity	Responsible Parties	Budget, US$	Time Frame
Inception Workshop	NDRC, UNDP CHINA, PMO	Part of Component PMO budget	Within first two months of project start up
Inception Report	PMO, UNDP CHINA	Part of Component PMO budget	Immediately following IW

Type of M&E activity	Responsible Parties	Budget, US$	Time Frame
Project Targets, Indicators and Measurement of Success Indicators	PMO	Part of Component PMO budget	Project startup, middle, and the end
Measurement of Success Indicators for Project Progress Performance	Prepared by PMO, supervised by UNDP CHINA, examined by GEF-UNDP regional coordination office and executive agencies	Part of Component PMO budget	Annually prior to APR/PIR and to the definition of annual work plans
APR and PIR	PMO, UNDP CHINA, GEF-UNDP	Part of Component PMO budget	Annually
Tripartite Project Review	NDRC, UNDP CHINA, GEF-UNDP-Asia-Pacific Regional Coordination Unit, Ministry of Finance, PMO	Part of Component PMO budget	Every year, upon receipt of APR
Steering Committee Meetings	NDRC PMO	Part of Component PMO budget	After IW and at least once a year thereafter
Half Yearly Report and Technical Report	PMO Hired consultants as needed	Part of Component PMO budget	TBD by PMO and UNDP CHINA
Mid-Term External Evaluation	PMO UNDP CHINA	32,632.8	One and half a year after project start up
Final External Evaluation	PMO, UNDP CHINA GEF-UNDP Asia-Pacific Regional Coordination Unit, External Consultant (Evaluation Consultant)	36,632.8	At the end of project implementation
Terminal Report	PMO, UNDP CHINA, External Consultant	Part of Component PMO budget	At least one month before the end of the project
Audit	NDRC, PMO, UNDP CHINA	10,734.4	Annually
Visits to field sites	UNDP CHINA, GEF-UNDP-Asia-Pacific Regional Coordination Unit Government representatives		Annually
Total indicative cost (Excluding Project Team staff time and UNDP staff & travel expenses)		US$ 80,000	

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT(S) ON BEHALF OF THE GOVERNMENT(S):

NAME	POSITION	MINISTRY	DATE
YE JIANDI	GEF OPERATIONAL FOCAL POINT	MINISTRY OF FINANCE	09/08/2012

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF/LDCF/SCCF/NPIF policies and procedures and meets the GEF/LDCF/SCCF/NPIF criteria for CEO endorsement/approval of project.

Agency Coordinator, Agency Name	Signature	Date *(Month, day, year)*	Project Contact Person	Telephone	Email Address
Adriana Dinu Executive Coordinator and Director a.i. UNDP-GEF		April, 24, 2014	Manuel L. Soriano Sr. Tech Advisor EITT	+66-2-3049100 ext2720	manuel.soriano@undp.org

ANNEX A: PROJECT RESULTS FRAMEWORK (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

Project Strategy	Verifiable Indicators for Objectives			Means of Verification
	Indicator	Baseline	Target	
Goal: Support China toward a low carbon development path	• No. of CCM and CCA measures formulated under the 3NC process and included in the completed 3NC Report that are planned for implementation by end-of-project (EOP)	• 11	• 15	• Information in BUR and 3NC report
Objective: Strengthened capacity in integrating climate change concerns into national and sectoral development priorities while fulfilling obligations to the UNFCCC	• Completed and submitted Third National Communications Report to the UNFCCC • No. of Biennial Update Reports completed by EOP • No. of GOC agencies/institutions that are actively involved in the inventory and analysis of sectoral GHG emissions by EOP • No. of center and local governments that integrate CCM and CCA concerns in their development planning by EOP • No. of national and local government agencies, and private sector entities that were involved in the 3NC process (inclusive of BURs) by EOP	• 0 • 0 • 75 • 33 • 110	• 1 • 2 • 100 • 65 • 155	• Information in BUR and 3NC report

Outcome 1.1: Clearer understanding of the magnitude and causes of the GHG emissions from Energy Activities	• No. of completed GHG inventories in the energy sector:
	  • Fossil fuel combustion by EOP
	  • Biomass combustion by EOP
	  • CH_4 emissions from coal mining and post-mining activities by EOP
	  • CH_4 fugitive emissions from oil and gas system by 2017
	  • Non-energy uses of fossil fuel by 2017
	  • International bunkers by Year 2017
	• No. of comprehensive researches/studies conducted and completed for use in the compilation of GHG emissions inventory of the energy sector by EOP
		
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			• 33
				• Information in 3NC and other government report
				• 3NC and BUR reports

Outcome 1.2: Clearer understanding of the magnitude and causes of the GHG emissions from Industrial Processes	• No. of completed GHG inventories from industrial processes: • Mineral products processing by EOP • Industrial chemical processes by 2017 • Industrial metal production processes by EOP • Production of halocarbons and sulfur hexafluoride by EOP • Consumption of halocarbons and sulfur hexafluoride by EOP • No. of comprehensive researches/studies conducted and completed for use in the compilation of GHG emissions inventory of industrial processes by EOP	 • 0 • 0 • 0 • 0 • 0 • 9	 • 2 • 2 • 2 • 2 • 2 • 41	• Information in 3NC and other government report
Outcome 1.3: Clearer understanding of the magnitude and causes of the GHG emissions from Agriculture	• No. of completed GHG inventories in the agriculture sector: • CH_4 emissions from paddy fields by EOP • N_2O emissions from croplands by EOP • CH_4 emissions from animal enteric fermentation by EOP • CH_4 and N_2O emissions from manure management systems by EOP • No. of comprehensive researches/studies conducted and completed for use in the compilation of GHG emissions inventory of the agriculture sector by EOP	 • 2 • 2 • 2 • 2 • 4	 • 4 • 4 • 4 • 4 • 37	• Information in 3NC and other government report
Outcome 1.4: Clearer understanding of the magnitude and causes of GHG Emissions/Removal from Land Use, Land Use Change and Forestry sector	• No. of completed GHG inventories in the land use, land use change & forestry sector: • Forests and woodlands by EOP • Change in soil organic content in croplands by EOP • Grasslands by EOP • Wetlands by EOP • Lands converted to residential lands and other lands by EOP • No. of comprehensive researches/studies conducted and completed for use in the compilation of GHG emissions inventory of the land	 • 2 • 0 • 0 • 0 • 2 • 5	 • 4 • 2 • 2 • 2 • 2 • 32	• Information in 3NC and other government report

	use, land use change and forestry sector by EOP			
Outcome 1.5: Clearer understanding of the magnitude and causes of the GHG emissions from Waste treatment	• No. of completed GHG inventories in the waste sector: • CH_4 emissions from waste landfills by EOP • Waste incineration by EOP • CH_4 and N_2O emissions from biological treatment of solid waste by EOP • CH_4 emissions from domestic and commercial wastewater treatment by EOP • CH_4 emissions from industrial wastewater treatment by EOP • N_2O emissions from wastewater treatment by EOP • No. of comprehensive researches/studies conducted and completed for use in the compilation of GHG emissions inventory of the waste sector by EOP	 • 2 • 2 • 0 • 2 • 2 • 2 • 5	 • 4 • 4 • 2 • 4 • 4 • 4 • 37	• Information in 3NC and other government report
Outcome 1.6: Updating China`s GHG Inventory Database	• No. of updated sectoral data sets uploaded to the National GHG Emissions Database by EOP • No. of formulated sets of CCM and CCA policies uploaded in the National GHG Emissions Database by EOP • No. of formulated sets of CCM and CCA action plans uploaded to the National GHG Emissions Database by EOP	• 2 • 2 • 2	• 4 • 4 • 4	• Information in 3NC and other government report
Outcome 1.7: Better understanding of the appropriate climate change options for China, and enhanced action plan to implement prioritized mitigation actions	• No. of completed studies based on the GHG inventories on the characteristics and future trends of climate change in China by EOP • No. of comprehensive researches/studies conducted and completed for use in the identification and evaluation of potential CC mitigation actions by EOP • No. of operational improved/modified simulation models for forecasting GHG emissions and emission trends using the updated GHG inventory data by EOP • No. of scenario analyses developed using the	• 0 • 2 • 2 • 3	• 1 • 4 • 2 • 6	• Information in 3NC and other government report

	improved/modified simulation models, and utilized in CCM and CCA policy making and action planning by EOP			
Outcome 2: better understanding of China's vulnerability to the threats of climate change and predicted impacts in five sectors	• No. of national and local climate change adaptation programs developed and implemented by the national and local governments as influenced by the 3NC process by EOP	• 1	• 2	• Information in 3NC and other government report
Outcome 3: Better understanding of the appropriate climate change mitigation options for China, and enhanced action plan to implement prioritized mitigation actions	• No. of national and local climate change mitigation programs developed and implemented by the national and local governments as influenced by the 3NC process by EOP	• 2	• 3	• Information in 3NC and other government report
Outcome 4: Improving Public Awareness and Informing Policy Decision Making on Climate Change	• No. of users of the China Climate Change Info-Net each year starting 2015 • No. of national and local climate change programs developed and implemented by the national and local governments as influenced by the advocacy and public awareness campaigns that were carried out under the 3NC process by EOP	• 150,000 • 2	• 160,000 • 3	• Information in 3NC and other government report
Outcome 5.1: Better understanding and enhanced capacity in GHG emission inventory and national communication compilation in the Hong Kong	• No. of completed GHG inventory of the Hong Kong SAR • No. of CCM and CCA policies and actions formulated by the Hong Kong SAR based on the GHG inventories and included in the completed 3NC Report by EOP	• 1 • 3	• 3 • 5	• Information in 3NC and BUR
Outcome 5.2: Better understanding and enhanced capacity in GHG emission inventory and national communication compilation in Macau SARs	• No of completed GHG inventory of the Macau SAR • No. of CCM and CCA policies formulated by the MAC SAR based on the GHG inventories and included in the completed 3NC Report by EOP	• 1 • 3	• 3 • 5	• Information in 3NC and BUR
Outcome 6.1: Improved capacity and technical inputs in meeting obligations to the UNFCCC	• No. of researches and studies conducted in the context of the 3NC that were carried out by local experts by EOP • No. of local experts that were involved in the GHG inventories as well as in the analysis of the GHG inventory results by EOP • No. of Climate Change mitigation policies and measures developed by local experts by EOP	• 9 • 7 • 11	• 11 • 31 • 110	• Information in 3NC and other government report

	• No. of Climate Change adaptation policies and measures developed by local experts by EOP • No. of research and studies on systematic observation of climate conducted by local experts by EOP • No. of projects that contributed inputs on climate change technology transfer & cooperation by EOP • No of trained nationals on NC formulation that were involved in the 3NC process by EOP • No. of trained nationals on NC formulation that were employed for NC-related activities on a regular basis	• 0 • 0 • 1 • 20 • 7	• 1 • 1 • 2 • 30 • 11	
Outcome 6.2: Improved and integrated climate change action planning both at the local and national levels	• No. of integrated CCM and CCA measures and action plans developed formulated by the national government and local governments by EOP • No. of local governments that have initiated GHG inventories and other NC process activities at the local level by EOP	• 11 • 0	• 110 • 33	• Information in 3NC and other government report
Outcome 6.3: Publication, dissemination and submission to the UNFCCC of the 3NC Report	• No. of national and local government agencies that made use of the 3NC for their development planning activities with climate change mainstreamed in it by EOP	• 0	• 10	• Information in 3NC and other government report
Outcome 7: Submission of the Biennial Update Report to the UNFCCC	• No. of BUR submitted to the UNFCCC • No. of adjustments made on the CCM and CCA policies, measures and plans based on the findings and recommendations of the BUR by Year 2 • No. of national government entities that are making use of the designed measurement, reporting and verification (MRV) process developed as part of the BUR by EOP	• 0 • 0 • 0	• 2 • 1 • 5	• BUR report • Information in BUR report

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

Comment:
In Component 3 of the project assessments will be carried out to determine the feasible policy and technology options for the country in mitigating climate change, as well as the social and economic costs to achieve these mitigation targets. A GEF financed technology needs assessment project has been approved for China (GEF PMIS 4188). Given that a technology needs assessment has been approved, it would appear that this component of the project may duplicate efforts in the area of technology needs assessment. Clarification is requested as to how the technology needs assessment project (GEF PMIS 4188) will be coordinated with the national communications.

Response:
Component 3 will summarize and assess the policies and measures that have been adopted and to be implemented in mitigating climate change. It will mainly focus on the policies and measures, rather than technologies. PMIS 4188 (TNA) is in the stage of implementation design and will thus provide a good position for the Third National Communication (3NC) to link up and coordinate with to avoid any duplication, achieving synergies between the two projects and complementing each other. Furthermore, the 3NC will build on the results of the TNA work, which would be linked to the assessment of policies and measures to support the technological options to enhance mitigation opportunities on the basis of the TNA findings.

Comment:
Component 1 notes that there will be an update of inventory GHG emissions to 2010. Clarification is requested as to whether this will include all of the years for the period 2000-2010, or whether it will only be the year 2010.

Response:
It is stated clear in the proposal now. The third national communication project will prepare inventory of the year 2010 (in IBUR) and the year 2012 (in 3NC).

Comment:
In section 23, is funding level for project management cost appropriate?

Response:
We have adjusted the management cost below 5% (360,000 USD) as request.

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Comments & Responses	Reference
12. Has the cost-effectiveness been sufficiently demonstrated, including the cost-effectiveness of the project design approach as compared to alternative approaches to achieve similar benefits?	
Comment: *Please provide additional information on the cost effectiveness of the project design.* **Response**: The experiences and lessons learned from the implementation of the 1NC and 2NC projects show the conduct of national GHG inventories entail a lot of work, coordination and costs. Taking this in consideration, the 3NC project team (same team that worked on	ProDoc: Section III, Table 2,

<table>
<tr><th>Comments & Responses</th><th>Reference</th></tr>
<tr><td>the implementation of the 2 previous NC projects) has ensured that there will be optimum use of the GEF resources for all the necessary tasks that have to be done to deliver the required outputs and realize the expected outcomes of the 3NC project. This has led them to allocate about half of the approved GEF budget for the preparation, conduct, data processing, analysis and reporting of the GHG inventories for the 3NC Report covering all GHGs, all sectors, including GHG inventories in the Hong Kong and Macau Special Administrative Regions. The budget also covers the GHG inventories to be reported in 1st Biennial Update Report (1BUR). These tasks will be carried out by local climate change experts, mainly leading and eminent researchers, scientists, academics and professionals from China's well-known and prominent research institutions). Most of these experts were involved in the work carried out to produce the first 2 national communications of China to the UNFCCC.

Regarding cost-effectiveness, the 2NC project utilized US$ 5 million to come up with the 2NC report that included GHG inventories covering 6 greenhouses gases in 5 sectors (energy, industry, agriculture, LULUCF and waste) for the entire country as well as that for the Hong Kong and Macau SARs. The cost for producing the GHG inventories was around US$ 2.6 million. The 3NC project will utilize US$ 7.28 million to prepare China's 3NC Report and 1BUR. It will involve the conduct of 2 GHG inventories (2010 and 2012) for a cost of about US$ 3.6 million. These will be more detailed than the one done in the 2NC project and will be for the same sectors plus additional sub-sectors (e.g., industrial chemical processes of synthesis ammonia and titanium production; industrial processes for aluminum and ferroalloys; wetlands, settlements and other lands), covering 6 GHGs and including the enhanced GHG inventories for the 2 SARs. The increase in cost of approximately 40% is considered rational and the proposed budget is actually cost effective inasmuch as 2 inventories will be produced, the 2010 GHG inventory and the 2012 GHG inventory. The budgets for the other NC activities are also much lower compared to that in the previous 2NC project even with the increased level of activity and magnitude of deliverables.</td><td>Budget Notes</td></tr>
<tr><td colspan="2">17. Is public participation, including CSOs and indigenous people, taken into consideration, their role identified and addressed properly?</td></tr>
<tr><td><u>Comment</u>:
Please provide further information on the social groups, the specific research institutes and other groups participating in the project.

<u>Response</u>:
The following table describes the various entities that will be involved in the 3NC project implementation, mainly in the GHG emission inventories and in the preparation of the 3NC Report and 1 BUR:

<table>
<tr><th>Name of Participating Entities</th><th>Description</th><th>Involvement in 3NC Project</th></tr>
<tr><td>NCSC</td><td>Established in 2012 to lead the work on the preparation of the National Climate Change Inventory and National</td><td>Energy Inventory, industrial process inventory, database management, 3NC and</td></tr>
</table>
</td><td>ProDoc: Section IV, Part II, Table 4</td></tr>
</table>

Comments & Responses			Reference
	Communication and other UNFCCC obligations	1BUR	
ERI, NDRC	Established in 1981 to conduct research related to energy strategy and policy	Hong Kong GHG inventory and others	
Tsinghua University	Established in 1911, this is a leading academic institution in the area of energy system analysis and others	Emission forecasting, mitigation	
Xi'an Thermal Power Research Institute	Established in 1951, this institution is specialized in thermal power energy-saving and greenhouse gases emission research.	Energy sector GHG Inventory	
Shenyang Branch of China Coal Research Institute	Renamed in 2008, this institute is specialized in coal industry research.	Energy sector GHG Inventory	
National Administrative Center for Energy Saving	Established in 1990, this institution is specialized in GHGs emission inventory in the Energy sector.	Energy sector GHG Inventory	
China Coal Transportation and Sale Association	Established in 1998, this association is specialized in research on coal use and consumption	Energy sector GHG Inventory	
China Petroleum and Chemical Industry Federation	Established in 2001, this group is specialized in petroleum and chemical industry research.	Energy sector GHG Inventory	
China Nitrogen Fertilizer Industry Association	Established in 1992, this association is specialized in nitrogen fertilizer producing process and energy consumption research.	Energy sector and Industry sector GHG Inventories	
China Iron and Steel Association	Established in 1999 to collect information and provide technical service to iron and steel companies in China.	Energy sector and Industry sector GHG Inventories	
China Cement Association	Established in 1987 to collect information and provide technical service to cement factories in China.	Energy sector and Industry sector GHG Inventories	
China Non-Metallic Minerals Industry Association	Established in 1987 to collect information and provide technical service to non-metallic minerals factories in China.	Industrial sector GHG inventory	

Comments & Responses			Reference
China Electricity Council	Established in 1998 to collect information and provide technical service to power generation companies and power grid.	Energy sector GHG Inventory	
China Automotive Technology and Research Center	Established in 1985, this center is specialized in automotive industry energy-saving research.	Energy sector GHG Inventory	
Coal Information Institute(SAWS)	Established in 1959, this institute is specialized in coal use and consumption research.	Energy sector GHG Inventory	
China Coal Research Institute	Established in 1957, this institute is specialized in coal industry research.	Energy sector GHG Inventory	
China Metallurgical Industry Planning and Research Institute	Established in 1972, this institute is specialized in research on GHGs emission from metallurgical industrial processes.	Industrial processes	
China's Association of Fluorine and Silicon	Established in 1988	Industrial processes	
China Association for Science and Technology	Established in 1958	Industrial processes	
China Coking Industry Association	Established in 1994, this association is specialized in energy consumption and industrial process research in the coking industry.	Energy sector GHG Inventory, industrial process	
Institute of Atmospheric Physics, Chinese Academy of Science	Established in 1966, this institute is specialized in climate change research.	Agriculture sector GHG inventory	
Institute of Environment and Sustainable Development in Agriculture(IEDA), CAAS	Established in 1953, this institute is specialized in agriculture sector GHG inventory and agriculture environment science.	Agriculture sector GHG inventory, CCA adaptation	
Chinese Academy of Forestry	Established in 1958, this academy is a specialized research institution on forestry, including GHGs emission research.	LULUCF sector GHG Inventory	

Comments & Responses				Reference
Chinese Research Academy of Environment Science	Established in 1975, this is a specialized research institution on environment science, including GHGs emission research.	Waste sector GHG inventory		
Nanjing Institute of Technology	Established in 1915, this institute is specialized in waste management technology and waste-related GHGs emission research.	Waste sector GHG inventory		
24. Is the funding and co-financing per objective appropriate and adequate to achieve the expected outcomes and outputs?				
Comment: *Please provide clarification on the exact resources for components 2 and 3 of the project. Please include the exact resources allocated to components 2 and 3 in table b-project framework.* **Response**: The GEF budget for Components 2 and 3 are US$ 115,200 and US$ 107,600, respectively.				ProDoc: Section III, Table 2 CER Document: Part I, Sec. B
33. Is CEO endorsement/approval being recommended?				
Comment: *Please provide the following: (i) An indicative timeline of the submission of the biennial update report, and the third national communications to the UNFCCC; (ii) Information on the cost effectiveness of the project; (iii) Information on the on the exact resources for components 2 and 3 of the project, with the exact resources allocated to components 2 and 3 reflected in table b-project framework; and (iv) Specific information on the social groups, CSOs/NGOs and the specific research institutes participating in the project.* **Response**: (i) The original planned submission schedule for the Initial BUR (1BUR) is December 2014, 12 months after the start of the 3NC project when the first draft project proposal in was prepared March 2013. But now that the start time of the project is moved to July 2014 according to the new proposal, the submission of the 1BUR will be in July 2015, 12 months after the start of the 3NC project. The submission of the 3NC Report is planned for November 2017, 41 months after the start of the 3NC project. (ii) Please refer to the response to Question 12 above. (iii) Please refer to the response to Question 24 above (iv) Please refer to the response to Question 17 above.				ProDoc: Section I, Part II

Comments & Responses	Reference
Comment: *Please also inquire whether China wishes to include activities related to the determination of national contributions in this project. There appears to be some remaining GEF-5 STAR resource availability if no other MSPs or enabling activities are being considered. For specific updated remaining resource availability, please consult with the GEF Secretariat.* **Response**: The project proponent does not plan to apply for the use of the remaining GEF-5 STAR resource.	
Comment: *The project is not yet recommended for CEO endorsement.* **Response**: With the above stated comments adequately addressed and responded to, the project proponents are expecting the endorsement by the GEF CEO of this enabling activity project.	

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Comment:
Please include the timetable for completion of the national communications and the biennial update report in the Request for CEO endorsement documentation.

Response:
The following timetable is now included in both the Request for CEO endorsement document and Project Document:

Report	Final Draft Completion	Final Document Submission	Remarks
First BUR (1BUR)	August 2015	2nd Quarter 2016	Stand-alone report submitted to UNFCCC
Second BUR (2BUR)	4thQuarter 2017	3rd Quarter 2018	As Annex to the 3NC Report
Third National Communication (3NC)	4thQuarter 2017	3rd Quarter 2018	Includes the 2BUR

References: ProDoc – Outcome 7.2, p. 63; CER Document – Part II, Sec. A.4, p. 5

ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS[6]

A. DESCRIBE FINDINGS THAT MIGHT AFFECT THE PROJECT DESIGN OR ANY CONCERNS ON PROJECT IMPLEMENTATION, IF ANY:

THERE IS NO FUND FOR PPG. THIS AFFECTS THE SMOOTHLY PROGRESS OF THE PREPARATION OF THE PROPOSAL.

B. PROVIDE DETAILED FUNDING AMOUNT OF THE PPG ACTIVITIES FINANCING STATUS IN THE TABLE BELOW: **N.A.**

[6] If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue undertake the activities up to one year of project start. No later than one year from start of project implementation, Agencies should report this table to the GEF Secretariat on the completion of PPG activities and the amount spent for the activities.

ANNEX D: CALENDAR OF EXPECTED REFLOWS (if non-grant instrument is used**)**

Provide a calendar of expected reflows to the GEF/LDCF/SCCF/NPIF Trust Fund or to your Agency (and/or revolving fund that will be set up)

N.A

United Nations Development Programme
People's Republic of China

PROJECT DOCUMENT

Project Title: Enabling China to Prepare Its Third National Communication to the UNFCCC

UNDAF Outcome(s): Low carbon and other environmentally sustainable strategies and technologies are adapted widely to meet China's commitments and compliance with Multilateral Environmental Agreements.

UNDP Strategic Plan Environment and Sustainable Development Primary Outcome: Mobilizing environmental financing

UNDP Strategic Plan Secondary Outcome: Mainstreaming environment and energy

Expected CP Outcome(s): Growth and development are inclusive and sustainable, incorporating productive capacities that create employment and livelihoods for the poor and excluded.

Expected CPAP Output (s) Scaled up action on climate change adaptation and mitigation across sectors which is funded and implemented

Executing Entity/Implementing Partner: National Development and Reform Commission (NDRC)

Implementing Entity/Responsible Partners: National Development and Reform Commission (NDRC)

Brief Description

This project is to enable China to fulfill its commitments under the UNFCCC to prepare its Third National Communication (3NC) and Initial Biennial Update Report (BUR) and to gradually establish a supporting system of developing NCs and BUR in accordance with the *Guidelines for the Preparation of National Communications from Non-Annex I Parties* (17/CP.8) and *Biennial Update Reporting Guidelines for Non-Annex I Parties* (2/CP.17) adopted by the Conference of Parties (COP). Based on the experience and lessons learned from the previous two NCs, the project will broaden and consolidate the network of stakeholders, including those in the government, research and education institutions, associations, social groups, enterprises, individuals and NGOs, enhance technical capacity of national experts, and strengthen the institutional framework for the preparation of NCs and BURs. Furthermore, the project will place greater emphasis on relevant policies on mitigation of and adaptation to climate change and the results of their implementation, promote the establishment and improvement of the domestic systems for measurement, report and verification, so as to enable China to effectively address climate change in the process of pursuing national sustainable development.

The project will develop comprehensive national Greenhouse Gas (GHG) inventory of 2010 and 2012, with extended categories and sources of GHG emissions and reduced uncertainties of the inventory. It will further improve the national GHG inventory database management system, with a view to administering inventory data in a more scientific way and making the preparation of GHG inventories a continuing process. The project will further improve the approach for projecting GHG emissions in China, and estimate China's CO_2 emission from energy activities in 2025. It will also identify key impacts of climate change and corresponding adaptation measures, describe relevant policies and measures which China adopts to address climate change, and introduce the activities of enhancing public awareness on climate change. It will provide relevant information on addressing climate change by Hong Kong and Macao. The project will lead to the submission of the 3NC and BUR to the Conference of the Parties (COP) to the UNFCCC.

Programme Period:	48 months
Atlas Award ID:	00078543
Project ID:	00088737
PIMS #	5032
Start date:	July 1, 2014
End Date	June 30, 2018
Management Arrangements	NIM
PAC Meeting Date	

Total resources required		8,180,000
Total allocated resources:		
• Regular		
• Other:		
○	GEF	7,280,000
○	Government	800,000
○	In-kind	100,000

Content

List of Acronyms

APR	Annual Project Report
AR4	The Fourth Assessment Report
BEF	Biomass expansion factor
BOD	Biological Oxygen Demand
CAS	Chinese Academy of Sciences
CH_4	Methane
CMA	China Meteorological Administration
CNCCP	China's National Climate Change Programme
CO_2	Carbon dioxide
COD	Chemical Oxygen Demand
COP	Conference of Parties
CRAES	Chinese Research Academy of Environmental Sciences
DOC	Degradable organic composition
ERI	Energy Research Institute
FEEI	Forest Ecology & Environment Institute of Chinese Academy of Forestry
FOD	First Order Draft
GDP	Gross domestic product
GEF	Global Environment Facility
GHG	Greenhouse gas
GWP	Global warming potentials
HFCs	Hydrofluorocarbons
IAP	Institute of Atmospheric Physics (of Chinese Academy of Sciences)
BUR	Initial Biennial Update Report
IEDA	Institute of Environment and Sustainable Development in Agriculture, CAAS
INC	Initial National Communication
IPCC	Intergovernmental Panel on Climate Change
LHV	Low Heating Value
LUCF	Land use change and forestry
LULUCF	Land use, land use change and forestry
MCF	Methane correction factor
MDGs	Millennium Development Goals
MEP	Ministry of Environmental Protection
MERP	Methane emission of rice paddy field
MFA	Ministry of Foreign Affairs
MOF	Ministry of Finance
MOST	Ministry of Science and Technology
MOT	Ministry of Transport
MSW	Municipal solid waste
N_2O	Nitrogen monoxide
NBS	National Bureau of Statistics
NCSC	National Center for Climate Change Strategy and International Cooperation

NDRC	National Development and Reform Commission
NGO	Non-governmental Organization
NLGCC	National Leading Group on Climate Change
NPC	National Project Coordinator
NPD	National Project Director
ODS	Ozone Depleting Substances
OECD	Organization for Economic Cooperation and Development
NPC	National Project Coordinator
PDF	Project Development Fund of GEF
PFCs	Perfluorocarbons
PIR	Project Implementation Report
PMO	Project Management Office
PPM	Project Planning Matrix
PSC	Project Steering Committee
PWLW	Paddies Water-Logged in Winter
R&D	Research and Development
SAR	Special Administrative Regions
SF_6	Sulfur hexafluoride
2NC	Second National Communication
SOC	Soil organic carbon
3NC	Third National Communication
TOR	Terms of Reference
TPR	Tripartite Project Review
UNDP	United Nations Development Program
UNFCCC	United Nations Framework Convention on Climate Change

SECTION I: ELABORATION OF THE NARRATIVE

PART I: SITUATION ANALYSIS

1.1. Project Significance

Climate is an important component of the natural environment that sustains human beings. A moderate and stable climate system is essential for the survival and evolution of all living creatures, and necessary for the sustainable development of human society. Scientific research concludes that the global climate is undergoing a significant change – climate system is warming and extreme climate events have become more frequent. Global climate change will affect human society in all aspects. It will not only affect the stability of ecosystem, but also the development of human society.
Undoubtedly, climate change attaches great concern of the global community. The Fourth Assessment Report (AR4) of the Intergovernmental Panel on Climate Change (IPCC) states that "*most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic GHG concentrations*". In addition, the Fifth Assessment Report of the United Nations Intergovernmental Panel on Climate Change (IPCC) has further strengthened the scientific conclusion that human activity accounts for climate change. As international consensus on addressing climate change continues to deepen and China's strength increases, China is faced with a new situation regarding the climate change issue.

There are many measures have been taken so as to address climate change effectively and efficiently, the United Nations Framework Convention on Climate Change (UNFCCC) was adopted by the international community in June 1992 and came into force in March 1994, thanks to the joint efforts of all related parties. The UNFCCC stipulates clearly that the Parties to the Convention shall protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Additionally, the UNFCCC also requires all Parties to submit national inventories, which include anthropogenic emissions by sources and removals by sinks of all greenhouse gases (GHGs). It further provides that all Parties shall formulate, implement, publish and regularly update national programmes to address climate change, promote the development and application of technologies that reduce or prevent anthropogenic emissions of GHGs. Moreover, it is urgent to improve the sinks of GHGs, develop adaptation plan and promote the exchange of information about climate change and response measures; promote education, training and public awareness related to climate change. According to the UNFCCC, each Party has the responsibility to exchange communication, including a national inventory of emissions by sources and removals by sinks of all GHGs, a general description of steps taken and envisaged to implement the UNFCCC as well as other information that the Party considers appropriate.

The Chinese government attaches great significance to its international obligations, and engaged officials and experts of relevant government departments, social groups, research institutes, universities and enterprises to develop China's Initial National Communication (hereinafter referred to as INC) in accordance with the UNFCCC *Guidelines for the preparation of national communications*

from non-Annex I Parties. The INC was completed after 3-year concerted efforts of more than 400 experts from about 100 organizations and submitted to the Secretariat of the UNFCCC in October 2004. In 2008, China launched the preparation of its Second National Communication (hereinafter referred to as 2NC). After four-year coordinated efforts of relevant government departments, scientific research institutions, universities, state-owned enterprises and civil societies, with further elaboration by the National Leading Group on Climate Change (NLGCC), the 2NC was completed and approved by the State Council in 2012 and submitted to the UNFCCC on 8 November 2012. The compilation of 2NC was based on *the guidelines for the preparation of the second national communications from non-Annex I Parties*, which were adopted by the Conference of the Parties (COP) at its eighth session.

The 2NC is composed of 8 parts providing information on national circumstances, national GHG inventory, climate change impacts and adaptation, policies and actions for climate change mitigation, other relevant information on achieving the objective of the Convention, needs for financial support, technologies and capacity building, basic situation of the Hong Kong Special Administrative Region (SAR) and Macao SAR on addressing climate change. The 2NC has fully reflected China's national circumstances related to climate change. On the whole, China will sincerely carry out all the tasks in the China's National Climate Change Programme, strive to build a resource conservative and environmentally friendly society, enhance national capacity to mitigate and adapt to climate change, and make further contribution to the protection of the global.

In this context, the Third National Communication of the People's Republic of China on Climate Change (hereinafter referred to as 3NC) project will be conducive for China to establish national systems, methodologies and further strengthen coordination and institutional arrangements for the preparation of national communications. It will further strengthen China's capacity to develop national GHG inventory, including the capacity to determine activity data, appropriate emission factors, collecting field measurement data and controlling inventory quality. The 3NC will enhance China's ability to project future GHG emissions, develop and maintain national GHG emission database. The 3NC will comprise 2012 national GHG inventory and emission projections, policies and measures for climate change mitigation, analysis on mitigation actions, and institutional structure of Measurement, Reporting and Verification (MRV), promotions for public awareness related to climate change, GHG inventory and basic information of the Hong Kong SAR and Macao SAR on addressing climate change. It will also assess the impacts of and vulnerability to climate change so as to identify adaptation options in the short and long terms.

Decision 2/CP.17 adopted by the seventeenth session of the Conference of the Parties (COP) of the UNFCCC stipulates that "*non-Annex I Parties, consistent with their capabilities and the level of support provided for reporting, should submit their first biennial update report by December 2014. In using the Guidelines, non-Annex I Parties should take into account their development priorities, objectives, capacities and national circumstances. Non-Annex I Parties shall submit a biennial update report every two years, either as a summary of parts of their national communication in the year in which the national communication is submitted or as a stand-alone update report. The first biennial update report submitted by non-Annex I Parties shall cover, at a minimum, the inventory for the calendar year no more than four years prior to the date of the submission, or more recent years if*

information is available, and that subsequent biennial update reports shall cover a calendar year that does not precede the submission date by more than four years". Therefore, the preparation and submission of China's Initial Biennial Update Report (hereinafter referred to as BUR) will be important demonstration and guarantee to improve the consistency, transparency, integrity, accuracy and timeliness of data contained in its national communications.

The 3NC and the BUR will enable China to better assess domestic climate change impacts, vulnerability and adaptation measures, enhance China's capacity in measurement, statistics and monitoring, and promote public awareness related to climate change. On the other hand, the preparation of the 3NC and the BUR will also demonstrate and strengthen China's efforts to address climate change. It will assist the international community to better comprehend China's climate change actions and enhance international cooperation and exchanges.

1.2. Analysis on Climate Change Threats, Root Causes and Barriers

Climate change means significant change of average conditions of global climate or a comparatively long-lasting change in climate. Climate change may be caused by internal or external natural forcing, or resulted from continuously human-induced change of land use and the composition of the atmosphere. According to Article 1 of the UNFCCC, climate change is a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods. AR4 of the IPCC shows that global climate is mainly characterized as significant change of a warming trend. We are facing increasing challenges.

The AR4 concludes that warming of the climate system is unequivocal, as evidenced by increases in global average temperatures, widespread melting of snow and ice, and rising sea levels as a consequence of climate change. These physical trends in the climate are projected to intensify into the future. Article 3 of the UNFCCC also clearly provides that "*the specific needs and special circumstances of developing country Parties, especially those that are particularly vulnerable to the adverse effects of climate change, and of those Parties, especially developing country Parties should be given full consideration*". Clearly, the AR4 of the IPCC shows that climate change resulting from human-produced activities play a negative role that affects the globe and this trend will accelerate in the next 100 years.

The main cause of global climate change is from both natural and human-induced mechanisms. Science has made great strides recently in determining which potential causes are actually responsible for the climate change that occurred during the twentieth century, providing strong evidence that greenhouse gases released to the atmosphere by human activities are the main cause of contemporary global warming. The UNFCCC noted "*that the largest share of historical and current global emissions of GHGs has originated in developed countries, that per capita emissions in developing countries are still relatively low and that the share of global emissions originating in developing countries will grow to meet their social and development needs*". At present, the international community takes a relatively slow step to reduce GHG emissions, the reason of which is that some

developed countries lack of the sense of responsibility and urgency to take domestic actions to reduce GHG emissions. Recently, GHG emissions from developing countries increase quickly and contribute significantly to GHG concentration in the atmospheres.

1.3. Institutional, Sectoral and Policy Context

China has gradually established leading institutions and operational mechanism to address climate change. In 2007, the Chinese government established the NLGCC based on the original National Coordination Group on Climate Change set up in 1990. NLGCC is led by the Premier of the State Council and composed of representatives from relevant ministries and institutions, including National Development and Reform Commission (NDRC), Ministry of Foreign Affairs, Ministry of Science and Technology, China Meteorological Administration (CMA), Ministry of Environment Protection, Ministry of Finance, Ministry of Commerce, Ministry of Agriculture, Ministry of Housing and Urban-Rural Development, Ministry of Transport, Ministry of Water Resources, State Forestry Administration, Chinese Academy of Sciences (CAS), State Oceanic Administration, China Civil Aviation Administration, National Bureau of Statistics (NBS), Ministry of Land and Resources and National Health and Family Planning Commission. In 2008, NDRC established the Department of Climate Change to coordinate and manage national work on climate change. In 2010, NDRC, together with the Ministry of Foreign Affairs and other relevant departments, established the Liaison Office of NLGCC to further enhance the coordination of work on climate change. The government established the National Panel on Climate Change in January 2007 and National Center for Climate Change Strategy and International Cooperation in March 2012 to provide scientific advice and policy recommendations on addressing climate change. Ministries and local governments at provincial, prefecture and county levels have also set up executive and working bodies for addressing climate change which have local arrangements and act under the guidance of the central government.

In order to mitigate climate change, governments at all levels have emphasized climate change, made positive progress, and increased their abilities to mitigate the effects of and adapt to climate change. The development of mechanisms, laws and standard systems addressing climate change has been gradually improved. The people's awareness of low-carbon development has increased. Moreover, NDRC, Environment Protection and Resources Conservation Committee of the National People's Congress (NPC), the Law Committee of the NPC, the Legislative Affairs Office of the State Council, together with relevant departments, have set up a leading group for drafting laws on addressing climate change in a bid to quicken the law drafting process and have established a basic legislative framework. Additionally, China's climate change management systems and working mechanisms have been initially established, which features unified management by NDRC under the leadership of NLGCC, with different tasks and responsibilities carried out by relevant ministries, institutions and local governments, and broad participation by the whole society.

NDRC is responsible for promoting the strategy of sustainable development, undertake comprehensive coordination of energy saving and emission reduction, organize the formulation and coordinate the implementation of plans and policy measures for recycling economy, national energy and resource conservation and comprehensive utilization. Furthermore, it will participate in the formulation of plans for

ecological improvement and environmental protection, coordinate the solution of major issues concerning ecological building, energy and resource conservation and comprehensive utilization, coordinate relevant work concerning environment-friendly industries and clean production promotion, etc. This organizational arrangement will allow the 3NC project to present the overall situation and information related to the whole society and various economic sectors from the start of the project and to reflect up-to-date national priority areas and policy formulation during the preparation of the 3NC.

To strengthen the overall guidance in implementing the project, NDRC will build on the previous NC Steering Committee to strengthen the coordination mechanisms with representatives serving as members from the Department of Climate Change, the Department of Treaty and Law of the Ministry of Foreign Affairs, the International Cooperation Department of the Ministry of Finance, the Department of Social Development of the Ministry of Science and Technology, the Department of Science and Technology of the Ministry of Environment Protection, and the Department of Science and Technology of China Meteorological Administration. The Department of Climate Change of NDRC will set up a China 3NC project management office, which will supervise and manage the project implementation.

With a strong sense of responsibility, China, in accordance with the provisions of the Convention and Kyoto Protocol and in conjunction with its national sustainable development strategy, has adopted a series of policies and actions on economic restructuring, development mode shift, energy efficiency improvement, energy conservation, renewable and nuclear energy development, energy mix optimization, and afforestation with significant achievements. Since the 11th Five-Year Plan (hereinafter referred as the 11th FYP) period, the Government of China has attached great importance to industrial restructuring, economic transformation, reduction of resource and energy consumptions, reinforcing the guiding role of industrial policies and special plans. On the one hand, China has vigorously accelerated the development of the tertiary industry and encouraged the development of emerging industries; on the other hand, it has attached importance to restructuring the secondary industry so as to facilitate its optimization.

Energy conservation is a major strategy for China's economic and social development. Significant progress has been made in energy conservation through a series of policies and measures, e.g. improving regulations and standards, reinforcing accountability, phasing out backward production capacity, implementing key projects, promoting technological advances, intensifying policy incentives, enhancing supervision and management, and encouraging social participation. During the 11th FYP period, 630 million tons of coal equivalent of energy were conserved, resulting in emission reduction of 1.46 Gt CO_2e. China is vigorously developing new and renewable energy, and actively adjusting its energy mix. The adoption of the *Renewable Energy Law* and a series of ancillary policies and measures provided a stable supportive platform for the leapfrog development of new and renewable energies in China during the 11th FYP period.

The Chinese government highly values the unique role of forestry in coping with climate change. China has continuously kept an increasing trend in its forest area and reserves, further improved the forest carbon sink capacity, and made a positive contribution to the mitigation of global warming

while maintaining China's ecological security, through developing and implementing a series of policies and measures to protect and develop forest resources. China's total forest area has increased to 195 million hectares from 134 million hectares in 1992, marking a net gain of 60 million hectares within 20 years. Despite a decreasing global forest reserve, China's forest inventory expanded by 3.6 billion cubic meters to reach 13.7 billion cubic meters during the past 20 years. The country currently has 61.68 million hectares of man-made forest, the most in the world, and 7.81 billion tonnes of forest-carbon stock.

In addition, to make a positive contribution to climate change mitigation, China has taken important steps to address GHG emissions from industrial processes, agricultural activities, waste treatments by reinforcing policies on metallurgy, building materials and chemical industry, by developing circular economy, improving resource availability and enforcing various measures for N_2O and methane recovery, reuse and emission control.

China will further incorporate the responses to climate change in its economic and social development plans. China will take the realization of the 2020 GHG emissions control targets as its strategic tasks for addressing climate change in both current and future periods, and significantly reduce energy consumption intensity and CO_2 emissions through multiple means such as adjusting industrial structure and energy mix in combination with energy conservation, improved energy efficiency, and increased forest carbon sinks, in order to effectively control GHG emissions, and to make a new contribution to safeguarding the global climate.

In November 2009, the State Council set the action targets for GHG emissions control by 2020: China's CO_2 emissions per unit of GDP will be reduced by 40%-45% by 2020 compared with 2005, which has been incorporated in the medium and long-term economic and social development plans as a binding target, and for which national statistical, monitoring and evaluation methods will be developed accordingly. The non-fossil fuels will account for about 15% of the total primary energy consumption by 2020 through vigorously developing renewable energy among others; the forest area will be increased by 40 million hectares compared to 2005 through afforestation and enhanced forest management, and the forest stock volume will be increased by 1.3 billion m^3 relative to 2005. This is a voluntary action taken by China according to its national circumstances, showing the direction for China to actively address global climate change in the medium and long-term.

The Outline of the 12th Five-Year Plan for National Economic and Social Development (hereinafter referred as the 12th FYP) adopted in the Fourth Session of the 11th National People's Congress in 2011 gives "actively addressing global climate change" high priority as an independent chapter. To ensure that China's targets for GHG emission control are met by 2020, the 12th FYP has set for the first time a binding target for reducing CO_2 emissions per unit of GDP by 17%, and it has also set the specific action targets for GHG emission control: energy consumption per unit of GDP will be lowered by 16%; the non-fossil fuels will account for 11.4% of the primary energy consumption; the forest coverage will be increased to 21.66%; and forest stock volume will be increased by 600 million m^3.

During the 12th FYP period, China will change its development modes, and take a green and

low-carbon development pathway with Chinese characteristics by reasonably controlling its total energy consumption, imposing strict management on energy uses, accelerating formulation of energy development plan, setting a clear-cut target for controlling its total energy consumption and dividing it into regional targets for local governments, pursuing afforestation, expediting R&D and deployment of low-carbon technologies, curbing GHG emissions in industry, construction, transport and agriculture and other sectors, exploring to establish low-carbon product standards, labeling and certification system, establishing and improving a statistical GHG emission accounting system, gradually creating a carbon emission trading market, and promoting low-carbon pilot demonstration programs, to ensure that the GHG emission control action targets are met by 2020.

To implement actions/tasks geared towards achieving China's climate change objectives in the 12th FYP, promote green low-carbon development and enhance planning and guidance, the State Council of China issued a series of important policy documents, including *Work Plan for Greenhouse Gas Emission Control during the 12th FYP Period* and the *Comprehensive Work Plan on Energy Conservation and Emission Reduction During the 12th FYP Period*, etc. The 12th FYP carbon intensity targets were allocated to all provinces, autonomous regions and municipalities; energy consumption intensity targets were also assigned to relevant industries and sectors. The associated obligation and evaluation system to assess target fulfillments has been established and implemented. So far China has achieved notable results in addressing climate change by optimizing industrial and energy structures, vigorously conserving energy, and increasing carbon sinks. Compared to that of the 11th FYP, addressing climate change has become more important in the overall national economic and social development undertaking and its strategic position is improved significantly.

The Government of China attaches great importance to the issue of global climate change. With a strong sense of responsibility to the Chinese people and international community as a whole, China adheres to UNFCCC and the Kyoto Protocol as the basic framework of international climate mechanism; it extensively participates in relevant international dialogues and exchanges, enhances international communication and cooperation, and promotes global progress for addressing climate change. China continually plays a constructive role in the international climate change negotiation; strengthens multilateral negotiations and dialogues with other countries, and strives to promote mutual understanding and consensus among all parties, and makes a positive contribution to building a fair and reasonable international mechanism for addressing climate change.

1.4. Stakeholder Analysis

Broad participation of stakeholders is the basis of a successful project. The intention and starting point of this capacity building project on the preparation of the 3NC is to absorb wide range of views from all sides and to draw on collective wisdom, in order to develop a national GHG inventory with scientific methodology, transparent data, consistent format and comparable results. The 3NC will contain information regarding national circumstances, national GHG inventory, climate change impacts and adaptation, analysis on policies relevant to climate change mitigation and analysis on MRV system, other activities undertaken to meet the target of the Convention and public awareness improvement, etc. The report will reflect China’s national circumstances related to climate change.

The effective implementation of this project requires full play of the roles of the NLGCC members, as well as the participation of local governments, civil societies, research institutes, universities, non-governmental organizations (NGOs).

The national and international communities are the direct beneficiaries of this project. The report on China's 3NC as the final output of this project shall serve as the foundation for China's final 3NC to be submitted to the UNFCCC Secretariat, and also an important part of the international actions on climate change mitigation. The project will enhance the capacity of analysis and decision making of relevant institutions and experts through their participation. It will enhance the awareness of all project participants on climate change issues.

1.5. Baseline Analysis

Through the effective implementation of the previous two projects to Enable China to Prepare Its National Communications to the UNFCCC and the great efforts made by the Chinese Government, China has greatly improved its capacity in developing national GHG inventories, etc., thereby providing a sound foundation for the preparation of the 3NC. However, the preparation of the 3NC is faced with several challenges such as time constraints and weak data system, etc.; the current capability gained during the preparation of the previous national communications can't fully meet the need for the 3NC preparation in light of the new reporting requirements and growing need for more detailed and higher quality data.

According to the recommendations of the external evaluation report and the experiences gained during the preparation of the 2NC, the preparation of the 3NC will face the following challenges: 1) Time constraints. It took five years for the approval of the 2NC project and another four years for the preparation of the 2NC, which caused the late publication of the 2005 national GHG inventories till 2012. If the 3NC project approval process is to take a long time as usual, the timeliness and effectiveness of the content of the 3NC will be seriously affected. Therefore, the approval process of the 3NC project should be accelerated to ensure the certainty of the 3NC preparation schedule; 2) Data system needs strengthening. Given the enormous challenges faced by China's energy and economic statistics system, it is necessary to establish a scientific and systematic data collection and research system for GHG emissions, develop comprehensive and integrated information and data supporting technologies, develop emission factors in line with national circumstance, and reduce uncertainties of field measured data and related emission factors; 3) Strengthening research work. According to the *IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories* (hereinafter referred to as the IPCC Good Practice Guidance), careful review and repeated verification of emission inventories need to be undertaken; bottom-up and in-depth research on industries need to be carried out according to the actual situation; 4） Statistics and information related to Hong Kong SAR and Macao SAR for national communication should be improved. Although the 2NC has incorporated Hong Kong SAR and Macao SAR information in national communication, these two sets of data and statistics still require further research, supplement and improvement; 5) Financial support. Adequate financial support is vital to the preparation and implementation of the 3NC.

With regard to the BUR, according to Decision 2/CP.17, China is required to submit its BUR to the FCCC Secretariat by December 2014 covering: a) Information on national circumstances and institutional arrangements relevant to the preparation of the national communications on a continuous basis; b) The national inventory of anthropogenic emissions by sources and removal by sinks of all GHGs not controlled by the Montreal Protocol, including a national inventory report; c) Information on mitigation actions and their effects, including associated methodologies and assumptions; d) Constraints and gaps, and related financial, technical and capacity needs, including a description of support needed and received; e) Information on the level of support received to enable the preparation and submission of biennial update reports; f) Information on domestic measurement, reporting and verification; g) Any other information that a non-Annex I Party considers relevant to the achievement of the objective of the Convention and suitable for the inclusion in its biennial update report.

Therefore, there are challenges in preparation of the BUR, including strengthening data system, further research and strengthening basic information of Hong Kong SAR and Macao SAR. The pressing submission deadline, which is less than 2 years from now, made the time urgency even more remarkable.

In summary, the preparation of the 3NC and the BUR is under time pressure and involves heavy work. Therefore it is urgently needed to accelerate the project approval process and it requires for adequate and effective funding support from international community to guarantee the submission of China's 3NC and BUR in a timely manner.

PART II: STRATEGY

2.1. Project Rationale and Policy Conformity

China officially submitted its 2NC to the Secretariat of the UNFCCC in November 2012. There are eight parts in 2NC: national circumstances; national GHG inventory; impacts of climate change and adaptation; policies and measures related to climate change mitigation; other relevant information on achieving target of the Convention; national needs for funds, technologies and capacity building; basic information of Hong Kong SARs on addressing climate change, and basic information of Macao SARs on addressing climate change. Through the Project on Enabling China to Prepare Its Second National Communication funded by GEF, it is undoubtedly beneficial for China to strengthen the capacity building in this regard and further accumulate relevant experience. Although China made great effort and achieved a lot in developing 1NC and 2NC reports, China is still facing a lot of challenges in the process to prepare the 3NC Report.

The 2NC Report has described the need for further capacity building efforts that mainly include, firstly, enhancing the capability of developing GHG inventory at both national and local levels, promoting international cooperation and exchanges in personnel training, methodology development, data collecting and sharing, continually improving the management capacity and technical level of the inventory development team, and promoting the standardization and normalization of the GHG

inventory development work; secondly, establishing and improving the GHG statistical and accounting system, strengthening the training of relevant statistical agencies and enterprises employees, improving statistical support to GHG inventory development, and improving the authority and transparency of national GHG inventory; thirdly, enhancing the measurement work on data of emission factors and capacity building, developing the measurement of emission factors of coal burning such as electric boiler, so as to identify emission factors that can better reflect China's circumstances and reduce the uncertainties of national GHG inventory; fourthly, improving the decision making capability at the local level of dealing with climate change, strengthening the education and training of local leaders in dealing with climate change through extensive international cooperation and exchanges. This has reflected from a certain perspective the needs for China in preparing the 3NC Report. This proposed 3NC project will enhance the capacity (through exchanges and targeted training) of the relevant personnel involved in the development of national communications, with the ultimate goal of improving the quality of national communications and biennial update reports.

According to the provisions of the UNFCCC and the requirements of the relevant COP decisions on national communications from non-Annex I Parties, China needs to prepare its 3NC Report in accordance with the revised *Guidelines for the Preparation of National Communications from non-Annex I Parties*, and develop national GHG inventory for national communications and biennial update reports in accordance with the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories. Guidelines for the Preparation of National Communications from non-Annex I Parties* encourages non-Annex I parties to make use of the *IPCC Good Practice Guidance and Uncertainty Management* and to take into account the improvement of transparency, consistency, comparability, integrity and accuracy of the inventory; to provide information on anthropogenic emission sources of hydrofluorocarbons (HFCs), perfluorocarbon (PFCs) and sulfur hexafluoride (SF_6); and to provide information about the implemented or planned mitigation programmes and measures, etc.

The development of national communication is a continual process that entails continual improvement of the capacity for developing national communications. Furthermore, as human beings deepen their knowledge about climate change, the COP sets a higher standard to the parties in terms of the time and scope relating to GHG emission and policy measures, and also puts higher demand on technicians involved in developing national communications in developing countries (such as China). Therefore, financial and technical support is needed to conduct training and international exchanges, and to continually improve the technical level and comprehensive capability of the staff that are involved in developing national communications; besides, China's GHG database needs to be improved in order to effectively manage China's GHG inventory information, provide support to inventory data analysis and quality control, and to lay a sound foundation for the continuous development of national GHG inventory.

Moreover, in accordance with decision 2/CP.17 and with the support of GEF, China, as a non-Annex I Party to the UNFCCC, hopes to develop the BUR which would report China's basic circumstances, national GHG inventory, mitigation of GHG emission and the effects, constraints and gaps, related financial, technical and capacity needs, and other updated information for realizing the targets set

forth in the UNFCCC. The development of the BUR is a completely new work for China as China has never done such work before. To develop the GHG inventory, China needs to conduct special survey on part of activity data and on emission factors as well. Therefore, it is necessary to strengthen relevant capacity building.

The specific rationales for this proposed 3NC project are as following:

- With regards to the development of national GHG inventory, firstly, it will pay more attention to the quality of activity data. In the development of the inventory, efforts will be made to verify the activity data of CO_2, the key emission source, and the data of coal consumption in particular. Secondly, compared to the 2005 national GHG inventory developed in the 2NC, the inventory to be developed by the 3NC Report and BUR will be more comprehensive: the GHG emissions from industrial process will cover CO_2 emissions from glass, ceramics, ferroalloy, titanium oxide, synthetic ammonia productions; the GHG emissions from land use, land use change and forestry (LULUCF) will cover emissions from soil carbon changes of farm land and grass land as well as soil carbon changes resulted from deforestation in addition to the emissions/removal identified in China 2005 LULUCF Inventory; the GHG emissions from waste disposal will cover emission from biological disposal of solid waste, and the emission of methane and nitrous oxide resulted from the burning of solid waste. Thirdly, the inventory to be submitted by this project will reflect to a largest extent the latest information about China's emission. The project team plans to submit China's national GHG inventory no earlier than 2010 by December 2014. Fourthly, improve the methodology of inventory development, and choose high-level method and parameters and data that are exclusive to China. In the new inventory, great changes will be made with regard to the activity data of China's energy, industrial process, agriculture, LULUCF and waste compared to that of the 2005 inventory, hence, it is necessary to conduct massive sample surveys on and statistical analyses of activity data; to further reduce the uncertainties of the inventory, efforts have to be made to carry out research work such as field investigation relating to China's specific GHG emission factor data.

- With regards to national GHG database management system, it is necessary to input the data of 3NC GHG inventory and the data of BUR into the national GHG database. Meanwhile, daily maintenance and management of GHG inventory database are needed.

- With regards to the forecast of GHG emission, China, as a developing country, still has to further develop its economy. During the process, China's GHG emissions will possibly increase with the development of its economy. Meanwhile, as China's economic system is large and complex, the forecast of its economy and GHG emission faces great difficulties. In accordance with the resolutions of the UNFCCC, due to the limited capability of non-Annex I parties, their national communications are not required as compulsory to include the content of emission forecast. However, in order to enhance transparency and international exchanges as well as to provide quantitative analysis support to the formulation of GHG emission control measures, China plans to include contents of CO_2 emission forecast in the 3NC. Therefore, it is necessary to further build the capacity of China's scientific research team so as to better forecast GHG emission.

- With regards to climate change impacts and adaptation, the 3NC will continue to conduct the study on the impacts of climate change on agriculture, water resources and terrestrial ecosystems; the 3NC will assess the impacts of climate change on socio-economic development in coastal regions and human health, and will especially analyze the impact of extreme weather events on socio-economic development.

- With regards to general description about the progress of implementation of the UNFCCC, a systematic summary of the adopted policies and measures, especially relevant policies on mitigation and adaptation will be provided. The 3NC will also describe the linkages between the specific contents of policies and measures with relevant parts of the national communications (e.g. national circumstances, emission inventory, and technology transfer). In accordance with Decision 17 of COP 8, China will include a description of the planning and policies for the implementation of the UNFCCC, addressing: (1) policies and measures to facilitate adequate adaptation to climate change; (2) policy programs to mitigate climate change, including potential methodological issues. Therefore, it is expected that this project will enable China to carry out systematic analysis on the effects of implementation of relevant policies and measures on mitigation of and adaptation to climate change and further explore how to better plan and coordinate the integration of policies and measures for mitigation of and adaptation to climate change into national economic and social development plan. Decision 17 of COP 8 also provides methodologies and guidelines for evaluation of adaptation strategies and measures and assessment of measures to mitigate climate change[1]. In line with Decision 2 of COP 17 (2/CP.17), it is also necessary to report to the United Nations biennial update reports, basic national circumstances of dealing with climate change, activities to mitigate GHG emission and the effects, as well as other relevant information for realizing the targets of the UNFCCC such as domestic measurement, reporting and verification system, etc.

Similar to the practice in second national communication, the central government will include relevant information on climate change in the Hong Kong and Macao SARs in China's 3NC and BUR in the project of *Enabling China to Prepare Its Third National Communication.* The government of China will assist in enhancing their capacity building based on the existing effort, and provide technical guidance as previous. Their reports will be included in China 3NC and BUR. During the period of the 2NC, Macao and Hong Kong SAR have not built GHG inventory database and has not conducted preliminary forecasting on GHG emission. Supplementary work and development of database and emission forecasting are planned to be carried out in the 3NC project for Hong Kong and Macao SARs.

To meet the above challenge China is applying to the GEF by following the procedures for full sized projects. The duration of the project implementation is planed from 2014 to 2018, lasting 4 years.

[1] Such as *Technologies, Policies and Measures for Mitigating Climate Change* (IPCC Technical Paper I); *Greenhouse Gas Mitigation Assessment: A Guidebook by the U.S. Country Studies Program; Climate Change 2001: Mitigation* (Contribution of Working Group III to the Third Assessment Report of the IPCC)

The expected project results and possible impacts include the following:

1. To understand comprehensively how China addresses climate change, including mitigation action and its effects and others;
2. To enhance China's capability to develop GHG inventory;
3. To enhance China's capability to develop BUR;
4. To enhance China's capability to analyze and project future GHG emissions;
5. To maintain and update the national GHG inventory database to make full use of its role in decision making;
6. To better understand China's vulnerability to and the impact of climate change;
7. To improve public awareness of climate change;
8. To obtain understand new information on GHG emissions and climate change situation in the Hong Kong and Macao SARs;
9. To assist China to fulfill its obligation under the UNFCCC;
10. To facilitate achieving the 2020 target to control greenhouse gas emissions, and to promote China's sustainable development.

2.2. Project Goal, Objectives, Outcomes/Outputs and Major Activities

The project will enable China to prepare and submit the 3NC and BUR to the UNFCCC in accordance with Article 12 of the Convention, Decision 17/COP 8 and Decision 2/COP 17. On the other hand, it will enable China to effectively implement policies and measures to control GHG emissions. The overall objective is to strengthen capacity in integrating climate change concerns into national and sector development priorities while fulfilling obligations to the UNFCCC.

The outputs of the project include: (1) China's 3NC to the UNFCCC; (2) BUR 2010; and, (3) BUR 2012 (which will be a section in the 3NC Report).

The project will produce the three outputs with seven components. The first component is updating of national GHG emission inventory and GHG inventory database, and enhancement of GHG emission forecasting and modeling systems, the second is assessment on impacts of, vulnerability and adaptation to climate change, the third is updating of climate change mitigation, measures, options and actions, the fourth is improving public awareness and informing policy-decision making on climate change, the fifth is inventory of GHG emissions and other relevant information on climate change in Hong Kong and Macao SARs, the sixth component is supplementary support for achieving Convention objectives and publication and dissemination of the 3NC report, the seventh component is supporting China Biennial Update Report completed and submitting to the UNFCCC.

Component 1: Updating of National GHG Emission Inventory and GHG Inventory Database, and Enhancement of GHG Emission Forecasting and Modeling Systems

The outcome from outputs that will be delivered under this component is clearer understanding of the

magnitude and causes of the GHG emissions from the different sectors. The main output is the completed documentation of GHG emission inventories in the energy, industry, agriculture, land use change and forestry, and waste sectors, to update GHG emission inventory database for 2010 and 2012, and to improve GHG emissions projection and modeling systems. The component is comprised of 7 sub-components.

Sub-component 1.1: Inventory of GHG Emissions from Energy Activities in 2010 and 2012

The objective in this sub-component is the completion of the GHG inventories in the energy sector in China in 2010 and 2012, including the GHG from fossil fuel combustion; the GHG from biomass combustion; the methane (CH_4) fugitive emissions from coal mining and post-mining activities; the CH_4 fugitive emissions of oil and gas system; the GHG emission from non-energy uses of fossil fuel; the GHG emission from international bunkers.

Outcome 1.1.1: GHG inventory from fossil fuel combustion in 2010 and 2012

Activity 1.1.1.1: Determination of the compilation method of GHG inventory from fossil fuel combustion. Based on the latest changes of national energy statistical indicators and the latest developments of the accounting research on corporate GHG emissions, this activity will study the categorization of fossil fuels, and define the boundary between combustion and non-energy use of fossil fuels and the boundary between emissions from fossil fuel combustion and industrial processes in key sectors.

Activity 1.1.1.2: Determination of the amount of fossil fuel combusted by sectors and by types. In line with the *IPCC Guidelines*, INC and 2NC, and the need for activity data on fossil fuel combustion in China, the activity will verify the quality of the energy consumption data in the national energy balance sheet and other national statistics, utilize the information on GHG emissions from fossil fuel combustion of key industries, and determine the activity data of fuel combustion in China in 2010 and 2012.

Activity 1.1.1.3: Identification of the main parameters for different varieties of fossil fuels in China, such as carbon content, low heat value (LHV), or net calorific values (NCV), etc. This will involve the collection of data on carbon content and LHV of varieties of coals from major coal mines in China, collect data on coal quality in major coal- consuming sectors, such as electricity, heating, iron and steel and cement, study the monitoring data of coal quality supervision departments, and determine the main parameters for different varieties of fossil fuels in China in 2010 and 2012, such as carbon content, LHV, etc.

Activity 1.1.1.4: Quantification of the CO_2 emission factors of fossil fuel combustions in 2010 and 2012. Key surveys on the GHG emissions from coal-fired boilers for power generation and industrial boilers will be further carried out to collect the measured thermal balance data that were tested during 2010 and 2012, and then the CO_2 emission factors by coal types, by sectors and by different types and capacities of stationary combustion equipment will be determined and updated. CO_2 emission factors

of fossil fuel combustion in 2010 and 2012 by major transportation equipment such as trains, automobiles and ships will also be surveyed.

Activity 1.1.1.5: Determination of the emission factors of N_2O and CH_4 due to the fossil fuel combustion in 2010 and 2012, with a focus on the N_2O and CH_4 emission factors of different equipment and types of fuels for the mobile sources of the transportation sector, since technical structure and vintage of vehicles in China has been changing due to stricter emission standards. The N_2O and CH_4 emission factors of different fossil fuels for stationary combustion equipment will also be studied.

Activity 1.1.1.6: Preparation of the China GHG inventory from fossil fuel combustion in 2010 and 2012. This will calculate the CO_2, N_2O and CH_4 emissions from fossil fuel combustion in China in 2010 and 2012 and carry out a quantitative analysis of inventory uncertainty.

Activity 1.1.1.7: Organization and conduct of workshops and review meetings participated in by experts from relevant companies, industry associations, statistical agencies, and research institutions to explore the science, problems and solutions of the methodologies for the preparation of GHG inventory from fossil fuel combustion, the activity data collection methods and the determination methods for emission factors.

Outcome 1.1.2: GHG inventory from biomass combustion in 2010 and 2012

Activity 1.1.2.1: Collection, analysis and determination of the biomass burning activity data in 2010 and 2012. This will involve the collection and investigation of the production and consumption of each type of biomass energy (fuel wood, crop straw, manure, etc.) in China in 2010 and 2012, and the determination of the biomass burning capacity of different types of equipment and of the major combustion equipment.

Activity 1.1.2.2: Determination of the emission factors of N_2O and CH_4 from biomass burning in 2010 and 2012, with the focus on the collection and analysis of emission factors of N_2O and CH_4 from biomass burning of different types of equipment and of the major combustion equipment in 2010 and 2012.

Activity 1.1.2.3: Preparation of the China GHG inventory from biomass combustion in 2010 and 2012. This will estimate the N_2O and CH_4 emissions from biomass burning in China in 2010 and 2012 and conduct quantitative analysis of uncertainty. Conduct calculation of emissions in carbon dioxide equivalence applying global warming potentials (GWP).

Activity 1.1.2.4: Organization and conduct of workshops and review meetings participated in by pertinent experts to explore the science, problems and solutions of the methodologies for the preparation of GHG inventory from biomass burning, the activity data collection methods and the determination of methods for estimating emission factors.

Outcome 1.1.3: Inventory of CH4 emissions from coal mining and post-mining activities in 2010 and 2012

Activity 1.1.3.1: Collection, analysis and determination of activity data on coal mining and post-mining activities. Data on coal production from underground mining, surface mining and post-mining activities will be collected, with focus on high- gassy and outburst mines.

Activity 1.1.3.2: Determination of the emission factor of CH_4 from coal mining and post-mining activities. Data on the coal bed CH_4 content in various types of coal mines (including coal mines with high or prominent gas concentration and coal mines in towns) and parameters such as CH_4 emission characteristics during and after the mining activities will be collected. This will involve the study and determination of the CH_4 emissions factor for underground mining, surface mining and post-mining activities.

Activity 1.1.3.3: Conduct of research and identification of the gas drainage utilization rate in coal mines in China. This will involve collection of information on the drainage volume, the average content of methane, gas utilization rate and other parameters, and propose the gas drainage utilization rate for coal mines in China.

Activity 1.1.3.4: Preparation of the China inventory of CH_4 emissions from coal mining and post-mining activities in 2010 and 2012. This will involve the estimation of the CH_4 emissions from coal mining and post-mining activities in 2010 and 2012 and conduct of a quantitative analysis of uncertainty.

Activity 1.1.3.5: Organization and conduct of workshops and review meetings participated in by relevant experts to explore the science, problems and solutions of the methodologies for the preparation of the inventory of CH_4 emissions from coal mining and post-mining activities, the activity data collection methods and the determination methods for emission factors.

Outcome 1.1.4: Inventory of CH4 fugitive emissions from oil and gas system in 2010 and 2012

Activity 1.1.4.1: Collection, analysis and determination of the corresponding activity data on CH_4 fugitive emissions from oil and gas system, with focus on the activity data on the exploitation and development of oil and gas fields, the exploitation, gathering and transportation of oil and gas, the transportation, refining and storage of crude oil, the processing, transmission, distribution and consumption of natural gas, as well as other oil and gas consumption activities.

Activity 1.1.4.2: Determination of the CH_4 fugitive emission factors from oil and gas system, including the CH_4 fugitive emission factors for exploitation and development of oil and gas fields, the exploitation, gathering and transportation of gas, the transportation, refining and storage of crude oil, the processing, transmission, distribution and consumption of natural gas, as well as other oil and gas consumptions.

Activity 1.1.4.3: Preparation of the China inventory of CH_4 fugitive emissions from oil and gas system in 2010 and 2012. This will include estimation of CH_4 fugitive emissions from oil and gas system in 2010 and 2012 and conduct a quantitative analysis of uncertainty.

Activity 1.1.4.4: Organization and conduct of workshops and review meetings participated in by relevant experts to explore the science, problems and solutions of the methodologies for the preparation of the inventory of CH_4 fugitive emissions from oil and gas system, the activity data collection methods and the methods for estimating emission factors.

Outcome 1.1.5: GHG inventory from non-energy uses of fossil fuel in 2010 and 2012

Activity 1.1.5.1: Conduct of a study to come up with methodologies for the preparation of GHG inventory from non-energy uses of fossil fuel. This will focus on good practices for the GHG inventory at provincial level, and will determine the boundaries of GHG emissions from the non-energy use of fossil fuels and from industrial processes.

Activity 1.1.5.2: Collection of data/information on different kinds of fossil fuels used for non-energy purposes in different sectors in China. This will involve the determination of activity data on non-energy use of fossil fuels (especially in coking and refining activities) in China in 2010 and 2012 based on the national energy balance and relate them to the industrial processes.

Activity 1.1.5.3: Determination of carbon sequestration rate of fossil fuels used for non-energy purposes. This will involve a study on the average carbon sequestration rate of major coal varieties in the coking process and the average carbon sequestration rate of major crude oil varieties in the refining process by conducting surveys in typical enterprises.

Activity 1.1.5.4: Preparation of the China GHG inventory from non-energy uses of fossil fuel in 2010 and 2012. This will involve the estimation of the volume of GHGs such as CO_2 emitted during the non-energy uses of fossil fuel in 2010 and 2012 and conduct a quantitative analysis of uncertainty of the inventory.

Activity 1.1.5.5: Organization and conduct of workshops and review meetings to solicit opinions from industry experts on improved GHG emission calculation methods and improvement of GHG emission data accuracy in non-energy uses of fossil fuels.

Outcome 1.1.6: GHG inventory from international bunkers in 2010 and 2012

Activity 1.1.6.1: Collection of activity data of fossil fuel combustion of Chinese international bunkers. This will involve also a study to come up with activity data of fossil fuel combustion of the Chinese international bunkers in 2010 and 2012 based on the national energy balance sheet and survey in typical enterprises.

Activity 1.1.6.2: Determination of the emission factors for Chinese international bunkers and the

average emission factors of aviation and seafaring through survey in typical enterprises.

Activity 1.1.6.3: Preparation of the China GHG inventory of international bunkers in 2010 and 2012. This will include the calculation of the volume of GHGs such as CO_2 emitted from international bunkers in 2010 and 2012 and conduct a quantitative analysis of uncertainty of the inventory.

Activity 1.1.6.4: Organization and conduct of workshops and review meetings to solicit opinions from industry experts on improved GHG emission calculation methods and improvement of GHG emission data accuracy in international bunkers.

Outcome 1.1.7: Comprehensive research and compilation of inventory of GHG emissions from energy activities

Activity 1.1.7.1: Conduct of a study to come up with methodologies, reporting scope, research areas for compilation of GHG inventory of the energy sector. This will involve systematic review of the good practices and inadequacies in the compilation of GHG emissions from fossil fuel combustion in 1994 and 2005, and the determination of the methodology and reporting scope of GHG inventory of the energy sector in 2010 and 2012 based on the results in Outcome 1.1 and 1.5.

Activity 1.1.7.2: Preparation of the China GHG inventory of the energy sector in 2010 and 2012. This will involve summarizing the estimation results of GHG emission from fossil fuel combustion, biomass combustion, the mining and post-mining activities, oil and gas system, non-energy use of fossil fuel, and international bunkers. This will also include the conduct quantitative analysis of uncertainty of the inventories and finish the compilation report on the GHG inventory of the energy sector in 2010 and 2012. Al\so included are the calculation of national GHG emissions from the energy sector, and the preparation of the GHG inventory of the energy sector in accordance with the requirements of the IPCC report formats.

Activity 1.1.7.3: Conduct of international training or exchange activities on GHG inventory methodologies for the energy sectors. During the project implementation, several researchers will be sent to countries (e.g., Australia or Canada) with good experience in compiling GHG inventory of the energy sector, especially on fugitive emissions from coal-mining or from oil & gas systems, inventory from non-energy uses of fossil fuel, as well as the experience using the *2006 IPCC Guidelines for National Greenhouse Gas Inventories*, so that they can learn about good practices of data collection of the energy sector, the determination of emission factors, the data quality control and quantitative analysis of uncertainty and help improve their theoretical level and practical capability.

Activity 1.1.7.4: Organization and conduct of workshops and review meetings attended by relevant experts to discuss activity data, fuel quality, emission factors and other crosscutting issues in the GHG inventory of the energy sector.

Sub-component 1.2: Inventory of GHG Emissions from Industrial Processes in 2010 and 2012

The objective of this sub-component is the completion of the preparation of China's GHG inventory of industrial processes in 2010 and 2012, including the mineral industrial processes GHG inventory; the chemical industrial processes GHG inventory; the metal industrial processes GHG inventory; emissions related to production of Halocarbons (HFCs, PFCs) and Sulfur Hexafluoride (SF_6); the GHG inventory of halocarbons and sulfur hexafluoride consumption.

Outcome 1.2.1: GHG inventory of industrial mineral products production processes in 2010 and 2012

Activity 1.2.1.1: Determination of the compilation method of the inventory of CO_2 emissions from industrial processes of mineral products production in China. This will summarize the experience and inadequacies in the preparation of GHG inventories in the previous NC projects and the preparation of GHG inventories of industrial processes in the production of cement, lime and other mineral products at provincial level, follow the basic principles and methods in the *IPCC Guidelines* and *IPCC Good Practice Guidance and Uncertainty Management* and propose the compilation method for the inventory of CO_2 emissions of industrial processes of mineral products. The CO_2 emissions of the industrial processes in the glass, ceramics and sodium carbonate sub-sectors will be added in this capacity building project and are planned to be calculated using the outputs of glass, ceramics and sodium carbonate as the activity data in accordance with the *1996 IPCC Guidelines*, and also make reference to *2006 IPCC Guidelines*.

Activity 1.2.1.2: Collection of data on the level of CO_2 emissions and emission factors in the industrial process of cement in China. This will make use of the Method 2 in the *1996 IPCC Guidelines*, which is to use the clinker output as the activity data for CO_2 emissions in the cement production process. This will also involve the conduct of a special survey to obtain data on CaO and MgO content in the cement clinker in typical regions to determine the emission factors of clinker production in these regions.

Activity 1.2.1.3: Collection of data to establish activity data and emission factors of the industrial processes of lime production. Since China lacks systematic and complete statistics on lime production, this activity will include a special survey to collect data on output and the CaO and MgO content of lime products to determine the output and emission factors of lime production in typical regions.

Activity 1.2.1.4: Collection of data to establish activity data and emission factors of the industrial processes of glass production. A special survey will also be conducted to collect data on glass output and on CO_2 emissions per unit of glass in each province.

Activity 1.2.1.5: Collection of data to establish activity data and emission factors of the industrial processes of ceramics production. A special survey will also be conducted to collect data on ceramics output and on CO_2 emissions per unit of ceramics in each province.

Activity 1.2.1.6: Collection of data to establish activity data and emission factors of the industrial processes of sodium carbonate production. A special survey will also be conducted to collect data on sodium carbonate output and on CO_2 emissions per unit of sodium carbonate in each province.

Activity 1.2.1.7: Preparation of the China mineral industrial processes GHG inventory. This will include calculation of the CO_2 emissions of the industrial processes in the production of cement, lime, glass, ceramics and sodium carbonate, preparation of the GHG inventories of industrial processes in the production of cement, lime, glass, ceramics and sodium carbonate in accordance with the reporting format of IPCC and conduct an uncertainty analysis. Cement is used as an example to analyze and study the linkage of CO_2 emissions of industrial processes of cement at national and provincial level.

Activity 1.2.1.8: Organization and conduct of workshops and review meetings attended by relevant experts to discuss activity data, fuel quality, emission factors and other crosscutting issues in the GHG inventory of the industrial minerals production processes.

Outcome 1.2.2: GHG inventory of industrial chemical production processes in 2010 and 2012

Activity 1.2.2.1: Determination of the compilation method for the chemical industrial processes GHG inventory in China. This will involve summarizing the experiences and inadequacies in the preparation of GHG inventories for industrial chemical production processes in the previous NC projects, and the preparation of GHG inventories of specific industrial processes such as adipic acid, nitric acid and calcium carbide and others at the provincial level, following the basic principles and methods in the *IPCC Guidelines* and propose the compilation method for the inventory of GHG emissions of chemical industrial processes. The GHG emissions of the chemical industrial processes ammonia synthesis and titanium are newly added in this capacity building project and are planned to be calculated using methods in the *1996 IPCC Guidelines*.

Activity 1.2.2.2: Collection of data for the establishment of activity data of CO_2 emissions and emission factors in the industrial process of synthesis ammonia production. A special survey will be conducted to obtain data on the fossil energy consumption and the synthesis ammonia output of the industrial process of production of ammonia from coal and gas, and to determine the activity data and emission factors.

Activity 1.2.2.3: Collection of data for the establishment of the activity data of N_2O emissions and emission factors in the industrial process of adipic acid production. A special survey will be included to obtain information on the technologies used adipic acid production in different enterprises and corresponding outputs and N_2O emissions to be able to determine the activity data and emission factors.

Activity 1.2.2.4: Collection of data for the establishment of the activity data of N_2O emissions and emission factors in the industrial process of nitric acid production. This will consider the various

technologies used in nitric acid production based on emission intensity. A special survey will be included to obtain data on nitric acid outputs and corresponding emissions under different technologies in order to determine the activity data and emission factors.

Activity 1.2.2.5: Collection of data for the establishment of activity data of CO_2 emissions and emission factors in the industrial process of calcium carbide and titanium dioxide productions. This will consider the various technologies used in calcium carbide and titanium dioxide production based on emission intensity. A special survey will be included to obtain data on calcium carbide and titanium dioxide production using different technologies and to calculate the emission factors.

Activity 1.2.2.6: Preparation of the China GHG inventory of chemical industrial processes. It will include the calculation of the national GHG emission, preparation of the GHG inventories in accordance with the reporting format of the IPCC, and conduct of uncertainty analysis. Part of this is also the calculation of emissions in carbon dioxide equivalence applying the relevant GWP values.

Activity 1.2.2.7: Organization and conduct of workshops and review meetings attended by relevant experts to discuss activity data, emission factors, improvements in calculation methods and data accuracy and other crosscutting issues in the GHG inventory of the chemical industries.

Outcome 1.2.3: Industrial metal production processes GHG inventory in 2010 and 2012

Activity 1.2.3.1: Determination of the compilation method for the inventory of GHG emissions of industrial metal production in China. This will involve a review of the experience and inadequacies in the preparation of GHG inventories during the previous NC projects and the preparation of GHG inventories of iron and steel, aluminum and magnesium production at provincial level, following the basic principles and methods in the *IPCC Guidelines.* It will also include the establishment of the compilation method for the GHG inventory of the industrial metal production processes. The CO_2 emissions of the industrial processes of ferroalloy and aluminum production are new additions in this 3NC project and are planned to be calculated using methods in the *1996 IPCC Guidelines*.

Activity 1.2.3.2: Collection of data on the level of CO_2 emissions and emission factors in the industrial process of iron and steel production in China. A special survey will be conducted to obtain data on the flux consumption of iron and steel enterprises and to calculate the flux consumption rate across the iron and steel industry. This will also include research and collection of information on the $CaCO_3$ and $MgCO_3$ content in the flux as well as the carbon content in different varieties of pig iron and steel, and to use these data to calculate the CO_2 emission factors of the industrial process involved iron and steel production.

Activity 1.2.3.3: Conduct of research and collection of data on the level of CO_2 emissions and emission factors in the industrial processes of ferroalloy production in China. A special survey will be conducted to obtain data on the output of ferroalloy in China, and to collect, analyze and determine ferroalloy production emission factors.

Activity 1.2.3.4: Conduct of research and collection of data on the level of GHG emissions and emission factors in the industrial processes of aluminum production in China. The virgin aluminum production volume from different production technologies is to be used as the activity data. A special survey will be conducted to obtain data on the output of aluminum. A study will be conducted to determine the PFC emission factors and other related parameter values in the industrial processes of virgin aluminum production.

Activity 1.2.3.5: Conduct of research and compilation of data on the level of SF_6 emissions and emission factors in the industrial processes of magnesium production in China. The magnesium production volume is to be used as the activity data. A survey will be conducted in representative enterprises to obtain information on the output of magnesium. The SF_6 emission factors in the production and casting process of magnesium will be determined.

Activity 1.2.3.6: Conduct of research and collection of data on the level of CO_2 emissions and emission factors in the industrial processes of zinc, lead and other non-ferrous metals production in China. The zinc and lead production volumes are to be used as activity data. A survey will be conducted in representative enterprises to obtain data on the production and corresponding CO_2 emissions of the industrial processes involved in the production of zinc, lead and other non-ferrous metals to calculate the CO_2 emission factors for the industrial processes of zinc, lead and other non-ferrous metals production.

Activity 1.2.3.7: Preparation of the China GHG inventory of industrial metal production processes. This will also involve the calculation of the national GHG emissions; prepare the GHG inventories in industrial metal production processes in accordance with the reporting format of IPCC, as well as the conduct of an uncertainty analysis.

Activity 1.2.3.8: Organization and conduct of workshops and review meetings to solicit opinions from industry experts, on various issues including improvement of GHG emissions calculation methods and improvement of data accuracy.

Outcome 1.2.4: Emissions related to production of halocarbons and sulfur hexafluoride in 2010 and 2012

Activity 1.2.4.1: Determination of the estimation method for GHG emissions related to the production of halocarbons (HFC, PFC) and sulfur hexafluoride (SF_6) in China. This will involve a review of the experiences and inadequacies in the preparation of GHG inventories of the industrial processes in the previous NC projects, and at the provincial level, following the basic principles and methods in the *IPCC Guidelines.* An appropriate estimation method for emissions related to production of HFC, PFC and SF_6 will be established and recommended.

Activity 1.2.4.2: Collection of data for the establishment of activity data of GHG emissions and emission factors in the industrial process of HCFC-22 production in China. A survey will be conducted covering all HCFC-22 producers in China to obtain information on the overall HCFC-22

production volume and calculate the emissions of HFC-22.

Activity 1.2.4.3: Conduct of study to establish the activity data of GHG emissions and emission factors in the industrial processes of halocarbon production in China. It will involve collection of production volume data of major HFC varieties, such as HFC-32, HFC-125, HFC-134a, HFC-143a, HFC-152a, HFC-227ea and HFC-236fa. Using these data, the GHG emission factors of the industrial processes of halocarbon production will be determined.

Activity 1.2.4.4: Preparation of the China GHG inventory of industrial processes of halocarbons and SF_6 production. The national GHG emission from these industrial processes will be established as well as the preparation of the GHG inventories in accordance with the reporting format of IPCC. An uncertainty analysis will also be conducted.

Activity 1.2.4.5: Organization and conduct of workshops and review meetings to solicit opinions from industry experts on relevant issues such as improvement of GHG emission calculation methods and improvement of data accuracy.

Outcome 1.2.5: Emissions related to consumption of halocarbons and sulfur hexafluoride in 2010 and 2012

Activity 1.2.5.1: Determination of the method for estimating emissions related to consumption of halocarbons and sulfur hexafluoride. This will involve the review of the experience and inadequacies in the preparation of GHG inventories in previous NC projects and in the preparation of GHG inventories of emissions of halocarbons and SF_6 used in industrial processes at provincial level, following the basic principles and methods in the *IPCC Guidelines.* A compilation method for the inventory of GHG emissions from the use of HFC, PFC and SF_6 will be developed and recommended.

Activity 1.2.5.2: Collection of data for establishing activity data for GHG emissions from the utilization of halocarbons in China. This will involve researching and collecting data on the amounts of HFC-32, HFC-125, HFC-134a, HFC-143a, HFC-152a, HFC-227ea and HFC-236fa used in the production and usage of refrigerators, air conditioners, fire retardants, explosives and blowing agents. The activity data on the usage of HFC in the production and usage of refrigerators, air conditioners, fire retardants, explosion and blowing agents will also be established. Part of the research and data gathering will be on the quantities of HFC and PFC used in the etching and cleaning processes in semi-conductor manufacturing to determine the activity data on the use of HFC and PFC.

Activity 1.2.5.3: Collection of data to establish the activity data for GHG emissions from the utilization of SF_6 in China. This will involve gathering of information on numbers of electrical equipment in service, retired electrical equipment, newly-added electrical equipment and the average length of service of all the equipment using SF_6 to obtain the activity data on the production and use of electrical equipment. Research and data collection on the amount of usage of SF_6 in the etching and cleaning processes in semi-conductor manufacturing will be carried out to obtain the activity data for quantifying SF_6 emissions.

Activity 1.2.5.4: Conduct of study to determine the emission factors of GHG of halocarbons and SF_6. This will involve collection of data for determining the GHG emission factors of HFC-32, HFC-125, HFC-134a, HFC-143a, HFC-152a, HFC-227ea, and HFC-236fa in typical mobile and stationary air conditioners. Data collection for determining the SF_6 emission factor for electrical equipment and the emission factors of HFC, PFC and SF6 in the semiconductor manufacturing industry will also be carried out.

Activity 1.2.5.5: Preparation of the inventory of GHG emissions from using halocarbons and SF_6 in China. This will involve recording the GHG emission data and emission factors for use of HFC, production and use of electrical equipment, and semiconductor manufacturing. The national GHG emissions from industries using halocarbons and sulfur hexafluoride will be calculated; GHG (halocarbon and SF_6) inventories will be prepared in accordance with the reporting format of the IPCC; and an uncertainty analysis, will all be conducted.

Activity 1.2.5.6: Organization and conduct of workshops and review meetings to solicit opinions from industry experts to discuss issues such as improvement of GHG emission calculation methods and improvement of data accuracy.

Outcome 1.2.6: China industrial processes GHG inventory in 2010 and 2012

Activity 1.2.6.1: Conduct of study and research to develop appropriate methodologies for the compilation of GHG inventory from industrial processes. This will involve a systematic review of the good practices and inadequacies in the compilation of GHG inventory of industrial processes in past NC projects; examination in detail of the characteristics of the industrial processes and the GHG emissions from such processes in China in 2010 and 2012.

Activity 1.2.6.2: Preparation of the China GHG inventory of industrial processes. This will involve the consolidation of the estimated/calculated GHG emissions from the industrial processes in the production of mineral products, chemical products, and metal products, and in the production and use halocarbons and SF_6. A quantitative analysis of the GHG inventory of industrial processes will be conducted, and produce the report on the GHG inventory of industrial processes in China in 2010 and 2012.

Activities 1.2.6.3: Conduct of international training or study tour on the conduct of GHG inventory of industrial processes. This will involve the overseas training of several researchers in countries such as Canada to learn about good practices of data collection on industrial processes; the determination of emission factors of industrial processes; emission inventory data quality control and quantitative analysis of uncertainty; and, improve the technical capacity of the selected trainees both at the theoretical and practical levels.

Activities 1.2.6.4: Organization and conduct of workshops and review meetings to be attended by relevant experts in industrial processes to discuss the establishment and use of set activity data,

emission factors and other crosscutting issues in the GHG inventory of industrial processes.

Sub-component 1.3: Inventory of GHG Emissions from Agriculture

This project sub-component is for the completion of the preparation of greenhouse gas inventories of agriculture sector in China in the year of 2010 and 2012, including: inventory of methane emission from paddy fields; inventory of nitrous oxide emission from croplands; inventory of methane emission from enteric fermentation; inventory of methane and nitrous oxide emissions from manure management systems.

Outcome 1.3.1: Inventory of methane emission from paddy fields of China

Activity 1.3.1.1: Data collection/investigation and CH4 emission database establishment**.** This will involve the conduct of county-level statistical data collection about: (1) harvest area and production of different types of rice ecosystems in the years 2010 and 2012; (2) rice planting and management (including planting regime, sowing, rice variety, field irrigation, nitrogen fertilizer and manure application, and straw retention etc.) in the years 2010 and 2012; (3) area of paddies water-logged in winter (PWLW) in the years 2010 and 2012; (4) climate (in the year of 2010 and 2012), soil, and CH_4 emission factor of field observations since 2005. A database will be developed that will include observation data, survey data and spatial extension data. The database will provide more reliable inputs for the model that will be developed for the calculation of CH_4 emission factors and provide the activity data (i.e., harvested area data for different types of rice ecosystems) for the total CH_4 emission estimates.

Activity 1.3.1.2: Measurement of methane emission from paddy fields (MERP). During the previous NC projects, CH_4 emissions were only observed in the conventional rice paddy fields, and there were no observation data from rice fields covered with plastic film. In the 3NC project, supplementary data on observed CH_4 emissions from the plastic film-covered rice fields will be included.

Activity 1.3.1.3: Improvement of the CH4MOD model. The CH4MOD model (Tier3 in IPCC guide line 2006) was used in the 2 previous NC projects 2NC for calculating CH_4 emission factors of conventional paddy fields but without quantifying the impact of rice variety on CH_4 emissions. Factors such as rice variety (*japonica* rice, indica rice or hybrid rice) and rice sowing method (transplanting or direct seeding), will be considered in compiling the 2010 and 2012 inventories of CH_4 emission from conventional paddy fields. In the 2NC project, the CH_4 emission from PWLW was calculated using an empirical equation with consideration of only the temperature. In the 3NC project, other factors such as the availability of substrates will also be incorporated in the analysis and calculation. The above improvement will help to reduce the inventory uncertainty.

Activity 1.3.1.4: Preparation of inventory of CH_4 emission from China paddy fields. The inventories of CH_4 emission from paddy fields in 2010 and 2012 will be compiled by using the information on activity data, applicable materials, improved CH4MOD model, and the adjusted empirical equation for methane emissions from PWLW.

Activity 1.3.1.5: Quantitative assessment of inventory uncertainty. This will involve the use of the Monte Carlo method, Tier2 of IPCC, to assess the uncertainty of inventory of CH_4 emission from paddy fields.

Activity 1.3.1.6: Organization and conduct of workshop and training courses to be participated in by relevant experts and agricultural policy-makers. The pieces of advice from the experts and policy-makers will be used in improving the GHG inventory method. Training courses on field observations will be done to improve data collection and quality control capacity.

Activity 1.3.1.7: Organization and conduct of international training and study tour. This will involve sending selected researchers for short-term visits to developed countries to exchange information on, and learn further about, CH_4 emission simulation and agricultural activity data collection. Selected researchers will also participate in relevant international conferences to extensively share and learn more about CH4 emission simulation.

Activity 1.3.1.8: Finalization of the inventory of CH_4 emission from paddy fields in 2010 and 2012. This will involve completing the inventory and evaluation of CH_4 emissions from paddy fields of China in 2010 and 2012 using integrated and detailed methods.

Outcome 1.3.2: Inventory of nitrous oxide emission from croplands of China

Activity 1.3.2.1: Data collection/investigation, and database establishment. This will involve the conduct of county-level statistic data collection/investigation of: (1) major crop harvest area, production and yield in the year of 2010 and 2012; (2) parameters of major crops (including harvest index, root-shoot ratio, dry weight ratio and nitrogen content in production and residues) in different regions of China; (3) crop residues retention, manure application, and related phenology information on crops planting near the year 2010 or 2012; (4) N_2O direct/indirect emission factor from different field observations since 2005. After data verification, a database will be developed that will include observation data, survey data and statistic data. The database will provide a more reliable model input for the calculation of N_2O emission estimates.

Activity 1.3.2.2: Observation of N_2O emission factor (EF_1). This will involve observation of N_2O emission factors in the vegetable fields and orchard/tea plantations. Note that in the previous NC projects there were limited N_2O-EFs data in the above fields, although there were more observation data in food sector. The N_2O analysis will use the latest N_2-CO_2-GC system.

Activity 1.3.2.3: Strengthening mechanism research on nitrification – denitrification. This will involve the incubation of some typical field soils under different conditions for studying N-gases (i.e. N_2O, NO_x and N_2) emission during the nitrification-denitrification processes. The experimental results are expected to provide stronger scientific basis for determining direct N_2O-EF of different fields.

Activity 1.3.2.4: Improvement of the IAP-N model. The N_2O – EF_1 is different in different croplands,

but is assumed constant for one field type in the IAP-N model that was used in the previous NC projects. In fact, N_2O-EF_1 is closely related to environmental conditions, such as climate, soil properties, field management, etc. Thus, with the expanding field observations and the laboratory experiment results, a regression relationship between N_2O-EF1 and some of these conditions will be established. This will help to reduce the uncertainty of inventory of N_2O direct emission estimated by IAP-N model.

Activity 1.3.2.5: Preparation of inventory of N_2O emission from croplands. This will involve the compilation of inventories of N_2O emission from croplands in China in 2010 and 2012. These will make used of the information on activity data and applicable materials, and improved IAP-N model.

Activity 1.3.2.6: Conduct of quantitative assessment of inventory uncertainty. This will involve the application of the Monte Carlo method, Tier2 of IPCC, to assess the uncertainty of inventory of N_2O emission from croplands.

Activity 1.3.2.7: Organization and conduct of workshop and training courses that will solicit advice and recommendations from invited experts and agricultural policy-makers for improving the inventory. Training courses on field observations will also carried out to improve capacity in data collection and quality control capacity.

Activity 1.3.2.8: Organization and conduct of international training and study tour. This will involve sending selected researchers for short-term visits to developed countries to exchange information on, and learn further about, N_2O emission simulation and agricultural activity data collection. Selected researchers will also participate in relevant international conferences to extensively share and learn more about N_2O emission simulation.

Activity 1.3.2.9: Finalization of the inventory of N_2O emission from croplands in China in 2010 and 2012. This will involve the completion of the inventory and analysis of N_2O emissions from croplands in China in 2010 and 2012 using integrated and detailed methods.

Outcome 1.3.3 Inventory of CH4 emissions from enteric fermentation

Activity 1.3.3.1: Activity data collection, investigation and analysis. This will involve the investigation and collection of national and provincial activity data in the years 2010 and 2012, such as annual farm animal population in stock and out stock with different feed type and management (intensive, household, pasture) and animal population distribution by the animal species, feed type and ages. To do this, data gathering from existing agricultural statistical reports will be carried out as well through conduct of special surveys in representative agricultural areas in various counties. The data gathered and verified will be processed and encoded into the database and provide activity data for preparing the inventory of CH_4 emissions from enteric fermentation.

Activity 1.3.3.2: Key category analysis and determination of methodology application. Based on the activity data collection and IPCC method, key categories of CH_4 emission from livestock will be

identified. Based on the decision tree of IPCC Guidelines, the methodologies for each sub-category of livestock will be determined for the inventory compilation.

Activity 1.3.3.3: Data collection, evaluation and measurement verification for emission factors of enteric fermentation. This will involve the investigation in sample provinces and counties which is featured by large animal population with typical animal species and feed type. The purpose of the investigation is to collect necessary data including the livestock population characteristics, production performance (live weight, daily weight gain, milk production), feed characteristics (feed type, feed characteristics , average daily feed intake) for identifying of CH_4 emission factors. Data gathering from existing document and reports will be conducted to collect domestic and international measured and estimated data of CH_4 emission factors and animal feed methane conversion coefficient since 2005. All the data will be process, categorized and encoded into the database. Based on the work, the CH_4 emission factors will be evaluated in accordance with methods suggested in the IPCC Guidelines. In addition, In view of the deficiency including using IPCC default methane conversion coefficient (Y_m) of animal feed and narrow monitoring CH_4 emissions from a few of cows and sheep in the INC and 2NC case, supplemented laboratory and/or field experiments will be conducted to improve and verify the emission factors. The experiment will focus on monitoring CH_4 emissions conversion coefficient in typical livestock feeding in China, especially the CH_4 emissions from key animal categories, such as beef cattle and dairy cattle. The influencing factors as well as their relevancy to CH_4 emissions from enteric fermentation will be analyzed.

Activity 1.3.3.4: Estimation and compilation of inventory of GHG emissions from enteric fermentation. Based on the IPCC guidelines, software for CH_4 emission from enteric fermentation will be developed, software can be applied for emission calculation at different levels (national, provincial, and county). Using information on activity data and improved CH_4 emissions factors, analysis will be carried out to calculate CH_4 emissions estimation from enteric fermentation in the year 2010 and 2012 in different categories of animals for preparing the inventory in line with the IPCC guidelines and UNFCCC Guidelines for the preparation of national communications from non-Annex I Parties.

Activity 1.3.3.5: Conduct of uncertainty Assessment. This will involve quantitative uncertainty assessment for CH_4 emissions from enteric fermentation in line with IPCC Good Practice Guidance.

Activity 1.3.3.6: Organization and conducts of domestic training workshop for data collection. Training will be organized to train technical staff responsible for typical data collection and local experts on animal methane emissions. Contents of the training will cover inventory compilation method, technical route, data collection requirement and quality control method.

Activity 1.3.3.7: Organization and conduct of international training and academic exchanges. Specialists will be dispatched the US on short term training and academic exchange for learning the animal feed conversion coefficient monitoring methods and assessment model for animal enteric fermentation methane emission.

Activity 1.3.3.8: Inventory reporting and documentation. Based on the above work, this activity will involve drafting and documenting a complete and transparent report on inventory of CH_4 emission from enteric fermentation in the year 2010 and 2012.

Outcome 1.3.4 Inventory of CH4 and N2O emissions from manure management systems

Activity 1.3.4.1: Activity data collection, investigation and analysis. This will involve the investigation, collection and processing of the activity data on CH_4 and N_2O emissions from manure management system. Based on the activity 1.3.3.1, it will focus on the national and provincial statistical number of poultry in stock and out stock in the year 2010 and 2012. Considering the characteristics of livestock feed type in different provinces, investigation will be carried out to collection information on the different manure management methods and the related utilization rates. The data gathered and verified will be processed and encoded into the database and provide activity data for preparing the inventory of CH_4 and N_2O emissions from manure management systems.

Activity 1.3.4.2 Key category analysis and determination for methodology application. Based on the activity data collection and IPCC methodology, CH_4 emission and N_2O emission from manure management will be calculated and key categories will be defined. According to the decision tree of IPCC Guidelines, the methodologies for each type of livestock manure management will be determined for the inventory compilation.

Activity 1.3.4.3: Data collection, processing and measurement verification for emission factors of manure management systems. This will involve the investigation in sample provinces and counties to collect data that are related to manure management such as the manure production of different animals, nitrogen and ash contents of manure, as well as and climate parameters in the year 2010 and 2012. Data gathering from existing domestic and international document will be carried out so as to collect information on animal manure methane emission potential, methane conversion factor (MCF) and related test conditions. All the collected data will be process, categorized and encoded into the database. Based on the gathered data, CH_4 and N_2O emission factors of manure management will be evaluated in accordance with suggested methods in the IPCC Guidelines. In view of the deficiency including using IPCC default nitrogen content and narrow monitoring GHG emissions in the compost process, supplement field experiment will be conducted to improve and verify the emission factors. This experiment will test different manure nitrogen content, monitor CH_4 and N_2O emissions in the manure storage process in concentrated swine farms and dairy farms, and identify environmental factors and manure characteristics related to emission factors, and verify the rationality of the estimates of emission factors

Activity 1.3.4.4: Estimation and compilation of inventory of GHG emissions from manure management systems. Based on the IPCC guidelines and data collected above, CH_4 and N_2O emission calculation software manure management will be developed. The software will include CH_4 and N_2O emission calculation, calculation and analysis of emission factors, database for the emission factors calculation. This software can be applied for emission calculation at different levels (national, provincial, county). Using information on activity data and improved CH_4 and N_2O emissions factors,

the CH_4 and N_2O emissions from manure management system in the year 2010 and 2012 will be calculated to prepare the GHG inventory in line with the IPCC guidelines and UNFCCC Guidelines for the preparation of national communications from non-Annex I Parties.

Activity 1.3.4.5: Conduct of uncertainty assessment. This involves quantitative assessment for CH_4 and N_2O emissions uncertainty from manure management system in line with IPCC Good Practice Guidance.

Activity 1.3.4.6: Organization and conduct of domestic training workshop for data collection (jointly held with activity 1.3.3.6). Training will be organized to train technical staff responsible for typical data collection and local experts on manure management.

Activity 1.3.4.7: Organization and conduct of international academic exchange and training. Specialists will be dispatched to the abroad for short term training, international conference and academic exchange on emission factor identification and uncertainty evaluation.

Activity 1.3.4.8: Inventory reporting and documentation. Based on the above activities, this activity will involve drafting and documenting a complete and transparent report on inventory of CH_4 and N_2O emission from manure management systems of the year 2010 and 2012.

Outcome 1.3.5 Finalization of GHG inventory from Agriculture

Activity 1.3.5.1: QA/QC for GHG inventory of croplands in China. This will involve the inspection of all data collected in Activities 1.3.1.1 and 1.3.2.1 to be consistent with the source data. The data on harvest area and production of different paddy fields in Activity 1.3.1.1 will also be checked to ensure consistency with the data in Activity 1.3.2.1; as well as checking of data (animal population and annual nitrogen excretion) that will be used in calculating the quantities of manure fertilizer in Activity 1.3.2.1 to be consist with the corresponding data in Activities 1.3.3.1 and 1.3.4.1. Based on these quality checks, the draft of GHG inventory of China croplands will be prepared.

Activity 1.3.5.2: Preparation of the draft CHG emission inventory of the livestock sector and data quality control. This activity involves checking the consistency of livestock activity data such as those adopted for calculation of CH_4 emission from enteric fermentation and CH_4 and N_2O emission from manure management system, and those nitrogen data adapted for measuring emission from the animal waste management and emission from organic fertilizer applied in the crop land management. Based on the verification of data consistency, 2010 and 2012 GHG inventories of the livestock sector will be prepared.

Activity 1.3.5.3: External review for GHG inventory of China croplands. This will involve the organization and conduct of a series of workshops participated in by peer experts and agricultural policy makers to review the results of the data gathering activities, the findings of the research studies, the established emission factors and activity data and methodology.

Activity 1.3.5.4: Conduct of the livestock sector GHG inventory review. This will involve the organization and conduct of a workshop to review the results of the data gathering methods, data analysis process, the findings of the research studies, activity data，the established emission factors, and the 2010 and 2012 GHG inventory for each sub-sector. This is to ensure the quality of livestock sector GHG inventory. The review process will conducted through peer review and external review by animal breeding specialist and stakeholders based on strict internal quality control procedure. A series of workshops including the kick-off meeting, interim review meeting, wrap up meeting will be organized and conducted to review the GHG inventory.

Activity 1.3.5.5: Finalization of China's 2010 and 2012 GHG inventory of agricultural sector. This will involve finalizing the documentation of the data gathered, generated and used for the inventory. The sub-sectoral inventories will be finalized and documented, as well as the GHG inventory of the agricultural sector according to the UN Convention on Global Climate Change (Convention "non-Annex I Parties guidelines for the preparation of national communications"). The finalized inventory will form part of China's 2010 and 2012 National GHG inventory.

Sub-component 1.4: Inventory of GHG Emissions/Removal from Land Use, Land Use Change and Forestry Sector

This sub-component aims to prepare China's National Greenhouse Gas Inventories in the Land Use, Land Use Change and Forestry (LULUCF) sector in 2010 and 2012, in accordance with the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, and referring to IPCC Good Practice Guidance for LULUCF (GPG-LULUCF). It will include: (1) GHG emission by sources and removal by sinks in forest and other woodland; (2) the change in soil organic carbon stocks of croplands; (3) GHG emission by sources and removal by sinks in grassland; (4) GHG emission by sources and removal by sinks in wetlands; and, (5) GHG emission by sources and removal by sinks in settlement and other lands.

The 3NC project will assess the GHG emission/removal in wetlands, settlements and other lands. These will be additional sub-sectors to the forest land and forest conversion that were done in the 2NC project. Soil organic carbon stock and its change in forest and other wood lands, croplands and grasslands will be considered, which was highly uncertain and was not covered in the 2NC. These will be done using the methodologies in GPG-LULUCF and other model methods. During the 2NC project, only the IPCC 1996 revised guidelines were used.

Outcome 1.4.1: GHG inventory in forest and other woodland

Activity 1.4.1.1: Collection and updating of the activity data of forests and other woodlands on the basis of statistical data from the National Forestry Inventories and other land use/cover maps and images. The activity data, for all provinces, autonomous regions and municipalities, will include the area of forest and other woodland remain as forest land; the area of forest and other woodland convert to and from other land; the area of bamboo forest, tree crops and shrub forest by types; the volume stocks of forest and trees outside forest, etc. The activity data of forest will consider the difference by

forest type (dominant tree species), forest original source (natural forest and plantation) and age classes. The dynamics of relevant activity data will be analyzed and estimated.

Activity 1.4.1.2: Investigation and collection of data one parameters used for accounting carbon stock and carbon stock changes in forest and other woody biomass. On the basis of the database that currently include collected data during the 2 previous NC projects, further collection, estimation and updating of relevant data will be done. The data will be on parameters such as basic wood density, carbon fraction, biomass expansion factor (BEF), root-shoot ratio for different forest types (tree species), and biomass stock of bamboo, tree crops and shrub forests. This will also involve establishment of algometric equations for relevant parameters; and conduct of supplementary survey for the parameters with significantly high uncertainty.

Activity 1.4.1.3: Collection and investigation of parameters for soil organic carbon (SOC) stock changes estimation. On the basis of forest soil type classification, typical and regional forest distribution, and the forest soil distribution in China, the collection of the relevant parameters from literatures for SOC estimation under different vegetation types will be carried out, including the conduct of supplementary survey in typical forest soils.

Activity 1.4.1.4: Inventory calculation, uncertainty assessment and report preparation. Based on the activity data and parameters acquired in the activities above, the following will be estimated: (1) carbon stock and annual carbon stock changes for different forest types (tree species) and trees outside forests; and, (2) GHG emission by sources and removal by sinks during the conversion other land uses to forest land and woodland. The analysis of the relevant uncertainties, and the preparation of the inventory report for GHG emission by sources and removal by sinks in forest and other woodland in 2010 and 2012 will carried out.

Outcome 1.4.2: Inventory of GHG emissions from change in soil organic carbon stocks of croplands

Activity 1.4.2.1: Collection of activity data of cropland remaining cropland (CC) and land converted to cropland (LC). The activity data of cropping systems and cropland management practices in China mainly include the spatial distribution of cropping systems, the area of uplands and rice paddies, the area of reduced-till and no-till croplands, crop species and rotations, the area and amount of irrigation, crop residue incorporation, organic manure and synthetic fertilizer application, etc.; the area and original vegetation of LC will be collected or estimated.

Activity 1.4.2.2: Supplemental collection of EFs. The EFs consider climate conditions, soil attributes, SOC contents and changes of CC, the original biomasses and SOC contents of LC in different regions. Based on the indicated EFs, a database with observation data and survey data integrated by the spatial interpolation method will be established for calibration/validation in site scale and running of a process-based model (Agro-C) in regional scale. This activity will involve the necessary supplementary investigation and measurement to compensate for missing information and reduce uncertainty.

Activity 1.4.2.3: Inventory calculation, uncertainty assessment and report preparation. Based on the activity data and parameters acquired in Activities 1.4.2.1 and 1.4.2.2, complying with IPCC GPG-LULUCF and the method of process-based model, the change in soil organic carbon stocks of CC and LC, and the change in living biomass carbon stocks of LC, will be estimated. This activity will also include the analysis of uncertainty. The report on the change in soil organic carbon stocks of croplands for the years 2010 and 2012 will be prepared.

Outcome 1.4.3: GHG inventory in grassland

Activity 1.4.3.1: Collection of activity data of grassland management and grassland conversion from other land uses. The area and spatial distribution of different vegetation types, area and management practices of grassland will be collected. The area of grassland converted from other land uses (forest land, cropland, wetland, etc.) will also be collected or estimated.

Activity 1.4.3.2: Emission factor data update and collection. The EFs to be considered are that of SOC carbon stocks and carbon stock changes by different grazing management (prohibition of grazing and cutting, rotation grazing, etc.), the biomass and SOC content of the other land uses pre-conversion to grassland, other relevant vegetation, climate, soil and remote sensing data. The necessary supplementary investigation and measurement will be carried out to make up for the inadequacy of the data collection, and to reduce the uncertainty.

Activity 1.4.3.3: Inventory calculation, uncertainty assessment and report preparation. This will involve the estimation of the GHG emission by sources and removal by sinks, especially the SOC stock changes, in grassland management and grassland conversion from other land uses. The estimates will be based on the activity data and parameters acquired in the activities above. The uncertainty will also be analyzed. The report of GHG emission by sources and removal by sinks in grasslands for the years 2010 and 20102 will be prepared.

Outcome 1.4.4: GHG inventory in wetland

Activity 1.4.4.1: Activity data collection in wetland and wetland conversion from other land uses. This will involve collection of the data for each wetland types and spatial distribution, the area of wetland management, wetland drainage and rewetting. The area of wetland conversion from other land uses will also be estimated.

Activity 1.4.4.2: Emission factor (EF) data collection and updating. The EFs will mainly be those on the parameters relevant to biomass and SOC stocks and stock changes in wetland management, drainage and rewetting, the biomass and SOC content in the other land uses pre-conversion to wetland. The necessary supplementary investigation and measurement will be carried out in order to make up for the inadequacy of the data collection, and to reduce the uncertainty.

Activity 1.4.4.3: Inventory calculation, uncertainty assessment and report preparation. This will

involve the estimation of the GHG emission by sources and removal by sinks, especially the SOC stock changes, in wetland management and wetland conversion from other land uses. The estimates will be based on the activity data and parameters acquired in the activities above. The uncertainty will also be analyzed. The report of GHG emission by sources and removal by sinks in wetlands for the years 2010 and 20102 will be prepared.

Outcome 1.4.5: GHG inventory in settlement and other lands

Activity 1.4.5.1: Activity data collection. This will mainly include areas of forest land, cropland, grassland and wetland conversion to settlements and other lands, especially areas of land undergoing degradation and desertification after deforestation and over-use of cropland, grassland and wetland, and the vegetation and soil data of the land uses before converting to settlement and other lands.

Activity 1.4.5.2: Emission factor data collection and updating. The EFs will mainly be those for parameters relevant to biomass and SOC stocks and stock changes in the land uses before conversion to settlements and other lands. Provincial level EFs will be investigated and collected for land degradation due to over-use or deforestation. The necessary supplementary investigation and measurements will be carried out to make up for the inadequacy of the data collection, and to reduce the uncertainty.

Activity 1.4.5.3: Inventory calculation, uncertainty assessment and report preparation. This will involve the estimation of the GHG emission by sources and removal by sinks, especially the SOC stock changes, in settlements and land conversions from other land uses. The estimates will be based on the activity data and parameters acquired in the activities above. The uncertainty will also be analyzed. The report of GHG emission by sources and removal by sinks in settlements for the years 2010 and 20102 will be prepared.

Outcome 1.4.6: National GHG inventories from LULUCF in 2010 and 2012

Activity 1.4.6.1: Preparation of the First Order Draft (FOD) of LULUCF inventory for the review of experts and the government. On the basis of the results from Outcomes 1.4.1 to 1.4.5, a review of the results will be conducted and the FOD of 2010 and 2012 LULUCF inventories will be prepared for expert and government review.

Activity 1.4.6.2: Organization and conduct of workshops and expert consultation. In the earlier period of the project implementation, workshops will be held to discuss the implementation of the project, progress, the main achievements, the problems and their solutions. The services of 1 or 2 international experts on LULUCF inventory or soil carbon model will be engaged to provide technical support in data collection, parameter measurement, model validation, as well as inventory compilation. In the later stages of the project implementation, workshops will be held to report and discuss the research results, and for experts and relevant government departments to review the Second Order Draft (SOD), and identify the key areas and methodologies for further improvement.

Activity 1.4.6.3: Compilation of the LULUCF GHG inventory. This will involve the compiling of the Final Order Draft (FOD) of China's GHG inventory in the LULUCF sector for 2010 and 2012. A quantitative analysis of uncertainty will also be carried out. Documents and reports based on guidelines of non-Annex I parties to the UNFCCC and the requirement of project management office as appropriate will be prepared for final expert and government review.

Sub-component 1.5: Inventory of GHG Emissions from Waste

This sub-component comprises of activities for completing China's GHG inventories in the waste sector for years 2010 and 2012. The inventories will cover methane emission from landfills; carbon dioxide, methane and nitrous oxide emissions from waste incineration; methane and nitrous oxide emission from solid waste biological treatment; methane emissions from industrial wastewater treatment and from domestic wastewater treatment; and, nitrous oxide emissions from wastewater treatment.

Outcome 1.5.1: China's methane emission inventory from waste landfills

Activity 1.5.1.1: Activity data collection and verification. National and provincial level historical activity data (1950-2012), including volume of waste generation and volume of waste treatment in landfills, will be collected through data purchase, field sampling, site survey of typical municipal solid waste landfill, consulting experts, and extensive data collection. Thee collected data will be confirmed and verified to obtain information needed for estimating the waste generation amount, treatment amount and treatment methods in the years 2010 and 2012.

Activity 1.5.1.2: Confirmation of emission factors (EFs) and relevant parameters. In this activity, parameters such as, moisture content, pH value, degradable organic composition (DOC), oxidation factors, methane recovery amount etc., will be obtained through site surveys, samplings and analysis in typical regions. Typical areas will be identified and selected to carry out the sampling analysis to get more reasonable parameters that are in line with real situations from on-site investigation and get first-hand information. Based on investigations and expert consultations, evolution trends of China's waste landfill methods, practices and treatment technologies will be determined and management practices in waste landfill sites will be obtained. Finally, on the basis of statistics and analysis, the emission factors and relevant parameters, which will be used to calculate the GHG inventory from waste sector, will be established.

Activity 1.5.1.3: Development of model for calculating municipal solid waste (MSW) generation amount and landfill capacity. The IPCC methodology (FOD model) requires long term history activity data (the good practice is using disposal data for at least 50 years). This activity will involve the collection of data to evaluate China's socio-economic factors (e.g., GDP, urban population and urban areas, etc.), which are the main factors influencing the amount of waste generation. Through scientific analysis on collected historical data, combined with advanced international technology and method, and the use of statistical analysis tools, to establish and improve the calculation model for waste generation amount, this model will be used to estimate the historical data for periods with no records.

Meanwhile, it can also reveal the development and evolution trend of waste treatment in China.

Activity 1.5.1.4: Organization and conduct of seminar on GHG emissions from the waste sector. The seminar will involve both domestic and foreign experts on GHG emissions from the waste sector to discuss current issues in waste disposal China, particularly on GHG emission trends and GHG recycling. Problems encountered during inventory preparation will be addressed and possible solutions identified.

Activity 1.5.1.5: Estimation of methane emissions from waste sector. This will involve the use of Tier 2 methodology of IPCC of Good Practice Guidance (GPG) and the use of collected activity data and related parameters for calculating methane emissions from landfills. This will also include conduct of quantitative uncertainty analysis of methane emissions from waste treatment based on the IPCC GPG.

Activity 1.5.1.6: Compilation of the inventory of methane emission from landfills. This will involve the comprehensive and transparency inventory reports for years 2010 and 2012 of China's methane emission from waste landfills. This is based on the results obtained and conclusions drawn from the above tasks.

Outcome 1.5.2: Inventory of GHG emission from waste incineration

Activity 1.5.2.1: Activity data collection and verification. The situation regarding national waste incineration in the years 2010 and 2012 will be evaluated through on-site investigation in typical waste incineration sites to get the relevant information, such as waste composition, emission amount of pollution gas, gas composition, and content and gas recovery situations. Historical data on these parameters will also be collected.

Activity 1.5.2.2: Confirmation of emission factors (EFs) and calculation of GHG emissions. On-site research will be carried out in typical waste incineration sites to collect relevant data about waste incineration. On the basis of extensive investigation and review of relevant literatures, as well as expert advice and recommendations from domestic experts, combined with the application of advanced methods and technologies that are used worldwide, China's carbon dioxide, methane, and nitrous oxide emission factors for waste incineration will be determined. The emissions for carbon dioxide, methane, and nitrous oxide are to be calculated by using the IPCC default methodology.

Activity 1.5.2.3: Organization and conduct of seminar on waste incineration and GHG emission. In the seminar experts can discuss about the recent situations in China's waste incineration treatment and how to determine the method of carbon dioxide, methane and nitrous oxide emissions factors in waste incineration, Greenhouse Gases emission trends and Greenhouse Gases recycling situation. Meanwhile, the problems encountered during inventory preparation will be solved.

Activity 1.5.2.4: Compilation of inventory, uncertainty assessments of inventory, preparation of report and document. To estimate the uncertainty of assessment quantitatively on the total carbon dioxide, methane and nitrous oxide emissions from waste incineration according to the method provided by

IPCC Good Practice Guidance. On the above basis, complete an integrated and transparent inventory report about China's carbon dioxide, methane and nitrous oxide emission from waste incineration in 2010 and 2012.

Outcome 1.5.3: China's methane and nitrous oxide emission inventory from biological treatment of solid waste

Activity 1.5.3.1: Activity data collection and verification. This involves the carrying out the survey of national waste biological treatment in 2010 and 2012. Through on-site investigation in typical waste biological treatment fields, relevant information about gas emission from waste biological treatment, such as waste composition, amount and type of the auxiliary material used, temperature, moisture content, and gas recovery, etc. Historical data on these parameters will also be collected.

Activity 1.5.3.2: Confirmation of emission factors (EFs) and calculation of the GHG inventory. Methane and nitrous oxide emissions factors of biological waste treatment will be determined on the basis of extensive investigation and collection of relevant data together with the use of inventory methods used worldwide, and domestic experts' pieces of advice and recommendations. The methane and nitrous oxide emissions will be calculated using the IPCC default methodology.

Activity 1.5.3.3: Organization and conduct of a seminar on GHG emission from biological treatment of solid waste. This will involve the conduct of a seminar to communicate with experts about: (a) current developments in the biological treatment of solid waste in China; (b) methods of calculating methane and nitrous oxide emissions factors of waste biological treatment; and, (c) GHG emission trends and GHG recycling in China. Furthermore, possible solutions for addressing problems encountered the preparation and conduct of the inventory, will also be discussed.

Activity 1.5.3.4: Compilation of inventory, uncertainty assessments of inventory, preparation of report and document. This will involve the conduct of quantitative uncertainty assessment of the total carbon dioxide emission from waste biological treatment will be estimated in accordance with the methodology of IPCC GPG. Integrated and transparent inventory reports about China's methane and nitrous oxide emission from waste biological treatment in 2010 and 2012 will be prepared and completed.

Outcome 1.5.4: Methane emission inventory from domestic and commercial wastewater treatment

Activity 1.5.4.1: Activity data survey, collection, collation and database construction. This will involve collection of data and information on regional domestic and commercial wastewater treatment in China, including water consumption in domestic and commercial wastewater treatment, wastewater treatment methods, and wastewater components, etc. Data will be collected on methane emission from domestic and commercial wastewater treatment; and a database for emission factors will be established. All collected data will be classifies and collated, and a database of activity data will also be created.

Activity 1.5.4.2: Measurement of the Biological Oxygen Demand (BOD) in domestic and commercial wastewater. This will involve the selection of typical cities to sample, measure and analyze, among others, the biological characteristics of domestic and commercial wastewater discharges to determine the typical BOD in domestic and commercial wastewater, and improve activity data by comparing and analyzing statistical information.

Activity 1.5.4.3: Compilation of inventory, uncertainty assessments of inventory, preparation of report and document. This will involve the calculation of China's methane emission inventory from domestic and commercial wastewater treatment using the IPCC method. Quantitative assessments of uncertainty of the total methane emission from domestic and commercial wastewater treatment according to the method provided by IPCC Good Practice Guidance will be conducted. Integrated and transparent inventory reports about China's methane emission from domestic and commercial wastewater treatment in 2010 and 2012 will be prepared and completed.

Outcome 1.5.5: Inventory of methane emission from industrial wastewater treatment

Activity 1.5.5.1: Activity data survey, collection, collation and database construction. This will involve the collection of data on industrial wastewater discharge volumes in major sectors in 2010 and 2012, including product output, water consumption, wastewater discharge amount, wastewater treatment methods etc. Based on the extensive collection of historical data, an updating and improvement of China's industrial wastewater discharge database will be done. Data that have been measured domestically and internationally for methane emission from industrial wastewater treatment will be collected and a database of emission factors will be created. All data collected will be classified and collated and a database of activity data also created.

Activity 1.5.5.2: Measurement of the Chemical Oxygen Demand (COD) in wastewater. Typical sectors that produce significant amounts of wastewater will be selected for a survey to sample, analyze and measure the industrial wastewater discharge. This will help establish the typical COD of industrial wastewater discharges, and improve activity data by comparing and analyzing statistical information.

Activity 1.5.5.3: Compilation of inventory, uncertainty assessments of inventory, preparation of report and document. This will involve calculation of China's methane emission from industrial wastewater treatment using of the IPCC methodology. Quantitative assessments of uncertainty of total methane emission from industrial wastewater will be done using the methodology of IPCC GPG. Integrated and transparent inventory reports about China's methane emissions from industrial wastewater in 2010 and 2012 will be prepared and completed.

Outcome 1.5.6: Inventory of nitrous oxide emissions from wastewater treatment

Activity 1.5.6.1: Measurement and analysis of the emission factors. With the completion of the measurements of industrial wastewater COD and BOD in Activities 1.5.4.3 and 1.5.5.3, an analysis of

these two parameters will be done to determine emission factors and activity data of nitrous oxide in wastewater treatment.

Activity 1.5.6.2: Compilation of inventory, uncertainty assessments of inventory, preparation of report and document. This will involve calculation of China's nitrous oxide emission from industrial wastewater treatment using of the IPCC methodology. Quantitative assessments of uncertainty of total nitrous oxide emission from industrial wastewater will be done using the methodology of IPCC GPG. Integrated and transparent inventory reports about China's nitrous oxide emissions from industrial wastewater in 2010 and 2012 will be prepared and completed.

Sub-component 1.6: Updating China`s GHG Inventory Database

This sub-components is meant for updating the database of the China`s GHG inventory. This will include adding the data of the national GHG inventory of 2010 and 2012; adding the policies and measures for addressing climate change and controlling Greenhouse gas emissions adopted by China; and carrying out the regular maintenance and management of the database.

Outcome 1.6.1: Uploaded national GHG inventory of 2010 and 2012

Activity 1.6.1.1: Collation of activity data of greenhouse gases, emission factors and emissions in five areas, including energy activities, industrial processes agriculture, LULUCF, and waste treatment. This will involve the assembly of all the relevant data/information on the national GHG inventories in the years 2010 (as will be shown in the 3NC report) and 2012 (as will be shown in the 1BUR).

Activity 1.6.1.2: Inputting of collated data on the GHG inventories of 2010 and 2012 into the National GHG Inventory Database.

Outcome 1.6.2: Uploaded policies and measures for addressing climate change and controlling GHG emissions adopted by China

Activity 1.6.2.1: Collation of policies and measures for addressing climate change and controlling Greenhouse gas emissions adopted by China since 2010. This will involve the assembly of all policies and measures (inclusive of laws and regulations, strategic planning, institutional innovation, mechanism construction, development and deployment of advanced and applicable technologies, etc.) including those that were developed and recommended under the 3NC project.

Activity 1.6.2.2: Inputting of collated data on policies and measures as derived from the national and local government documents, official website, and press conferences.

Outcome 1.6.3: Regular maintenance and management of the database

Activity 1.6.3.1: Development of the database dump and recovery plan - This will involve the development of a workable plan for ensuring that the database can be restored to a consistent state in

an event of failure, and to minimize the damage to the database. Because of changes of the data environment, the security requirements shall be modified accordingly to allow continuous capability to access original confidential data.

Activity 1.6.3.2: Monitoring of database operating performance - This will involve the monitoring of the database system operating performance, and the evaluation of the system's conditions and to make further improvements as necessary. When the database's physical storage performance decreases, restructuring needs to be done. When the original database design can no longer meet the new requirements, the database should be adjusted, and restructuring needs to be done accordingly.

Sub-component 1.7: Projection model and scenario analysis for future carbon emissions in China

The objective of this sub-component is the updating of the carbon emission projection models used in China and generate several carbon emission scenarios (covering reference and policy scenarios). The activities that have to be done to achieve this objective include: (1) reviewing and comparing different carbon emissions projection models and their results at home and abroad; (2) updating carbon emissions projection models for China; and, (3) generating carbon emissions reference and policy scenarios in China during 2010-2040 with application of the model. In addition, industrial process carbon emissions and carbon sink will be projected based on the emission inventories in the 2NC and 3NC reports.

Outcome 1.7.1: Different carbon emissions projection models and their results

Activity 1.7.1.1: Review of different carbon emissions projection models. The different projection models at home and abroad for carbon emissions from fossil fuel combustion will be reviewed, including bottom-up energy system optimization model, top-down computable general equilibrium model and hybrid-model.

Activity 1.7.1.2：Comparison of different models' results - The different projection models' results will be compared in terms of modeling approaches, main assumptions and results etc. to analyze key impact factors attributed to the differences.

Activity 1.7.1.3: Identification of a suitable model for carbon emissions projection. This will involve an assessment of the results from the abovementioned activities and selecting a suitable model that will be used for forecasting carbon emissions.

Outcome 1.7.2: Update of carbon emissions projection model for China

Activity 1.7.2.1: Designing social and economic development scenarios during 2010-2040. The future social and economic development trend will be analyzed, including economic growth, industrial structure transformation, population, urbanization and etc. to define a social and economic development scenario during 2010-2040 in China.

Activity 1.7.2.2: Energy service demand projection. Based on future social and economic development assumed, energy service demand in agriculture, industry, transportation, commercial, and residential sectors from 2010 to 2040 will be projected in 5 years interval, including energy-intensive industrial products (steel, cement, ammonia, aluminum, paper, etc.), transportation turnover (passenger aviation, passenger rail, passenger highway, waterway passenger transport, cargo airlines, freight rail, road freight, freight waterway and pipeline transport), public and residential buildings' heating and cooling requirements, etc..

Activity 1.7.2.3: Data collection for technologies in both energy supply and demand sides. Data and information on techno-economic characteristics of technologies in both energy supply and demands sides (including capacity, utilization coefficient, efficiency, fuel mixes, investment, operation and maintenance costs and etc.) for the year 2010 will be collected and technology development trend will be assessed.

Activity 1.7.2.4: Updating of the carbon emissions projection model for China. The carbon emissions projection model will be updated in terms of following aspects: (1) base year changed from 2005 to 2010; (2) updating energy service demand; and, (3) updating techno-economic characteristics of technologies in the model.

Activity 1.7.2.5: Calibration of the model. The model will be calibrated based on the statistical data in 2010.

Outcome 1.7.3：Scenarios design and simulations

Activity 1.7.3.1: Generation of a reference scenario. This will involve identifying and establishing a reference scenario with the updated model to project final energy consumption and mix, primary energy consumption and mix, and carbon emissions from 2010 to 2040 in China under the reference scenario.

Activity 1.7.3.2: Design and generation of two policy scenarios. This will involve the assessment available data/information to come up with two policy scenarios (regular and enhanced), and the conduct of simulations of these two policy scenarios with application of the updated model, to generate final energy consumption and mix, primary energy consumption and mix, and carbon emissions from 2010 to 2040 in China under each of these two policy scenarios.

Activity 1.7.3.3: Scenario comparative analysis – Based on the results from the abovementioned activities, the analysis and comparison of the results across scenarios (reference, policy and enhanced policy) will be conducted.

Outcome 1.7.4: Projection of industrial process carbon emissions and carbon sink

Activity 1.7.4.1: Projection of future industrial process carbon emissions – This will involve the

forecasting of industrial process carbon emissions based on GHG inventories in the 2NC and 3NC reports -

Activity 1.7.4.2: Projection of future forest carbon sinks – This is will involve the forecasting of forest carbon sinks based on the results of the GHG inventories in the 2NC and 3NC reports.

Component 2: Assessment on Impacts of, Vulnerability and Adaptation to Climate Change

The objective of this component is the updating of the understanding of China's vulnerability to the threats of climate change; to update the assessment of impacts of climate change in: agriculture, water resources, coastal resources, terrestrial ecosystems, human health and others; and to prepare updated adaptation policy and measure. This component is mainly for supporting for preparation on 3NC report. Based on the experiences in the 2NC project, the most efficient way of implementing the activities under this component is integrate this component in Component 6. For the 3NC project, the same implementation approach for this component as in the 2NC project will be applied.

Outcome 2.1: Update of the Analysis on Characteristics and Trend of Climate Change in China

Activity 2.1.1: Updating of analysis of temperature change in China. This involves the review of publications on temperature change research in China in year 2011 to 2013, and to include researches that were not reviewed in the 2NC project.

Activity 2.1.2: Updating of analysis of precipitation change in China. This involves the review publications on precipitation change research in China in year 2011 to 2013, and to include researches that were not reviewed in second national communication.

Activity 2.1.3: Updating of analysis of change of extreme climate events in China. This involves the collection of data/information on extreme climate events in China in recent years, i.e. year 2011 to 2013, especially low visibility events.

Activity 2.1.4: Updating of analysis of future climate change trends in China. This will involve the documentation of calculated future climate change trends based on the analyses done.

Outcome 2.2: Update of the Assessment on Impacts of and Vulnerability to Climate Change

Activity 2.1.1: Updating of analysis of impact of climate change on agriculture and food production, and vulnerability to the threats of climate change. This will involve desk research and consultation of expert to review previous and current work, specially the work not reviewed in 2NC. Special attention will be given to publications in year 2011 to 2013. An assessment of the impacts of climate change on food production and other agricultural activities will be carried out. Vulnerability of agricultural systems to climate change will also be analyzed.

Activity 2.2.2: Updating of analysis of impact of climate change on water resources, and vulnerability

to climate change. This will involve desk research and consultation of expert to review previous and current work in this area, specially the work that were not reviewed in the 2NC project, such as publication in year 2011 to 2013. An assessment of the impacts of climate change on water resources will be carried out. Special attention will be given to identify the impact on water resource availability in small urban areas. Vulnerability of water resource systems to climate change will also be analyzed.

Activity 2.2.3: Updating of analysis of impact of climate change on forest and other natural ecosystems, and their vulnerability to climate change. This will involve desk research and consultation of expert to review previous and current work, specially the work in year 2011 to 2013. An assessment of the impacts of climate change on forest and other natural ecosystems will be carried out. Special attention will be given to identify the impact on natural ecosystem in arid areas in north-west China. Vulnerability of forest and other natural ecosystems to climate change will also be analyzed.

Activity 2.2.4: Updating of analysis of impact of climate change on coastal resources, and vulnerability of coastal zones and regions to climate change. This will involve desk research and consultation of expert to review previous and current work in this area in year 2011 to 2013. An assessment of the impacts of climate change on sea level, storm surges, coast erosions and offshore ecosystems will be carried out. Special attention will be given to identify the impact on nuclear power plant in coast areas. Vulnerability of coastal zones and regions to climate change will be analyzed.

Activity 2.2.5: Updating of analysis of impact of climate change on human health and others, and vulnerability to the threats of climate change. Based on literature review of up-to-date publications, the impact of climate change on human health and infrastructure in urban areas will be determined and assessed. Special attention will be accorded to the determination of the impacts on transportation infrastructure. The assessment report on the impacts of climate change on human health and urban infrastructure will be prepared.

Outcome 2.3: Updated Climate Change Adaptation Policies and Actions for 3NC

Activity 2.3.1: Review of policies and actions adopted during the 12th FYP on climate change adaptation policies and actions. This activity will make use of the results of Activities 2.2.1 to 2.2.5, and will involve desk research and consultation of experts to review previous and current work, specially the work that were not reviewed in the 2NC project, on climate change adaptation policies and actions on agriculture and food production, water resources, forestry and other ecosystems, coastal zones and regions, human health and others.

Activity 2.3.2: Development and recommendation of policies and actions to be taken during the 13th FYP. This will involve the identification of the main challenges in addressing the climate change impacts and vulnerabilities based on the results from Activities 2.2.1 to 2.2.5. Based on the experiences and lessons learnt during the 12th TYP, policies and actions to be taken during the 13th FYP will be formulated and evaluated. A workshop will be conducted to solicit comments and suggestions from relevant ministries, local government, industrial associations and NGOs regarding

the proposed policies.

Activity 2.3.3: Preparation of the report on the proposed policies and actions – This entails the preparation of the report on the climate change adaptation policies and actions adopted for the 3NC.

Component 3: Updating of Climate Change Mitigation, Measures, Options and Actions

The objective of this component is to have a better understanding of the appropriate climate change mitigation options for China, and enhanced action plan to implement prioritized mitigation actions. This component is also mainly for supporting the preparation of the 3NC report and BUR report. Based on the experiences in the 2NC project, the most efficient way in the implementation of the activities under this component is to integrate this to Components 6 and 7.

Outcome 3.1: Updating of Climate Change Mitigation, Measures, Options and Actions for 3NC

Activity 3.1.1: In line with the new obligations concerning nationally appropriate mitigation actions, activities will be carried out to identify such and to provide the information of the mitigation action and the national implementing entity those have been implemented as well as those planned. Assessments will be carried out to determine the feasible policy and technology options for the country in mitigating climate change, as well as the social and economic costs to achieve these mitigation targets. For the 3NC project, the same implementation approach for this component as in the 2NC project will be applied.

Activity 3.1.2: Estimation of the full cost and/or incremental cost of the preparation and implementation of the proposed climate change mitigation actions.

Activity 3.1.3: Assessment of required support for climate change mitigation actions implementation - This will involve the evaluation of the required level of support (financial, technical and capacity building) to prepare and/or implement the mitigation action, as well as estimate the results that could be achieved.

Activity 3.1.4: Assessment of other indicators of success in the implementation of climate change mitigation actions, including the co-benefits for local sustainable development – This will involve the evaluation of indicators for the outcomes/outputs of each climate change mitigation actions, including that for the co-benefits for local sustainable development.

Outcome 3.2: Updating of Climate Change Mitigation, Measures, Options and Actions for BUR

Activity 3.2.1: Identification of new climate change mitigation actions – This will involve the identification of the nature of the action, the coverage, the quantitative objectives and the progress and/or success indicators for new climate change mitigation actions. Information on relevant methodologies and assumptions in the implementation of these actions will also be delineated.

Activity 3.2.2: Identification of the objectives and procedures for the implementation of new climate change mitigation actions. This will involve the identification of the relevant development plan, programs, and policies of the central government and local government to which each of the new climate change mitigations will be linked or contribute to. How each action will contribute to the reduction of energy intensity as well as the contribution to emission reduction or control will also be estimated, to the extent possible.

Activity 3.2.3: Collection of information on Clean Development Mechanism (CDM). This will involve desk research and consultation of pertinent experts to collect information on the progress of approved CDM projects, those that were successfully registered in the Executive Board of the United Nations CDM.

Activity 3.2.4: Collect information on domestic measurement, reporting and verification (MRV) arrangement. This will involve desk research and consultation of pertinent experts to collect information on the progress made in the development of MRV systems as part of the China GHG inventories and the statistics of fossil fuel energy consumption.

Activity 3.2.5: Preparation of report of climate change mitigation, measures, options and actions for the BUR.

Component 4: Improving Public Awareness and Informing Policy Decision Making on Climate Change

The objective of this component is the improvement of the China Climate Change Info-Net in terms of content, structure, features and social influence so that it becomes a window for the display of real-time progress of 3NC and China's policies and its contribution to address the climate change to the world. The chapters on the education, publicity and public awareness in the 3NC and the BUR will also be drafted.

Outcome 4.1: Sustainable Development of China Climate Change Info-Net

Activity 4.1.1: Improvement of China Climate Change Info-Net. This will involve the improvement of the content and structure of the website to promote the 3NC capacity building projects, build an on-line information platform for climate change, and enhance its service function.

Activity 4.1.2: Optimized operation and maintenance of the China Climate Change Info-Net. This will involve actions for enhancing information collection and update, enrich website content, improve the English version of the site, and organize translation for important content for simultaneous publication of Chinese and English versions.

Outcome 4.2: Preparation of Chapter on the Education, Publicity and Public Awareness in the 3NC

Activity 4.2.1: Design of the outline for the chapter on the education, publicity and public awareness. The experiences and lessons in the drafting of the chapters on the education, publicity and public awareness in the INC and 2NC will be reviewed and summarized; the progresses and good practices in the national communications submitted by major countries will be studied, and seminars will be held to propose the outline for the chapter on the education, publicity and public awareness.

Activity 4.2.2: Compilation of the report on the chapter on the education, publicity and public awareness. This will involve, among others, the organization of an experts' consultation workshop to collect latest developments of education, publicity and public awareness in China, including the role of the government in promoting education, enhancing advocacy, education and training and encouraging public participation. An analysis of the current major problems will be done, followed by discussions on ways and means to promote public awareness on climate change. The first draft of the chapter on education, publicity and public awareness will be developed in accordance with the general preparation requirements for the 3NC report. Seminars will be held to revise and improve the draft report on the chapter on education, publicity and public awareness.

Outcome 4.3: Preparation of the Chapter on Education, Publicity and Public Awareness in the BUR

Activity 4.3.1: Design of the outline for the chapter on the education, publicity and public awareness. This will involve the review of experiences in the drafting of the chapter on the education, publicity and public awareness in the previous NC projects, and analyze the experience in the BURs submitted by other nations. Seminars will be held to propose the outline for the chapter on the education, publicity and public awareness.

Activity 4.2.2: Compilation of the report on the chapter on the education, publicity and public awareness. This will involve the collection of the latest developments of climate change education, publicity and public awareness in China. The first draft of the chapter on education, publicity and public awareness will be finished in accordance with the general preparation requirements for the BUR. Seminars will be held to revise and improve the report on the chapter on education, publicity and public awareness.

Component 5: Inventory of GHG Emissions and Other Relevant Information on Climate Change in Hong Kong and Macau SARs

This project component is focused on the development of the 2010 and 2012 inventories of GHG emissions and other relevant information on climate change for Hong Kong and Macau SAR. The inventories and the information will be included in the 3NC and BUR of China. It is the second time that China's national communication will include GHG inventory and information on climate change of Hong Kong and Macau SAR.

Sub-component 5.1: Inventory of GHG Emissions and Other Relevant Information on Climate Change in Hong Kong

This project component is focused on the preparation and conduct of the 2010 and 2012 inventories of GHG emissions and other relevant information on climate change for Hong Kong SAR.

Outcome 5.1.1: Hong Kong SAR GHG inventories for 2010 and 2012

Activity 5.1.1.1: Development of the inventory of GHG emissions from energy activities. This will involve the development of the inventory of GHG emissions from energy activities including: (1) investigation and collection of data on the activity data in 2010 and 2012, such as data related to fossil fuel combustion in energy industry, manufacturing and construction industry, land transport, commercial and residential sector, regional water and aviation transport; and, (2) determination of the Hong Kong SAR-specific emission factors; and, (3) Estimation of the GHG emissions from energy activities in 2010 and 2012.

Activity 5.1.1.2: Development of the inventory of GHG emissions from industrial processes. This will involve the development of the inventory of GHG emissions from industrial processes including: (1) investigation and collection of data related to activity data, such as production and utilization of Ozone Depleting Substances (ODS) substitutes, production and utilization of the equipment for power transmission and distribution; (2) determination of Hong Kong SAR-specific emission factors; and, (3) estimation of the GHG emissions from the industrial processes in 2010 and 2012.

Activity 5.1.1.3: Development of the inventory of GHG emissions from agricultural activities. This will involve the development of the inventory of GHG emissions from agricultural activities including: (1) investigation and collection of data related to activity data, including agricultural production, livestock enteric fermentation and manure management; (2) determination of the Hong Kong SAR-specific emission factors; and, (3) estimation of the GHG emissions from agricultural activities in 2010 and 2012.

Activity 5.1.1.4: Development of the inventory of GHG emissions from municipal waste disposal activities. This will involve the development of the inventory of GHG emissions from municipal waste disposal activities including: (1) investigation and collection of data related to activity data, including solid waste disposal, wastewater treatment and incineration of waste; (2) determination of Hong Kong SAR-specific emission factors; and, (3) estimation of the GHG emissions from municipal waste disposal in 2010 and 2012.

Activity 5.1.1.5: Development of the inventory of GHG emissions from land use, land use change and forestry (LULUCF) activities. This will involve the development of the inventory of GHG emissions from LULUCF activities including: (1) investigation and collection of data related to activity data, such as the area and volume stock of forest, and the area of other land use change; (2) determination of the Hong Kong SAR-specific GHG emission/removal factors; and, (3) estimation of the GHG emissions/removal from LULUCF in 2010 and 2012.

Activity 5.1.1.6: Conduct uncertainty analysis of the GHG inventories. This involves the conduct of

quantitative analysis of the uncertainty of Hong Kong GHG inventory using the approach recommended by IPCC Guidelines.

Activity 5.1.1.7: Conduct of a series of information exchange series organized by the Hong Kong SAR and the central government. This will involve the organization and conduct of a series of discussions on the development of the Hong Kong SAR GHG inventory, including: (1) consideration of the experience in development of the GHG inventory in the 2NC project; (2) methodologies and data requirement in the development of 2010 and 2012 GHG inventories; (3) possible new development, improvement and perfection of the inventory on the basis of 2005 inventory; and, (4) problems encountered in the inventory process and how these were addressed.

Outcome 5.1.2: Hong Kong SAR GHG Inventory Database

Activity 5.1.2.1: Design of the inventory database with reference to the GHG inventory database set up by central government in the 2NC Report. This will involve designing the database structure, interaction interface, index and analysis functions, etc.

Activity 5.1.2.2: Setting-up of inventory database. This will involve the designing of the inventory database framework, including: (1) processing and input the data available; (2) removing potential bugs during the data processing; (3) carrying out the daily operation and maintenance of the system and updating the data; and, (4) training the users on the operation and maintenance of the database.

Activity 5.1.2.3: Drafting of the database users' manual and technical report.

Activity 5.1.2.4: Launching and conduct of a series of discussion sessions on the design and setup of the inventory database. This will be a joint effort of the Hong Kong SAR government and GOC.

Outcome 5.1.3: Socio-economic development scenarios in Hong Kong SAR and GHG emission trends projection

Activity 5.1.3.1: Review and update of the GHG emission projection model.

Activity 5.1.3.2: Establishment of the 2015-2040 socio-economic development scenarios in Hong Kong SAR. This will also involve the analysis of the factors that will influence the future GHG emissions in Hong King SAR.

Activity 5.1.3.3: Projection of the GHG emissions trend for the period of 2015-2040. This will involve forecasting and reporting the forecast results of the GHG emissions in the years 2015, 2020, 2025, 2030, 2035 and 2040.

Activity 5.1.3.4: Launching and conduct of a series of discussion sessions on the GHG emissions forecasting and forecast results. This will be a joint effort of the Hong Kong SAR government and GOC.

Outcome 5.1.4: Report on Hong Kong SAR's Climate Change Information

Activity 5.1.4.1: Updating of the basic climate change information about Hong Kong SAR. This will involve the gathering of updated data on natural conditions and resources, economic and social development and general information on major trades and industries.

Activity 5.1.4.2: Assessment of impacts of climate change. This will involve the evaluation of the potential impacts of climate change on the main economic sectors in Hong Kong SAR. Also included are the following: (1) impact assessment of climate change on the main vulnerable areas (water resources, land eco-systems, disease and human health, sea level change and ecosystem of the coastal zone) and their adaptation to climate change.; (2) description and evaluation of the existing implemented climate change adaptation measures; and, (3) description of the adaptation measures to be taken in the future.

Activity 5.1.4.3: Evaluation of policies and actions relevant to climate change mitigation. This involves the identification and evaluation of existing climate change mitigation policies and actions in the Hong Kong SAR, including: (1) policies and targets for controlling GHG emissions; and, (2) policies and actions concerning climate change mitigation, such as energy, energy conservation, energy efficiency improvement, transport planning, urban greening and disposal of municipal waste etc. An evaluation of the new proposed policies and actions on climate change mitigation will be carried out.

Activity 5.1.4.4: Collection of new and updated climate change information. This involves the collection and review of new and updated information about climate change, including: (1) information related to climate system observation; (2) research works on climate change, education, publicity and public awareness; and, (3) finance/technology and capacity building needs regarding climate change.

Activity 5.1.4.5: Organization and conduct of a series of discussions regarding the collection and evaluation of the information about climate change. This will involve discussions on: (1) the outline of Hong Kong SAR Climate Change Information Report; (2) the processing and evaluation of the Hong Kong SAR climate change information. The consultative discussions shall be jointly convened by GOC and the Hong Kong SAR government. The relevant suggestions and recommendations will be adopted in the final edition of the report.

Outcome 5.1.5: Hong Kong SAR Biennial Update Report

Activity 5.1.5.1: Gathering of relevant basic information for compiling the Biennial Update Report. This will involve the collection of information that includes: (1) basic circumstances of Hong Kong SAR; (2) institutional arrangements relevant to the preparation of the communications; (3) 2010 GHG inventory; (4) information on mitigation actions and their effects; (5) associated methodologies and assumptions used; (6) information related to measurement, reporting and verification of mitigation actions in Hong Kong; (7) related information on financial, technical and capacity needs; and, (8)

information on the level of support received to enable the preparation and submission of the Biennial Update Report.

Activity 5.1.5.2: Organization and conduct of discussions on the drafting of the BUR. This will be the consultative process in preparing the BUR. The Hong Kong SAR government and the GOC will jointly launch and conduct these consultative discussions.

Sub-component 5.2: Inventory of GHG Emissions and Other Relevant Information on Climate Change in Macau SAR

Sub-component 5.2: Inventory of GHG Emissions and Other Relevant Information on Climate Change in Macau

This project component is focused on the preparation and conduct of the 2010 and 2012 inventories of GHG emissions and other relevant information on climate change for Macau SAR.

Outcome 5.2.1: Macau SAR GHG inventories for 2010 and 2012

Activity 5.2.1.1: Development of the inventory of GHG emissions from energy activities. This will involve the development of the inventory of GHG emissions from energy activities including: (1) investigation and collection of data on the activity data in 2010 and 2012, such as data related to fossil fuel combustion in energy industry, manufacturing and construction industry, land transport, commercial and residential sector, regional water and aviation transport; and, (2) determination of the Macau SAR-specific emission factors; and, (3) Estimation of the GHG emissions from energy activities in 2010 and 2012.

Activity 5.2.1.2: Development of the inventory of GHG emissions from industrial processes. This will involve the development of the inventory of GHG emissions from industrial processes including: (1) investigation and collection of data related to activity data, such as production and utilization of Ozone Depleting Substances (ODS) substitutes, production and utilization of the equipment for power transmission and distribution; (2) determination of Macau SAR-specific emission factors; and, (3) estimation of the GHG emissions from the industrial processes in 2010 and 2012.

Activity 5.2.1.3: Development of the inventory of GHG emissions from agricultural activities. This will involve the development of the inventory of GHG emissions from agricultural activities including: (1) investigation and collection of data related to activity data, including agricultural production, livestock enteric fermentation and manure management; (2) determination of the Macau SAR-specific emission factors; and, (3) estimation of the GHG emissions from agricultural activities in 2010 and 2012.

Activity 5.2.1.4: Development of the inventory of GHG emissions from municipal waste disposal activities. This will involve the development of the inventory of GHG emissions from municipal waste disposal activities including: (1) investigation and collection of data related to activity data,

including solid waste disposal, wastewater treatment and incineration of waste; (2) determination of Macau SAR-specific emission factors; and, (3) estimation of the GHG emissions from municipal waste disposal in 2010 and 2012.

Activity 5.2.1.5: Development of the inventory of GHG emissions from land use, land use change and forestry (LULUCF) activities. This will involve the development of the inventory of GHG emissions from LULUCF activities including: (1) investigation and collection of data related to activity data, such as the area and volume stock of forest, and the area of other land use change; (2) determination of the Macau SAR-specific GHG emission/removal factors; and, (3) estimation of the GHG emissions/removal from LULUCF in 2010 and 2012.

Activity 5.2.1.6: Conduct uncertainty analysis of the GHG inventories. This involves the conduct of quantitative analysis of the uncertainty of Macau GHG inventory using the approach recommended by IPCC Guidelines.

Activity 5.2.1.7: Conduct of a series of information exchange series organized by the Macau SAR and the central government. This will involve the organization and conduct of a series of discussions on the development of the Macau SAR GHG inventory, including: (1) consideration of the experience in development of the GHG inventory in the 2NC project; (2) methodologies and data requirement in the development of 2010 and 2012 GHG inventories; (3) possible new development, improvement and perfection of the inventory on the basis of 2005 inventory; and, (4) problems encountered in the inventory process and how these were addressed.

Outcome 5.2.2: Macau SAR GHG Inventory Database

Activity 5.2.2.1: Design of the inventory database with reference to the GHG inventory database set up by central government in the 2NC Report. This will involve designing the database structure, interaction interface, index and analysis functions, etc.

Activity 5.2.2.2: Setting-up of inventory database. This will involve the designing of the inventory database framework, including: (1) processing and input the data available; (2) removing potential bugs during the data processing; (3) carrying out the daily operation and maintenance of the system and updating the data; and, (4) training the users on the operation and maintenance of the database.

Activity 5.2.2.3: Drafting of the database users' manual and technical report.

Activity 5.2.2.4: Launching and conduct of a series of discussion sessions on the design and setup of the inventory database. This will be a joint effort of the Macau SAR government and GOC.

Outcome 5.2.3: Socio-economic development scenarios in Macau SAR and GHG emission trends projection

Activity 5.2.3.1: Review and update of the GHG emission projection model.

Activity 5.2.3.2: Establishment of the 2015-2040 socio-economic development scenarios in Macau SAR. This will also involve the analysis of the factors that will influence the future GHG emissions in Hong King SAR.

Activity 5.2.3.3: Projection of the GHG emissions trend for the period of 2015-2040. This will involve forecasting and reporting the forecast results of the GHG emissions in the years 2015, 2020, 2025, 2030, 2035 and 2040.

Activity 5.2.3.4: Launching and conduct of a series of discussion sessions on the GHG emissions forecasting and forecast results. This will be a joint effort of the Macau SAR government and GOC.

Outcome 5.2.4: Report on Macau SAR's Climate Change Information

Activity 5.2.4.1: Updating of the basic climate change information about Macau SAR. This will involve the gathering of updated data on natural conditions and resources, economic and social development and general information on major trades and industries.

Activity 5.2.4.2: Assessment of impacts of climate change. This will involve the evaluation of the potential impacts of climate change on the main economic sectors in Macau SAR. Also included are the following: (1) impact assessment of climate change on the main vulnerable areas (water resources, land eco-systems, disease and human health, sea level change and ecosystem of the coastal zone) and their adaptation to climate change.; (2) description and evaluation of the existing implemented climate change adaptation measures; and, (3) description of the adaptation measures to be taken in the future.

Activity 5.2.4.3: Evaluation of policies and actions relevant to climate change mitigation. This involves the identification and evaluation of existing climate change mitigation policies and actions in the Macau SAR, including: (1) policies and targets for controlling GHG emissions; and, (2) policies and actions concerning climate change mitigation, such as energy, energy conservation, energy efficiency improvement, transport planning, urban greening and disposal of municipal waste etc. An evaluation of the new proposed policies and actions on climate change mitigation will be carried out.

Activity 5.2.4.4: Collection of new and updated climate change information. This involves the collection and review of new and updated information about climate change, including: (1) information related to climate system observation; (2) research works on climate change, education, publicity and public awareness; and, (3) finance/technology and capacity building needs regarding climate change.

Activity 5.2.4.5: Organization and conduct of a series of discussions regarding the collection and evaluation of the information about climate change. This will involve discussions on: (1) the outline of Macau SAR Climate Change Information Report; (2) the processing and evaluation of the Macau SAR climate change information. The consultative discussions shall be jointly convened by GOC and the Macau SAR government. The relevant suggestions and recommendations will be adopted in the

final edition of the report.

Outcome 5.2.5: Macau SAR Biennial Update Report

Activity 5.2.5.1: Gathering of relevant basic information for compiling the Biennial Update Report. This will involve the collection of information that includes: (1) basic circumstances of Macau SAR; (2) institutional arrangements relevant to the preparation of the communications; (3) 2010 GHG inventory; (4) information on mitigation actions and their effects; (5) associated methodologies and assumptions used; (6) information related to measurement, reporting and verification of mitigation actions in Macau; (7) related information on financial, technical and capacity needs; and, (8) information on the level of support received to enable the preparation and submission of the Biennial Update Report.

Activity 5.2.5.2: Organization and conduct of discussions on the drafting of the BUR. This will be the consultative process in preparing the BUR. The Macau SAR government and the GOC will jointly launch and conduct these consultative discussions.

Component 6: Supplementary Support for Achieving Convention Objectives and Publication and Dissemination of the 3NC Report

The objective of this component is the preparation of the chapters on the national circumstances, impacts and adaptation of climate change in China, on the proposed mitigation policies and measures in China, and on the latest developments on climate system observations and climate research on the basis of the results of the activities in Components 1 to 5, and to complete the preparation of China's 3NC Report.

Outcome 6.1: Supplementary support for completion of 3NC and BUR

Activity 6.1.1: National circumstances. This will involve the updating of the information on China's national circumstances in the 3NC and BUR Report. The report will make use of the new data that will be researched and gathered on various issues/parameters as these relate to climate change. These include, among others, current socio-economic developments, developments of major industries like the energy sector, strategies and objectives for future developments.

Activity 6.1.2: Research and systematic observation. This will involve the conduct of a study to assess the progress made by the country in the area of systematic climate/weather observations. Gaps will be identified as well as recommended improvements. Based on the proposed policies on climate change mitigation and adaptation, requirements for enhancing systematic climate observation will be identified and proposed. This will include information on the latest developments in climate system observations (e.g., ground observation and remote sensing), problem detection and approaches and instruments to use to improve systematic observation and the potential collaboration with global observation systems. More importantly, the gaps and recommendations and the follow-up plans will be included in the 3NC and BUR report.

Activity 6.1.3: Technology transfer and cooperation for the implementation of the Convention. This will involve the conduct of a study to assess the progress made by China in the area of climate change technology transfer and cooperation. The review will also cover availability of environmentally sound technologies and extent of technical know-how and advancement in China in the area of climate change mitigation and adaptation. Gaps (as per the set policies and targets) will be identified as well as feasible recommendations for improvements.

Activity 6.1.4: Development and conduct of capacity building activities: This involves the evaluation of the existing capacity development needs in the country in carrying out national communications work and climate change integrating activities. The identified gaps and requirements will be evaluated to come up with recommendations to address squarely the areas that need necessary capacity development.

Outcome 6.2: Outline Proposal of China's 3NC on Climate Change

Activity 6.2.1: Drafting of the outline of the 3NC Report. This will involve the preparation of the first draft of the Outline of 3NC Report. It will be based on the 1NC and 2NC reports with detailed sections and chapters.

Activity 6.2.2: Discussion on the Outline of 3NC Report. This will involve the organization and conduct of discussions with the relevant experts to determine the initial plans for each chapter of the 3NC report. Experts and authors will be invited to discuss and reach consensus on the first draft of the Outline.

Activity 6.2.3: Discussions on the draft outline of each chapter of the 3NC report. This activity will involve drafting the outline of each chapter of the 3NC report. Authors of each chapter are to propose their draft outline, including the name and key points of each section.

Outcome 6.3: Preparation of the First Draft of 3NC

Activity 6.3.1: Drafting of the chapter on national circumstances. This will involve the preparation of the draft of the chapter on national circumstances. Experts will collect and update the basic conditions related to climate change, including the socio-economic development, the development of energy and other major industries and the future strategy and objectives.

Activity 6.3.2: Drafting of the chapter on national GHG inventories. This will involve the preparation of the chapter on national GHG inventories. Table 1 and 2 in the *Guidelines for the Preparation of National Communications from non-Annex I Parties* will be used to estimate the GHG emissions. Experts will be organized to compile inventories for the five sectors, namely, energy, industrial processes, agriculture, land use change and forestry and wastes to complete the draft of the chapter on national GHG inventories.

Activity 6.3.3: Drafting of the chapter on impacts and adaptation to climate change. This will involve the preparation of the draft of the chapter on the impacts and adaptation to climate change. Experts will gather data on the impact of climate change on agriculture and related vulnerability assessment, the impact of climate change on water resources and related vulnerability assessment, the impact of climate change on terrestrial ecosystems and related vulnerability assessment, the impact of climate change on coastal zones and coastal areas and related vulnerability assessment, and the impact of climate change on human health. The draft report on climate change impacts and vulnerability assessments will be made. The report intends to focus on the major research and practical work on the impacts and adaptations of climate change after the 2NC project. Experts will collect information on the policies and actions during the 12th Five Year Period and the 13th Five Year Period, and complete the draft of chapter on the policies and actions for the adaptation of climate change.

Activity 6.3.4: Drafting of the chapter on the policies and measures on the mitigation of climate change. This will involve the preparation of the draft of the chapter on the policies and measures on the mitigation of climate change. Experts will collect information on major plans, policies and projects for the implementation of the Scientific Outlook on Development and the accelerated development of a resource-saving and environment-friendly society, including adjustment of industrial structure, change of growth model, energy conservation, and development of renewable energy. The impact of these policies and measures on the mitigation of GHG emissions will be analyzed. This activity will explore ways to combine the mitigation policies with the national sustainable development policies and measures and complete the draft of chapter on the policies and measures on the mitigation of climate change.

Activity 6.3.5: Drafting of the chapter on the observation of climate system. This will involve the preparation of the draft report on the observation of the climate system. Experts will collect information on China's latest developments in the observation of the climate system, including ground-based observations, remote sensing, etc. This will also include the analysis of the existing problems in the observation of the climate system, exploration of ways of improving observation, and analysis of China's contribution to the global observations.

Activity 6.3.6: Drafting of the chapter on research on climate change. This will involve the preparation of the draft of the chapter on research on climate change. Experts will collect the latest advances and major conclusions in climate change research, including the scientific basis, the impacts and adaptation, and the socio-economic impacts of climate change mitigation. The activity will analyze the gap and future development of climate change research, and explore ways to improve the research.

Activity 6.3.7: Drafting of the chapter on technology transfer and cooperation required for compliance. This will involve the preparation of the draft of the chapter on technology transfer and cooperation required for compliance. Experts will review the climate-friendly technologies obtained under the Convention, analyze the major obstacles of technology transfer under the Convention, and summarize the experience and lessons learned.

Activity 6.3.8: Drafting of the chapter on the fund, technology and capacity building required for compliance. This will involve the preparation of the chapter on the fund, technology and capacity-building required for compliance. Experts will collect the main conclusions and the latest developments in the capacity-building, technology transfer and self-assessment of cooperation, analyze the deficiencies in technology transfer and capacity-building, explore directions and ways for future development, and finish the draft report of chapters on the fund, technology and capacity-building required for compliance.

Activity 6.3.9: Drafting of the chapter on capacity building to address climate change. This will involve the preparation of the draft of the chapter on capacity building to address climate change. Information on the capacity development needs at the national, provincial and city/county levels will be collected and assessed and used in the drafting of the chapter on capacity building to address climate change.

Activities 6.3.10: Drafting of the chapter on other work related to climate change. This will involve the preparation of the draft chapter on other work related to climate change. Data and information on ongoing work at national, provincial and city/county levels, such as China's cooperation with other developing countries will be collected, and with the collated data the draft chapter will be prepared.

Outcome 6.4: Preparation of Chinese and English Versions of the 3NC

Activity 6.4.1: Discussions on the draft versions of the 3NC Report. This will involve the conduct of seminars on the 3NC report to be attended by leaders, experts and 3 NC chapter authors. The discussions will be on the first draft of the 3NC report to reach consensus on the revisions. Then another seminar will be held to discuss the final draft of the NC Report

Activity 6.4.2: Revision of the 3NC Report. This will involve the review and revision of the various drafts of the 3NC Report by experts and authors of the #NC chapters.

Activity 6.4.3: Completion of the English version of the 3NC Report. This will involve the translation of the 3NC Report from the original Chinese texts to English.

Component 7: Supporting China Biennial Update Report completed and Submitting to the UNFCCC

This project component will involve activities to prepare the First BUR (1BUR). It will involve conducting supplementary investigation and analysis on the basis of Component 1 to 5 to get information on China's national circumstances, the strategic objectives and priorities in China's economic and social development, China's efforts to mitigate GHG emissions and their results, obtained funds and technologies, limits and gap, related needs for fund, technologies and capacities, the national accounting, reporting and verification system and other matters related to realizing the objectives of the Convention.

Outcome 7.1: Outline Proposal of China's 1BUR

Activity 7.1.1: Preparation of the first draft Outline of the 1BUR. This will involve the drafting of the Outline of the 1BUR. The first draft will be in line with the *Guidelines for the Preparation of BUR of UNFCCC from non-Annex I Parties (2/CP.17)*, with detailed sections and chapters.

Activity 7.1.2: Discussions on the first draft of the 1BUR. This will involve the organization and conduct of a seminar to be attended by authors and experts to determine the initial plans for every chapter, discuss the first draft of the 1BUR, and reach consensus on the outline with the authors of each chapter.

Activity 7.1.3: Preparation of the first draft outline of each chapter of the 1BUR, including the names and key points of each chapter.

Activity 7.1.4: Organization and conduct of a seminar on the first draft outline of the 1BUR attended by authors and experts to discuss the first draft of the BUR and reach consensus on the outlines and key points of each chapter in the 1BUR.

Outcome 7.2: Preparation of the First Draft of the 1BUR

Activity 7.2.1: Drafting of the chapter on national circumstance. This will involve the preparation of the chapter on the national circumstance. Experts will be organized to collect and update the basic conditions related to climate change, including the socio-economic development, the development of energy and other major industries and the future strategy and objectives.

Activity 7.2.2: Drafting of the chapter on national GHG inventory. This will involve the preparation of the chapter on national GHG inventory by using the Table 1 and 2 in the *Guidelines for the Preparation of National Communications from non-Annex I Parties*. The first draft will be finished by summarizing the research results of GHG inventories of energy, industrial processes, agriculture, land use change and forestry and waste.

Activity 7.2.3: Drafting of the chapter on financial and technical support to address climate change. This will involve the preparation of the chapter on the financial and technical support China obtained. Experts will be invited to collect information on the support China obtained for appropriate mitigation actions, and the financial support for the preparation and submission of the 1BUR to finish the draft of the chapter.

Activity 7.2.4: Drafting of the chapter on constraints and gaps, and related financial, technical and capacity needs. This will involve the preparation of the chapter on constraints and gaps, and related financial, technical and capacity needs. Experts will be organized to collect information on constraints and gaps, and related financial, technical and capacity needs, and to finish the draft of the chapter.

Activity 7.2.5: Drafting of the chapter on other information related to achieving objectives of the Convention. This will involve the preparation of the chapter on other information related to achieving objectives of the Convention. Experts will be organized to collect information on China's accounting, reporting and verification systems, progress in climate change research, education, advocacy and public awareness, and cooperation and exchanges with other developing countries so as to finish the draft of the chapter.

Outcome 7.3: Preparation of the Chinese and English Versions of the 1BUR

Activity 7.3.1: Organization and conduct of a seminar on the first draft of the 1BUR to be participated in by authors and experts to discuss the first and revised drafts, and reach consensus on major issues relating to the revision of the first draft and completion of the revised draft of the 1BUR.

Activity 7.3.2: Completion of the draft 1BUR.

Activity 7.3.3: Preparation and completion of the English Version of the 1BUR. This will involve completing the 1BUR and having it translated from Chinese to English.

The following is the timetable for the completion and submission of the BURs and the 3NC Report[2].

Report	Final Draft Completion	Final Document Submission	Remarks
First BUR (1BUR)	August 2015	2nd Quarter 2016	Stand-alone report submitted to UNFCCC
Second BUR (2BUR)	4thQuarter 2017	3rd Quarter 2018	As Annex to the 3NC Report
Third National Communication (3NC)	4thQuarter 2017	3rd Quarter 2018	Includes the 2BUR

2.3. Project Indicators, Risks and Assumptions

The project performance indicators are listed in the Project Planning Matrix (PPM) in Part II, Section II. The target values of these PPM-based indicators are summarized in Part VI, Section IV. The project team will monitor the 3NC project implementation process based on these indicators.

The following three assumptions ensure the effective implementation of this project. Firstly, a strong and stable institution is needed for project organization and implementation to ensure participants fulfilling their tasks according to respective responsibilities. Secondly, including the GEF and

[2] This is as long as the CEO endorsement of the 3NC project and the disbursement of the grant funding is no later than August 2014.

domestic in-kind contributions, a long-term and stable financing mechanism is needed to ensure that all activities of the project are carried out in an adequate and timely fashion. Thirdly, a project team with strong sense of responsibility, high efficiency and stability is needed to ensure the effective implementation of all activities concerned. However, even with the best effort to ensure the effective design and implementation of project activities in the project design phase, there are still unavoidable risks, which need careful monitoring and management during the project implementation process. Some risks that can hamper the success of this project include: (1) potential delays in project examination and approval; (2) negative changes in the climate change negotiation; (3) negative impacts that domestic institutional adjustments might bring to climate change. However, these risks remain low.

To ensure the timely implementation of the project, NDRC and UNDP/GEF will continue to cooperate and exchange ideas between each other to ensure the effective development of the project, as well as the implementation of already planned work.

Regarding the issue on domestic institutional adjustments, the Chinese government attaches great importance to climate change and has adopted its objective for controlling GHG emissions in the newly announced 12th Five-year Plan for National Economic and Social Development. The NLGCC and its office have been established as a high-level coordination mechanism to deal with climate change issues, which play a very important and positive role in China's climate change related decision-making process. In addition, NDRC has promulgated the Work Plan for Controlling Greenhouse Gas Emissions during the 12th Five-Year Plan Period, and founded the National Climate Strategy Center in the past year. The Chinese government will keep its attention on climate change and strengthen its capacity of addressing relevant issues through enhanced capacity building actions, so as to make new contribution to the protection of global climate.

2.4. Expected Global, National and Local Benefits

The proposed project will enable China to fulfill its obligations under the UNFCCC. It will strengthen China's capacity to compile national communications, which will further enhance its capacity building in addressing climate change. It is expected that the project will also strengthen the capability of Chinese provincial governments in integrating climate change into socio-economic development planning and policy making processes.

Meanwhile, the project will also strengthen the capability of the NLGCC and its office in information gathering and decision making, while further promoting public awareness on climate change by linking the means of combating climate change with people's daily life and work. This will also build up the capacity of project participants, especially in GHG inventory preparation, GHG emissions projection and analysis, as well as database development and management.

2.5. Country Ownership: Country Eligibility and Country Drivenness

China is a party to the UNFCCC. On June 11, 1992, Premier Li Peng signed the UNFCCC on behalf

of the Chinese government at the UN Conference on Environment and Development in Rio de Janeiro, Brazil. On January 5, 1993, the Standing Committee of the National People's Congress ratified the UNFCCC. As a non-Annex I Party to the UNFCCC and for the purpose of effective implementation of its commitments under the Convention, China officially submitted its INC during COP 10 of the UNFCCC in December 2004, and later submitted its 2NC to the Secretary of the UNFCCC in 2012.

China faces a situation of resource shortage under such a large population. On the other hand, it is high vulnerability to the adverse impacts of climate change. Thus, the Chinese government takes climate change rather seriously. As early as in 1990, a National Coordination Committee on Climate Change (NCCCC) was established under the then Environmental Protection Committee of the State Council, and was later restructured under the NDRC. On the basis of the NCCCC, the National Leading Group on Climate Change (NLGCC) was established in 2007, which was chaired by the Primer and consisted of 30 members from different ministries. In 2008, the Department of Climate Change was established within the NDRC to coordinate and deal with climate change issues. In 2010, NDRC, together with other ministries including the Ministry of Foreign Affairs, established the NLGCC office to further enhance coordination and communication of climate change issues. Respective institutions on climate change have also been established throughout relative ministries and provincial governments. Now, a complete climate change management and work mechanism has been initially formed which is led by NLGCC, managed by NDRC, and implemented by various ministries and provincial governments with wide participation of the civil society. It can further promote the effective implementation of China's sustainable development strategy, which will eventually contribute to global mitigation of and adaptation to climate change.

The proposed project will contribute to China's efforts in controlling GHG emissions while enhancing its capacity in sustainable development. The objectives of the project are in line with those in the 12th Five-Year Plan of China for National Economic and Social Development and Outline of Mid and Long-Term National Development Plan for Science and Technology. Meanwhile, parts of the National Communication are closely related to with the development plans and policies of China, including the Program of Action for Sustainable Development in China in the Early 21st Century, Outline of the Medium and Long-Term Energy Development Program in China, Medium and Long-Term Special Plan on Energy Saving, as well as policies concerning poverty eradication, the Grain for Green program, power supply for villages, development of circular economy and the efforts to build a resource conservation society. Furthermore, the project will both benefit from, and contribute to, the Work Plan for Controlling Greenhouse Gas Emissions During the 12th Five-Year Plan Period and the National Plan for Addressing Climate Change (2013-2020), which will enhance the role and significance of climate change in China's national economic and social development.

In addition to mitigation, China also aims to continuously enhance its adaptation capacity. Together with the ongoing compilation of the National Climate Change Adaptation Strategy, the 3NC will present the information on China's adaptation capacity to climate change, progress in climate change science and technology, improvement in public awareness, as well as further empowerment of related institutions.

2.6. Sustainability

Like other GEF-funded projects, sustainability is an integral part of the proposed 3NC project activities, whose fulfillment is ensured by the outputs of most project components. The sustainability of the project is ensured through the adoption of collaborative approaches and strategies, so as to establish and improve the long-term sustainability of existing institution and coordination structures, which have already been built and operated at both national and provincial levels.

Capacity building activities under the 3NC will assist China designing future climate change strategies and policies (at both national and provincial levels). Both detailed, formal institutional arrangements to address climate change and reasonable design and implementation of mitigation and adaptation plans, can help to achieve China's sustainable development objectives while taking climate change factors into consideration.

2.7. Replicability

The compilation process of national communications such as the 3NC is a continuous process, which conforms to the fulfillment of party's obligations under the UNFCCC, which, to some extent, proves the replicability of project activities and methodologies. Meanwhile, the replicability of the project objectives is further ensured as the objectives of 3NC are formulated in the process of project activity and output design. In addition, certain project activities, especially compiling methods and emission factors in GHG inventory compiling, can be used and/or replicated in other countries in the region, especially those with similar national circumstances as China.

PART III: MANAGEMENT ARRANGEMENTS

UNDP-China is responsible to GEF for this proposed 3NC project. The project will follow the UNDP National Implementation (NIM) procedures. NDRC, on behalf of the Chinese government, is in charge of project implementation, and will provide necessary resources needed for the project. The duration of this project is four years, which starts from the first quarter of 2014 and runs for the next 48 months.

3.1. Institutional Arrangement

Project Steering Committee (PSC) - To enhance the overall planning of, and guidance for project implementation, a Project Steering Committee will be established to ensure the project is carried out in accordance with the activities/outputs and outcomes as outlined in the proposal of this project The PSC will be consisted of representatives from the Department of Climate Change of NDRC, the Department of Treaty and Law of MFA, the Department of International Cooperation of Ministry of Finance (MOF), the Department of Social Development of Ministry of Science and Technology (MOST), the Department of Science and Technology of Ministry of Environment Protection, the Department of Science and Technology of China Meteorological Administration, and the UNDP-China. The Director-General of the Department of Climate Change of NDRC will chair the

PSC.

National Project Director (NPD) - NDRC will appoint an official at the Director-General level to serve as the National Project Director, who will manage the project on behalf of NDRC. His/her major responsibilities include: to ensure that project outputs comply with requirements in the project document; to supervise the implementation process to be completed on time; and to coordinate with other relevant government departments and stakeholders.

Project Management Office (PMO) - The PMO will be under the NDRC and headed by a Project Coordinator (PC), who will work under the direction of the PSC. He/she will utilize UNDP/GEF funds in accordance with UNDP administrative and financial procedures. The PMO will be assisted by a small supportive team with secretaries and administrative assistants, whose main duty is to enhance the communications and coordination among different project teams, to supervise and manage the implementation of the project in collaboration with UNDP, and to engage in the daily management of project documents, records, files and office apparatus. The PMO is in charge of the selection of sub-contractors and recruitment of project consultants whose duty includes the preparation of Terms of Reference (TOR), calling for bids, bids evaluation and recruitment.

Implementing Agency - The UNDP China country office and the UNDP-GEF Asia-Pacific Regional Coordination Unit will supervise this project independently, on behalf of the GEF. UNDP will manage the disbursement of the GEF funds for this project in a timely manner, ensuring that the expenditure, report and audit of the project funds comply with national laws and regulations as well as UNDP rules and procedures. The NDRC is the Chinese executing agency for the project. It will implement this project through NPD and PMO.

Support Services - Service providers will be evaluated and selected through processes such as bidding in compliance with the UNDP procurement rules and requirements.

Audit Arrangements - The Government will provide the UNDP Resident Representative with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of UNDP (including GEF) funds according to the established procedures set out in the programming and finance manuals. The audit will be conducted according to UNDP financial regulations, rules and audit policies by the legally recognized auditor of the Government, or by a commercial auditor engaged by the Government.

UNDP Support Services - UNDP China will provide all required support in terms of participating in various Board and advisory meetings as required and by promoting the project in national and donor community.

3.2. Cross-cutting Coordination

The project will fully utilize the existing networks of government agencies and experts that were established through previous projects such as *Enabling China to Prepare Its Second National*

Communication. It will also engage the participation of Chinese government agencies, research institutes, universities, social groups, industrial sectors and NGOs, such as MFA, MOST, MOF, Ministry of Environmental Protection, China Meteorological Administration, NBS, NCSC, Energy Research Institute of NDRC, IAP, Chinese Academy of Forestry (CAF), Chinese Research Academy of Environmental Sciences (CRAES), Chinese Academy of Agricultural Sciences (CAAS), the Administrative Center of China's Agenda 21,Tsinghua University, Beijing Forestry University, China Iron and Steel Association, China Cement Association, China Non-Metallic Minerals Industry Association, China's Association of Fluorine and Silicon, State Grid Corporation of China, China National Petroleum Corporation and China Economic Information Network company that are involved in the preparation of the 2NC. Meanwhile, based on project demand and scope, additional consultation, collaboration and coordination will be extended to other relevant departments, research institutes, social groups and NGOs, such as the Government of Hong Kong SAR, Macao SAR, Ministry of Land and Resources, China Association for Science and Technology etc. Furthermore, in the implementation process, the project will engage provincial governments and research institutes such as the development and reform commissions of municipal authorities in Beijing, Zhejiang, Jilin, Hubei, Shaanxi and Yunnan etc. during project implementation.

The description and roles of the various entities that will be involved in the 3NC project implementation, mainly in the GHG emission inventories, and in the preparation of the 3NC report and the 1BUR is summarized in Table 4 of Section IV, Part II of this document.

This project will work closely with programs and institutions involved in preparation of China's 3NC Report and BUR. To build the capacity of provincial governments on GHG inventory preparation, China's Clean Development Mechanism Fund (CDM Fund) has supported the inventory of compilation in selected provinces, which will contribute to the compilation of 3NC Report and BUR. To help improve the inventory compilation capacity of the provincial institutes, under the support of UNDP and NDRC, institutions including the NCSC have compiled the "*Textbook for Low Carbon Development and Training of Provincial Greenhouse Gases Inventory*" and organized training sessions to help provincial climate change management institutions and inventory compilation institutes in low-carbon development and inventory preparation, which will contribute to future work of this project in the investigation of data on activity data and emission factors. To support the development of carbon emission trading pilots, pilot provinces and cities provide funding to research on accounting methods for enterprise emissions and design of the carbon emissions trading system. This work will deepen the understanding of determining mechanisms of emission factors, as well as the understanding of the China's climate change policy and actions. To promote low carbon development, China launched its "National Low Carbon Day" in 2013, and will carry out various forms of outreach activities on this day. This work will contribute to the preparation of relevant chapters regarding information diffusion and publicity in the 3NC Report and 1BUR.

In order to acknowledge GEF's financial contribution to this project, all outputs under the project will be labeled with the GEF logo, while any citation of the 3NC and related documents will accord proper acknowledgment to GEF. The UNDP logo will be positioned in the reports and documents of this project in a more prominent and independent manner, if possible.

3.3. Fund Flow Arrangements

Funding for the project will be managed jointly by UNDP and NDRC under the guidance of MOF, while specific accounting work will be transferred to qualified and competent organizations such as International Economic and Technological Communication Center of China. The project fund shall be allocated and disbursed according to the project's annual work plan. UNDP will allocate/disburse the funds on a quarterly basis in line with the annual work plan adopted in the previous year; and at the end of each November, the PMO will submit the annual work plan of next year to UNDP, which will allocate/disburse funds according to the received work plan.

The qualified and capable organizations will manage the fund in accordance with the financial management requirements of the Chinese Government and UNDP rules and procedures, including allocating funds on a quarterly basis, preparing the quarterly financial report and revising the budgets in accordance with UNDP conditions and procedures.

PART IV: MONITORING AND EVALUATION PLAN AND BUDGET

4.1. Monitoring and Evaluation

Project monitoring, evaluation and report will be conducted in accordance with established UNDP and GEF procedures. Project quarterly report, comprehensive annual report and assessment report will be submitted by implementing agencies regularly as requested. Project quarterly report will provide relevant result, progress, change of plan and executive condition related to the project, proposed procedures and work plan of next quarter with authorized abstract.

Project Start:

A Project Inception Workshop will be held within the first 2 months of project start with those with assigned roles in the project organization structure, UNDP country office and where appropriate/feasible regional technical policy and programme advisors as well as other stakeholders. The Inception Workshop is crucial to building ownership for the project results and to plan the first year annual work plan. It should address a number of key issues including:

a) Assist all partners to fully understand and take ownership of the project. Detail the roles, support services and complementary responsibilities of UNDP China Country Office (CO) and UNDP/GEF Asia-Pacific Regional Coordination Unit (RCU) staff vis-à-vis the project team. Discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff will be discussed again as needed.
b) Based on the project results framework and the relevant GEF Tracking Tool if appropriate, finalize the first annual work plan. Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks.

c) Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements. The Monitoring and Evaluation work plan and budget should be agreed and scheduled.
d) Discuss financial reporting procedures and obligations, and arrangements for annual audit.
e) Plan and schedule Project Board meetings. Roles and responsibilities of all project organization structures should be clarified and meetings planned. The first Project Board meeting should be held within the first 12 months following the inception workshop.

An Inception Workshop report is a key reference document and must be prepared and shared with participants to formalize various agreements and plans decided during the meeting.

In addition, UNDP will supervise the progress of this project regularly through quarterly work plan and relevant conferences so as to identify and solve problems in time and ensure the smooth implementation. The quarterly work plan will be prepared in accordance with the overall objective and evaluation index of the project to reflect executive features correctly. PMO will provide PSC with executive progress report and completing performance of project as well as the evaluation and regulation on work plan as needed. The project will be supervised annually by UNDP through annual Tripartite Project Review.

Quarterly:

- Progress made shall be monitored in the UNDP Enhanced Results Based Management Platform.
- Based on the initial risk analysis submitted, the risk log shall be regularly updated in ATLAS. Risks become critical when the impact and probability are high. Note that for UNDP GEF projects, all financial risks associated with financial instruments such as revolving funds, microfinance schemes, or capitalization of ESCOs are automatically classified as critical on the basis of their innovative nature (high impact and uncertainty due to no previous experience justifies classification as critical).
- Based on the information recorded in Atlas, a Project Progress Reports (PPR) can be generated in the Executive Snapshot.
- Other ATLAS logs can be used to monitor issues, lessons learned etc. The use of these functions is a key indicator in the UNDP Executive Balanced Scorecard.

Bi-annual progress:

- Status Survey Questionnaires to indicate progress and identify bottlenecks as well as technical support needs will be carried out twice a year.

Annually:

Project will be evaluated through the Annual Project Report / Project Implementation Review (APR/PIR) which will provide a more in-depth summary about the project progress and implementation performance, and also is the main channel to obtain project implementation experiences and lessons. Any adjustment on the project and that approved by PSC will stand out in

the project implementation review.

- Annual Project Review/Project Implementation Reports (APR/PIR): This key report is prepared to monitor progress made since project start and in particular for the previous reporting period (30 June to 1 July). The APR/PIR combines both UNDP and GEF reporting requirements.

  The APR/PIR includes, but is not limited to, reporting on the following:

  - Progress made toward project objective and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative);
  - Project outputs delivered per project outcome (annual);
  - Lesson learned/good practice;
  - Annual Workshop Plan (AWP) and other expenditure reports;
  - Risk and adaptive management;
  - ATLAS QPR;
  - Portfolio level indicators (i.e. GEF focal area tracking tools) are used by most focal areas on an annual basis as well.

Mid-term of project cycle:

The project will undergo an independent Mid-Term Evaluation at the mid-point of project implementation (two years after inception workshop). The Mid-Term Evaluation will determine progress being made toward the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF. The management response and the evaluation will be uploaded to UNDP corporate systems, in particular the UNDP Evaluation Office Evaluation Resource Center (ERC).

The relevant GEF Focal Area Tracking Tools will also be completed during the mid-term evaluation cycle.

End of Project:

An independent Final Evaluation will take place three months prior to the final Project Board meeting and will be undertaken in accordance with UNDP and GEF guidance. The final evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term evaluation, if any such correction took place). The final evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of

global environmental benefits/goals. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

The Terminal Evaluation should also provide recommendations for follow-up activities and requires a management response which should be uploaded to PIMS and to the UNDP Evaluation Office Evaluation Resource Center (ERC).

The relevant GEF Focal Area Tracking Tools will also be completed during the final evaluation.

As the project executing agency, the NDRC will make self-supervision regularly on the implementation of the project. A logical framework matrix in the second section offers indicators of the successful implementation of all project activities and their corresponding validation methods. These indicators will also become the important parameters for the NDRC to make the self-supervision on project progress and implementation.

To ensure that project activities could be implemented in a consistent, coordinated and organized manner, project executors with main stakeholders will formulate reasonable operating mechanism, monitoring and evaluation program and implementation arrangements. Project monitoring and evaluation plan will be based on certain project evaluation indicators as well as validation methods related to project objectives, purposes, outputs and activities etc. Also, PSC will put forward opinions on the monitoring and evaluation plan and pass through this monitoring and evaluation plan.

Every target and activities of the projects during project execution will be monitored and evaluated. Part IV in this document presents the annual objectives and monitoring plan. Project indicators, assessment method and project supervision/assessment of responsibility proposed in project files, will be introduced and confirmed at the project start meeting and project monitoring and evaluation plan will also be provided and finalized in Inception Report of the project.

4.2. Learning and knowledge sharing

Results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums.

The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects.

Finally, there will be a two-way flow of information between this project and other projects of a similar focus.

Communications and visibility requirements:

Full compliance is required with UNDP's Branding Guidelines. These can be accessed at http://intra.undp.org/coa/branding.shtml, and specific guidelines on UNDP logo use can be accessed at: http://intra.undp.org/branding/useOfLogo.html. Amongst other things, these guidelines describe when and how the UNDP logo needs to be used, as well as how the logos of donors to UNDP projects needs to be used. For the avoidance of any doubt, when logo use is required, the UNDP logo needs to be used alongside the GEF logo. The GEF logo can be accessed at: http://www.thegef.org/gef/GEF_logo. The UNDP logo can be accessed at http://intra.undp.org/coa/branding.shtml.

Moreover, full compliance is required with the GEF's Communication and Visibility Guidelines (the "GEF Guidelines") either. The GEF Guidelines can be accessed at: http://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.08_Branding_the_GEF%20final_0.pdf. Amongst other things, the GEF Guidelines describe when and how the GEF logo needs to be used in project publications, vehicles, supplies and other project equipment. The GEF Guidelines also describe other GEF promotional requirements regarding press releases, press conferences, press visits, visits by Government officials, productions and other promotional items.

Where other agencies and project partners have provided support through co-financing, their branding policies and requirements should be similarly applied.

PART V: PARTNERSHIP STRATEGY

The success in implementing the 3NC depends on the engagement of eligible partners at all levels. The target partners include relevant domestic institutions and other international agencies located in China. Two aspects will be taken into consideration while shaping the partnership strategy for this project. The first is to enhance the coordination and implementation capacity, and the second is to take full advantage of the technical support capacity and services of each partner.

The key partners of the 3NC are the members of NLGCC and institutions providing technical services as identified in the project components. The relationship between the agencies is shown in Diagram 1. The activities of this project will ensure that it contributes to enhancing the capacity of partners at all levels on decision-making, analysis, research and public awareness.

PART VI: LEGAL CONTEXT

This project document is formulated in accordance with Chapter One of the *Standard Basic Assistance Agreement (SBAA)* signed between the Chinese Government and UNDP on 29 June 1979. To achieve the objective of the SBAA, the Implementing Agency and Executing Agency should be those designated by this Agreement.

Representatives of the UNDP China may have the project document verified by the supporting agencies of GEF-UNDP project, and propose amendments in the following way, provided that other signatories to the document have no divergent views on the proposed revisions:

1. Amendment of and addition to some annexes to this document;
2. No substantial changes to the direct objectives, outputs and activities of this project, just a redistribution of the inputs or an increase in the cost due to inflation, as agreed upon by all partners.
3. Redistribution of inputs, increase of experts, increasing cost caused by inflation, or changes due to the flexibility of the institutional expenditure.
4. Only the appendix and annexes to the project documents are included.

This document together with the CPAP signed by the Government and UNDP which is incorporated by reference constitute together a Project Document as referred to in the SBAA and all CPAP provisions apply to this document. Consistent with the Article III of the Standard Basic Assistance Agreement, the responsibility for the safety and security of the implementing partner and its personnel and property, and of UNDP's property in the implementing partner's custody, rests with the implementing partner.

The implementing partner shall:

a) Put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried; and,
b) Assume all risks and liabilities related to the implementing partner's security, and the full implementation of the security plan.

UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

The implementing partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

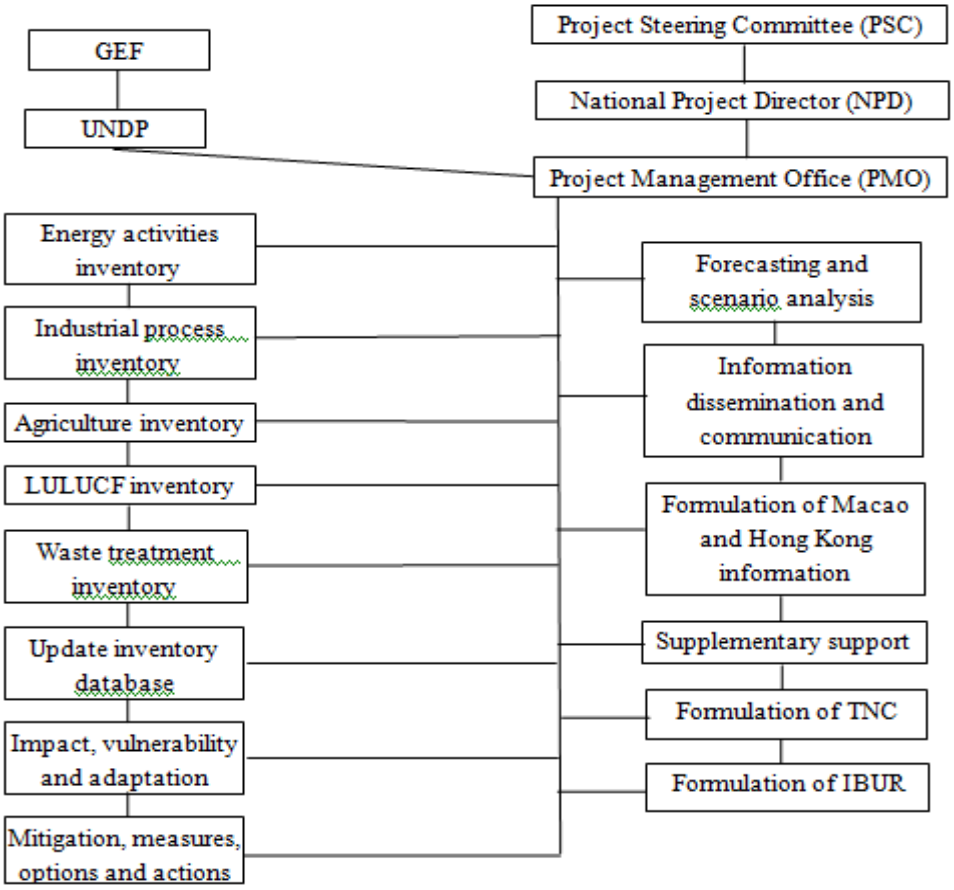

Figure 1: Roles of project key partners

SECTION II: STRATEGIC RESULT FRAMEWORK

PART I: INCREMENTAL COST ANALYSIS

Not applicable to the project.

PART II: LOGICAL FRAMEWORK ANALYSIS

2.1 Project documents of working procedure

For details, please refer to the logical framework analysis table - Project Planning Matrix (PPM) in Table 1.

Table 1: Analysis of Logical Framework (Project Planning Matrix)

The Department of Climate Change of NDRC, other members of the PSC, UNDP, GEF-China and relevant senior experts have participated in the design of the project planning matrix (Log frame). A series of conferences and seminars were held to discuss the objectives, outputs and activities of the project.

Project Strategy	Verifiable Indicators for Objectives			Means of Verification
	Indicator	Baseline	Target	
Goal: Support China toward a low carbon development path	• No. of CCM and CCA measures formulated under the 3NC process and included in the completed 3NC Report that are planned for implementation by end-of-project (EOP)	• 11	• 15	• Information in BUR and 3NC report
Objective: Strengthened capacity in integrating climate change concerns into national and sectoral development priorities while fulfilling obligations to the UNFCCC	• Completed and submitted Third National Communications Report to the UNFCCC • No. of Biennial Update Reports completed by EOP • No. of GOC agencies/institutions that are actively involved in the inventory and analysis of sectoral GHG emissions by EOP • No. of center and local governments that integrate CCM and CCA concerns in their development planning by EOP • No. of national and local government agencies, and private sector entities that were involved in the 3NC process (inclusive of BURs) by EOP	• 0 • 0 • 75 • 33 • 110	• 1 • 2 • 100 • 65 • 155	• Information in BUR and 3NC report
Outcome 1.1: Clearer understanding of the magnitude and causes of the GHG emissions from Energy Activities	• No. of completed GHG inventories in the energy sector: • Fossil fuel combustion by EOP • Biomass combustion by EOP • CH_4 emissions from coal mining and post-mining	 • 2 • 2 • 2	 • 4 • 4 • 4	• Information in 3NC and other government report • 3NC and BUR reports

	activities by EOP • CH_4 fugitive emissions from oil and gas system by 2017 • Non-energy uses of fossil fuel by 2017 • International bunkers by Year 2017 • No. of comprehensive researches/studies conducted and completed for use in the compilation of GHG emissions inventory of the energy sector by EOP	 • 2 • 2 • 2 • 2	 • 4 • 2 • 4 • 33	
Outcome 1.2: Clearer understanding of the magnitude and causes of the GHG emissions from Industrial Processes	• No. of completed GHG inventories from industrial processes: • Mineral products processing by EOP • Industrial chemical processes by 2017 • Industrial metal production processes by EOP • Production of halocarbons and sulfur hexafluoride by EOP • Consumption of halocarbons and sulfur hexafluoride by EOP • No. of comprehensive researches/studies conducted and completed for use in the compilation of GHG emissions inventory of industrial processes by EOP	 • 0 • 0 • 0 • 0 • 0 • 9	 • 2 • 2 • 2 • 2 • 2 • 41	• Information in 3NC and other government report
Outcome 1.3: Clearer understanding of the magnitude and causes of the GHG emissions from Agriculture	• No. of completed GHG inventories in the agriculture sector: • CH_4 emissions from paddy fields by EOP • N_2O emissions from croplands by EOP • CH_4 emissions from animal enteric fermentation by EOP • CH_4 and N_2O emissions from manure management	 • 2 • 2 • 2 • 2	 • 4 • 4 • 4 • 4	• Information in 3NC and other government report

	systems by EOP • No. of comprehensive researches/studies conducted and completed for use in the compilation of GHG emissions inventory of the agriculture sector by EOP	• 4	• 37	
Outcome 1.4: Clearer understanding of the magnitude and causes of GHG Emissions/Removal from Land Use, Land Use Change and Forestry sector	• No. of completed GHG inventories in the land use, land use change & forestry sector: • Forests and woodlands by EOP • Change in soil organic content in croplands by EOP • Grasslands by EOP • Wetlands by EOP • Lands converted to residential lands and other lands by EOP • No. of comprehensive researches/studies conducted and completed for use in the compilation of GHG emissions inventory of the land use, land use change and forestry sector by EOP	 • 2 • 0 • 0 • 0 • 2 • 5	 • 4 • 2 • 2 • 2 • 2 • 32	• Information in 3NC and other government report
Outcome 1.5: Clearer understanding of the magnitude and causes of the GHG emissions from Waste treatment	• No. of completed GHG inventories in the waste sector: • CH_4 emissions from waste landfills by EOP • Waste incineration by EOP • CH_4 and N_2O emissions from biological treatment of solid waste by EOP • CH_4 emissions from domestic and commercial wastewater treatment by EOP • CH_4 emissions from industrial wastewater treatment by EOP • N_2O emissions from wastewater treatment by EOP • No. of comprehensive researches/studies conducted	 • 2 • 2 • 0 • 2 • 2 • 5	 • 4 • 4 • 2 • 4 • 4 • 37	• Information in 3NC and other government report

	and completed for use in the compilation of GHG emissions inventory of the waste sector by EOP			
Outcome 1.6: Updating China`s GHG Inventory Database	• No. of updated sectoral data sets uploaded to the National GHG Emissions Database by EOP • No. of formulated sets of CCM and CCA policies uploaded in the National GHG Emissions Database by EOP • No. of formulated sets of CCM and CCA action plans uploaded to the National GHG Emissions Database by EOP	• 2 • 2 • 2	• 4 • 4 • 4	• Information in 3NC and other government report
Outcome 1.7: Better understanding of the appropriate climate change options for China, and enhanced action plan to implement prioritized mitigation actions	• No. of completed studies based on the GHG inventories on the characteristics and future trends of climate change in China by EOP • No. of comprehensive researches/studies conducted and completed for use in the identification and evaluation of potential CC mitigation actions by EOP • No. of operational improved/modified simulation models for forecasting GHG emissions and emission trends using the updated GHG inventory data by EOP • No. of scenario analyses developed using the improved/modified simulation models, and utilized in CCM and CCA policy making and action planning by EOP	• 0 • 2 • 2 • 3	• 1 • 4 • 2 • 6	• Information in 3NC and other government report
Outcome 2: better understanding of China's vulnerability to the threats of climate change and predicted impacts in five sectors	• No. of national and local climate change adaptation programs developed and implemented by the national and local governments as influenced by the 3NC process by EOP	• 1	• 2	• Information in 3NC and other government report

Outcome 3: Better understanding of the appropriate climate change mitigation options for China, and enhanced action plan to implement prioritized mitigation actions	• No. of national and local climate change mitigation programs developed and implemented by the national and local governments as influenced by the 3NC process by EOP	• 2	• 3	• Information in 3NC and other government report
Outcome 4: Improving Public Awareness and Informing Policy Decision Making on Climate Change	• No. of users of the China Climate Change Info-Net each year starting 2015 • No. of national and local climate change programs developed and implemented by the national and local governments as influenced by the advocacy and public awareness campaigns that were carried out under the 3NC process by EOP	• 150,000 • 2	• 160,000 • 3	• Information in 3NC and other government report
Outcome 5.1: Better understanding and enhanced capacity in GHG emission inventory and national communication compilation in the Hong Kong	• No. of completed GHG inventory of the Hong Kong SAR • No. of CCM and CCA policies and actions formulated by the Hong Kong SAR based on the GHG inventories and included in the completed 3NC Report by EOP	• 1 • 3	• 3 • 5	• Information in 3NC and BUR
Outcome 5.2: Better understanding and enhanced capacity in GHG emission inventory and national communication compilation in Macau SARs	• No of completed GHG inventory of the Macau SAR • No. of CCM and CCA policies formulated by the MAC SAR based on the GHG inventories and included in the completed 3NC Report by EOP	• 1 • 3	• 3 • 5	• Information in 3NC and BUR
Outcome 6.1: Improved capacity and technical inputs in meeting obligations to the UNFCCC	• No. of researches and studies conducted in the context of the 3NC that were carried out by local experts by EOP • No. of local experts that were involved in the GHG inventories as well as in the analysis of the GHG inventory results by EOP • No. of Climate Change mitigation policies and measures developed by local experts by EOP	• 9 • 7 • 11	• 11 • 31 • 110	• Information in 3NC and other government report

	• No. of Climate Change adaptation policies and measures developed by local experts by EOP • No. of research and studies on systematic observation of climate conducted by local experts by EOP • No. of projects that contributed inputs on climate change technology transfer & cooperation by EOP • No of trained nationals on NC formulation that were involved in the 3NC process by EOP • No. of trained nationals on NC formulation that were employed for NC-related activities on a regular basis	• 0 • 0 • 1 • 20 • 7	• 1 • 1 • 2 • 30 • 11	
Outcome 6.2: Improved and integrated climate change action planning both at the local and national levels	• No. of integrated CCM and CCA measures and action plans developed formulated by the national government and local governments by EOP • No. of local governments that have initiated GHG inventories and other NC process activities at the local level by EOP	• 11 • 0	• 110 • 33	• Information in 3NC and other government report
Outcome 6.3: Publication, dissemination and submission to the UNFCCC of the 3NC Report	• No. of national and local government agencies that made use of the 3NC for their development planning activities with climate change mainstreamed in it by EOP	• 0	• 10	• Information in 3NC and other government report
Outcome 7: Submission of the Biennial Update Report to the UNFCCC	• No. of BUR submitted to the UNFCCC • No. of adjustments made on the CCM and CCA policies, measures and plans based on the findings and recommendations of the BUR by Year 2 • No. of national government entities that are making use of the designed measurement, reporting and verification (MRV) process developed as part of the BUR by EOP	• 0 • 0 • 0	• 2 • 1 • 5	• BUR report • Information in BUR report

SECTION III: TOTAL BUDGET AND WORK PLAN

Award ID:	00078543	Project ID(s):	00088737
Award Title:	PIMS 5032 CD FSP Third National Communication		
Business Unit:	CHN10		
Project Title:	Enabling China to Prepare Its Third National Communication to the UNFCCC		
PIMS #:	5032		
Implementing Partner (Executing Agency)	National Development and Reform Commission (NDRC)		

Table 2: Project Budget and Work Plan

GEF Outcome/Atlas Activity	Responsible Party/ Implementation Agent	Fund ID	Donor	Atlas Budgetary Account Code	ATLAS Budget Description	Year 1 Amount, US$	Year 2 Amount, US$	Year 3 Amount, US$	Year 4 Amount, US$	Total	See Budget Note
Component 1：Updating of National GHG Emission Inventory and GHG Inventory Database, and Enhancement of GHG Emission Forecasting and Modeling Systems											
Sub-component 1.1: Inventory of GHG Emissions from Energy Activities	NDRC		GEF	71200	International Consultants	0	5,000	0	0	5,000	1
			GEF	71300	Local Consultants	30,000	30,000	30,000	30,000	120,000	2
			GEF	71400	Contractual Services – Individual	10,000	10,000	10,000	10,000	40,000	3
			GEF	71600	Travel	22,000	0	0	0	22,000	4
			GEF	72100	Contractual Services-Companies	150,000	130,000	122,400		402,400	5
			GEF	72200	Equipment and	12,000	0	0	0	12,000	6

GEF Outcome/Atlas Activity	Responsible Party/ Implementation Agent	Fund ID	Donor	Atlas Budgetary Account Code	ATLAS Budget Description	Year 1 Amount, US$	Year 2 Amount, US$	Year 3 Amount, US$	Year 4 Amount, US$	Total	See Budget Note
					Furniture						
			GEF	74100	Professional Services	0	5,000	10,000	10,000	25,000	7
			GEF	72400	Communications & AV Equipment	30,000	30,000	30,000	30,000	120,000	8
			GEF	74500	Miscellaneous Expenses	900	900	900	900	3,600	9
	Sub-total of sub-component 1.1					*254,900*	*210,900*	*203,300*	*80,900*	*750,000*	
Sub-component 1.2: Inventory of GHG Emissions from Industrial Processes	NDRC		GEF	71200	International Consultants	0	5,000	0	0	5,000	10
			GEF	71300	Local Consultants	54,500	35,000	35,000	35,000	159,500	11
			GEF	71400	Contractual Services - Individual	14,500	14,500	14,500	12,000	55,500	12
			GEF	71600	Travel	10,000	0	0	0	10,000	13
			GEF	72100	Contractual Services-Companies	80,000	80,000	76,400	0	236,400	14
			GEF	72200	Equipment and Furniture	10,000	10,000	0	0	20,000	15
			GEF	74100	Professional Services	0	5,000	10,000	10,000	25,000	16
			GEF	72400	Communications & AV Equipment	20,000	20,000	20,000	20,000	80,000	17
			GEF	74500	Miscellaneous Expenses	2,150	2,150	2,150	2,150	8,600	18

GEF Outcome/Atlas Activity	Responsible Party/ Implementation Agent	Fund ID	Donor	Atlas Budgetary Account Code	ATLAS Budget Description	Year 1 Amount, US$	Year 2 Amount, US$	Year 3 Amount, US$	Year 4 Amount, US$	Total	See Budget Note
					Sub-total of sub-component 1.2	*191,150*	*171,650*	*158,050*	*79,150*	*600,000*	
Sub-component 1.3: Inventory of GHG Emissions from Agriculture	NDRC		GEF	71200	International Consultants	0	10,000	0	0	10,000	19
			GEF	71300	Local Consultants	80,000	70,000	60,000	31,400	241,400	20
			GEF	71400	Contractual Services - Individual	15,000	15,000	15,000	15,000	60,000	21
			GEF	71600	Travel	0	22,000	22,000	0	44,000	22
			GEF	72100	Contractual Services-Companies	180,000	160,000	150,000	0	490,000	23
			GEF	72200	Equipment and Furniture	12,000	20000	30000	0	62,000	24
			GEF	74100	Professional Services	0	10,000	15,000	15,000	40,000	25
			GEF	72400	Communications & AV Equipment	25,000	25,000	25,000	25,000	100,000	26
			GEF	74500	Miscellaneous Expenses	13,150	13,150	13,150	13,150	52,600	27
					Sub-total of sub-component 1.3 (farmland: 500,000, livestock: 600,000)	*325,150*	*345,150*	*330,150*	*99,550*	*1,100,000*	
Sub-component 1.4: Inventory of GHG Emissions/Remov	NDRC		GEF	71200	International Consultants	0	20,000	0	0	20,000	28
			GEF	71300	Local Consultants	70,000	70,000	70,000	50,000	260,000	29
			GEF	71400	Contractual Services	10,000	10,000	10,000	3,000	33,000	30

GEF Outcome/Atlas Activity	Responsible Party/ Implementation Agent	Fund ID	Donor	Atlas Budgetary Account Code	ATLAS Budget Description	Year 1 Amount, US$	Year 2 Amount, US$	Year 3 Amount, US$	Year 4 Amount, US$	Total	See Budget Note
al from Land Use, Land Use Change and Forestry Sector					- Individual						
			GEF	72100	Contractual Services-Companies	70,000	70,000	66,000	34,000	240,000	31
			GEF	72200	Equipment and Furniture	16,000	12,000	0	0	28,000	32
			GEF	74100	Professional Services	0	3,500	0	3,500	7,000	33
			GEF	74500	Miscellaneous Expenses	3,000	3,000	3,000	3,000	12,000	34
	Sub-total of sub-component 1.4					*169,000*	*188,500*	*149,000*	*93,500*	*600,000*	
Sub-component 1.5: Inventory of GHG Emissions from Waste	NDRC		GEF	71200	International Consultants	0	5,000	5,000	0	10,000	35
			GEF	71300	Local Consultants	41,000	40,000	40,000	20,000	141,000	36
			GEF	71400	Contractual Services - Individual	10,000	10,000	10,000	10,000	40,000	37
			GEF	71600	Travel	0	12000	0	0	12,000	38
			GEF	72100	Contractual Services-Companies	60,000	60,000	60,000	50,000	230,000	39
			GEF	72200	Equipment and Furniture	15,000	0	0	0	15,000	40
			GEF	74100	Professional Services	9,000	9,000	9,000	9,000	36,000	41
			GEF	74500	Miscellaneous Expenses	4,000	4,000	4,000	4,000	16,000	42

GEF Outcome/Atlas Activity	Responsible Party/ Implementation Agent	Fund ID	Donor	Atlas Budgetary Account Code	ATLAS Budget Description	Year 1 Amount, US$	Year 2 Amount, US$	Year 3 Amount, US$	Year 4 Amount, US$	Total	See Budget Note
	Sub-total of sub-component 1.5					*139,000*	*140,000*	*128,000*	*93,000*	*500,000*	
Sub-component 1.6: Updating China`s GHG Inventory Database	NDRC		GEF	71300	Local Consultants	20,000	20,000	20,000	20,000	80,000	43
			GEF	71400	Contractual Services - Individual	3,500	3,500	3,500	3,500	14,000	44
			GEF	72100	Contractual Services-Companies	10,000	10,000	10,000	10,000	40,000	45
			GEF	74100	Professional Services	1,000	1,000	1,000	1,000	4,000	46
			GEF	74500	Miscellaneous Expenses	3,000	3,000	3,000	3,000	12,000	47
	Sub-total of sub-component 1.6					*37,500*	*37,500*	*37,500*	*37,500*	*150,000*	
Sub-component 1.7: Projection Model and Scenario Analysis for Future Carbon Emissions in China	NDRC		GEF	71200	International Consultants	0	5,000	0	0	5,000	48
			GEF	71300	Local Consultants	40,000	40,000	40,000	38,000	158,000	49
			GEF	71400	Contractual Services - Individual	5,000	5,000	5,000	5,000	20,000	50
			GEF	71600	Travel	0	15000	0	0	15,000	51
			GEF	74100	Professional Services	9,000	9,000	9,000	9,000	36,000	52
			GEF	74500	Miscellaneous Expenses	4,000	4,000	4,000	4,000	16,000	53
	Sub-total of sub-component 1.7					*58,000*	*78,000*	*58,000*	*56,000*	*250,000*	
					Total Component 1	**1,174,700**	**1,171,700**	**1,064,000**	**539,600**	**3,950,000**	

GEF Outcome/Atlas Activity	Responsible Party/ Implementation Agent	Fund ID	Donor	Atlas Budgetary Account Code	ATLAS Budget Description	Year 1 Amount, US$	Year 2 Amount, US$	Year 3 Amount, US$	Year 4 Amount, US$	Total	See Budget Note
Component 2: Assessment of impacts of vulnerability and adaptation to climate change	**NDRC**		**GEF**			**28,800**	**28,800**	**28,800**	**28,800**	**115,200**	
Component 3: Updating of climate change mitigation, measures, options and actions	**NDRC**		**GEF**			**26,900**	**26,900**	**26,900**	**26,900**	**107,600**	
Component 4: Improving Public Awareness and Informing Policy Decision Making on Climate Change	**NDRC**		GEF	71300	Local Consultants	36,000	36,000	36,000	15,000	123,000	54
			GEF	71400	Contractual Services – Individual	3,000	2,400	2,400	2,400	10,200	55
			GEF	74100	Professional Services	1,500	1,500	1,500	1,500	6,000	56
			GEF	74500	Miscellaneous Expenses	3,000	3,000	2,400	2,400	10,800	57
					Total Component 4	**43,500**	**42,900**	**42,300**	**21,300**	**150,000**	
Component 5: Inventory of GHG emissions and other relevant information on climate change in Hong Kong and Macao SARs											

GEF Outcome/Atlas Activity	Responsible Party/ Implementation Agent	Fund ID	Donor	Atlas Budgetary Account Code	ATLAS Budget Description	Year 1 Amount, US$	Year 2 Amount, US$	Year 3 Amount, US$	Year 4 Amount, US$	Total	See Budget Note
Sub-component 5.1: Inventory of GHG Emissions and Other Relevant Information on Climate Change in Hong Kong	NDRC		GEF	71300	Local Consultants	20,000	10,000	20,000	10,000	60,000	58
			GEF	71600	Travel	20,000	0	20,000	0	40,000	59
			GEF	74100	Professional Services	0	10,000	0	20,000	30,000	60
			GEF	74500	Miscellaneous Expenses	5,000	5,000	5,000	5,000	20,000	61
	Sub-total of component 5.1					45,000	25,000	45,000	35,000	150,000	
Sub-component 5.2: Inventory of GHG Emissions and Other Relevant Information on Climate Change in Macau SARs	NDRC		GEF	71300	Local Consultants	20,000	10,000	20,000	10,000	60,000	62
			GEF	71600	Travel	20,000	0	20,000	0	40,000	63
			GEF	74100	Professional Services	0	10,000	0	20,000	30,000	64
			GEF	74500	Miscellaneous Expenses	5,000	5,000	5,000	5,000	20,000	65
	Sub-total of component 5.2					45,000	25,000	45,000	35,000	150,000	
Total Component 5						**90,000**	**50,000**	**90,000**	**70,000**	**300,000**	
Component 6: Supplementary Support for Achieving Convention Objectives and	**NDRC**		GEF	71300	Local Consultants	130,700	150,700	120,700	150,700	552,800	66
			GEF	71400	Contractual Services – Individual	50,000	70,000	70,000	50,000	240,000	67
			GEF	75700	Trainings, Workshops and Conferences	0	0	100,000	0	100,000	68

GEF Outcome/Atlas Activity	Responsible Party/ Implementation Agent	Fund ID	Donor	Atlas Budgetary Account Code	ATLAS Budget Description	Year 1 Amount, US$	Year 2 Amount, US$	Year 3 Amount, US$	Year 4 Amount, US$	Total	See Budget Note
Publication and Dissemination of the 3NC Report			GEF	72200	Equipment and Furniture	3,200	8,000	0	0	11,200	69
			GEF	74100	Professional Services	10,000	10,000	10,000	100,000	130,000	70
			GEF	72400	Communications & AV Equipment	25,000	25,000	25,000	25,000	100,000	71
			GEF	74500	Miscellaneous Expenses	11,500	11,500	11,500	6,300	40,800	72
			GEF	75700	Trainings, Workshops and Conferences	30,000	40,000	40,000	40,000	150,000	73
					Total Component 6	**260,400**	**315,200**	**377,200**	**372,000**	**1,324,800**	
Component 7: Supporting China Biennial Update Report completed and submitting to the UNFCCC	**NDRC**		GEF	71300	Local Consultants	150,000	150,000	50,000	60,000	410,000	74
			GEF	71400	Contractual Services – Individual	38,000	37,000	36,000	26,000	137,000	75
			GEF	75700	Trainings, Workshops and Conferences	62,800	62,800	0	0	125,600	76
			GEF	74100	Professional Services	43,500	43,500	0	0	87,000	77
			GEF	74500	Miscellaneous Expenses	11,400	11,400	0	0	22,800	78
			GEF	75700	Trainings, Workshops and	55,000	55,000	0	0	110,000	79

GEF Outcome/Atlas Activity	Responsible Party/ Implementation Agent	Fund ID	Donor	Atlas Budgetary Account Code	ATLAS Budget Description	Year 1 Amount, US$	Year 2 Amount, US$	Year 3 Amount, US$	Year 4 Amount, US$	Total	See Budget Note
					Conferences						
					Total Component 7	**360,700**	**359,700**	**86,000**	**86,000**	**892,400**	
Project Management	**PMO**		GEF	71300	Local Consultants	48,000	48,000	48,000	48,000	192,000	80
			GEF	71300	Local Consultants	12,500	12,500	12,500	12,500	50,000	81
			GEF	72200	Equipment and Furniture	9,500	9,500	9,500	9,500	38,000	82
			GEF	74500	UNDP Cost Recovery (DPC)	0	2,633	0	2,633	5,266	83
			GEF	72400	Communications & AV Equipment	17,433	17,433	17,434	17,434	69,734	84
			GEF	74500	Miscellaneous Expenses	1,250	1,250	1,250	1,250	5,000	85
					Total Project Management	**88,683**	**91,316**	**88,684**	**91,317**	**360,000**	
Monitoring & Evaluation	**PMO & UNDP**		GEF	74100	Professional Services	2,867	2,500	2867	2,500	10,734	86
			GEF	74500	Miscellaneous Expenses	0	2,633	0	2,633	5,266	87
			GEF	71300	Local Consultants	0	10,000	0	12,000	22,000	88
			GEF	71200	International Consultants	0	20,000	0	22,000	42,000	89
					Total Monitoring & Evaluation	**2,867**	**35,133**	**2,867**	**39,133**	**80,000**	
					Grand Total	**2,076,550**	**2,121,649**	**1,806,751**	**1,275,050**	**7,280,000**	

BUDGET NOTES

The experiences and lessons learned from the implementation of the 1NC and 2NC projects show the conduct of national GHG inventories entail a lot of work, coordination and costs. Taking this in consideration, the 3NC project team (same team that worked on the implementation of the 2 previous NC projects) has ensured that there will be optimum use of the GEF resources for all the necessary tasks that have to be done to deliver the required outputs and realize the expected outcomes of the 3NC project. This has led them to allocate about half of the approved GEF budget for the preparation, conduct, data processing, analysis and reporting of the GHG inventories for the 3NC Report covering all GHGs, all sectors, including GHG inventories in the Hong Kong and Macau Special Administrative Regions. The budget also covers the GHG inventories to be reported in 1st Biennial Update Report (1BUR). These tasks will be carried out by local climate change experts, mainly leading and eminent researchers, scientists, academics and professionals from China's well-known and prominent research institutions). Most of these experts were involved in the work carried out to produce the first 2 national communications of China to the UNFCCC.

Regarding cost-effectiveness, the 2NC project utilized US$ 5 million to come up with the 2NC report that included GHG inventories covering 6 greenhouses gases in 5 sectors (energy, industry, agriculture, LULUCF and waste) for the entire country as well as that for the Hong Kong and Macau SARs. The cost for producing the GHG inventories was around US$ 2.6 million. The 3NC project will utilize US$ 7.28 million to prepare China's 3NC Report and 1BUR. It will involve the conduct of 2 GHG inventories (2010 and 2012) for a cost of about US$ 3.6 million. These will be more detailed than the one done in the 2NC project and will be for the same sectors plus additional sub-sectors (e.g., industrial chemical processes of synthesis ammonia and titanium production; industrial processes for aluminum and ferroalloys; wetlands, settlements and other lands), covering 6 GHGs and including the enhanced GHG inventories for the 2 SARs. The increase in cost of approximately 40% is considered rational and the proposed budget is actually cost effective inasmuch as 2 inventories will be produced, the 2010 GHG inventory and the 2012 GHG inventory. The budgets for the other NC activities are also much lower compared to that in the previous 2NC project even with the increased level of activity and magnitude of deliverables.

No.	Budget Notes
1	International Specialist on energy inventory (US$500 per day × 5 days, 2 persons). Domestic expertise in energy area is still in the early stage of development, so international expertise in the mentioned areas would be critical for ensuring transformational change, So this component plans to invite two qualified international experts in energy area to assist domestic experts to exchange knowledge for improving GHG accounting methodologies.

No.	Budget Notes
2	Local experts in related areas (US$200 per day × 200 days, 3 persons) Key experts and staff in the consultancy who are responsible for developing GHG inventory of energy activities.
3	GHG Inventory from energy activities is related to many areas and sub-sectors. It's necessary to consult specialist in different energy departments and sectors, such as fuel production, manufacturing industries, transport, business, etc. from related research institutions, industrial associations, and enterprises, etc. So experts or individuals in this field will be contracted to do some supportive works, including review and improvement of related data, provide their suggestions and feedback, and to help consultancy do field investigation in enterprises, etc.
4	The consultancy needs to go to factory to collect necessary data and information, and arrange one time of international travel to exchange with international experts.
5	Subcontracts are necessary to collect necessary data, and did coordinated researches with some specified agencies, associations, and enterprises relate to energy activities, such coal science, industry boiler, transportation etc. It is estimated that about 8-10 sub-contracts will be implemented under this component.
6	Computers and office machinery that are necessary for project work.
7	Report preparation, compilation and printing, as well as financial management services.
8	Communications costs (mail, telephones), transportation expenses, etc.
9	Expenses for contingencies such as loss due to currency fluctuations
10	International Specialist on industrial inventory (US$500 per day× 5 days, 2 persons). Considering domestic expertise in industrial area is still in the stage of development, the international expertise in the mentioned areas would be critical for ensuring successful implementation of this project. In this case this component plans to invite two qualified international experts in industrial area to assist domestic experts to exchange knowledge for improving GHG accounting methodologies
11	Local experts in related areas (US$150 per day × 212 days, 5 persons) Key experts and staff in the consultancy who are responsible for developing GHG inventory of industrial sectors.
12	In order to improve the quality of GHG inventory of industrial sectors, it is necessary to employ some experts or individual in these fields to do some supportive works, including review and improvement of related data, and to help consultancy do field investigation in enterprises, etc.
13	The consultancy needs to go to industrial factories to collect necessary data and information, and arrange one time of international travel to exchange with international experts.
14	Subcontracts are necessary to collect necessary data, and did coordinated researches with some specified agencies, associations, and enterprises relate to industrial sectors. It is estimated that about 5-6 sub-contracts will be implemented under this component.
15	Computers and office machinery that are necessary for project work

No.	Budget Notes
16	Report preparation and printing, as well as financial management services.
17	Communications costs (mail, telephones), transportation expenses, etc.
18	Expenses for contingencies such as loss due to currency fluctuations
19	International Specialist on agricultural inventory (US$500 per day× 5 days, 4 persons). Considering domestic expertise in agriculture area is still in the stage of development, the international expertise in the mentioned areas would be critical for ensuring successful implementation of this project. In this case this component plans to invite four qualified international experts in farmland and livestock areas separately to assist domestic experts to exchange knowledge for improving GHG accounting methodologies in agriculture areas.
20	Local experts in related areas (US$200 per day × 241 days, 5 persons) Key experts and staff in the consultancy who are responsible for developing GHG inventory of farmland and livestock area.
21	In order to improve the quality of GHG inventory of agricultural sectors, it is necessary to employ some experts or specialists by individual contracts in these fields to do some supportive works, including review and improvement of related data, and to help consultancy do field investigation in farmland area and livestock plants, etc.
22	The consultancy needs to go to rural areas and livestock farms to collect necessary data and information, and arrange 1-2 times of international travel to exchange with international experts
23	Subcontracts are necessary to collect necessary data, and did coordinated researches with some specified agencies, associations, and local agencies relate to farmland and livestock fields. It is estimated that about 10 sub-contracts will be implemented under this component
24	Computers and office machinery that are necessary for project work
25	Report preparation and printing, as well as financial management services.
26	Communications costs (mail, telephones), transportation expenses, etc.
27	Expenses for contingencies such as loss due to currency fluctuations
28	International Specialist on LULUCF inventory (US$500 per day × 10 days, 4 persons). Considering domestic expertise in LULUCF is still in the stage of development, the international expertise in related areas would be critical for ensuring successful implementation of this project. In this case this component plans to invite 4 qualified international experts in LULUCF to assist domestic experts to exchange knowledge for improving GHG accounting methodologies in LULUCF.
29	Local experts in related areas (US$200 per day × 325 days, 4 persons) Key experts and staff in the consultancy who are responsible for developing GHG inventory of LULUCF.
30	In order to improve the quality of GHG inventory of LULUCF, it is necessary to employ some experts or specialists by individual contracts in these fields to do some

No.	Budget Notes
	supportive works, including review and improvement of related data, and to help consultancy do field investigation in forest, etc.
31	Subcontracts are necessary to collect necessary data, and did coordinated researches with some specified agencies, associations, and local research institutions relate to LULUCF. It is estimated that about 5 sub-contracts will be implemented under this component
32	Computers and office machinery that are necessary for project work
33	Report preparation and printing, as well as financial management services.
34	Expenses for contingencies such as loss due to currency fluctuations
35	International Specialist on waste inventory (US$500 per day × 5 days, 4 persons). Considering domestic expertise in waste treatment area is still in the stage of development, the international expertise in related areas would be critical for ensuring successful implementation of this project. In this case this component plans to invite 4 qualified international experts in waste treatment area to assist domestic experts to exchange knowledge for improving GHG accounting methodologies in waste treatment area.
36	Local experts in related areas (US$200 per day × 235 days, 3 persons) Key experts and staff in the consultancy who are responsible for developing GHG inventory of waste treatment.
37	In order to improve the quality of GHG inventory of waste treatment, it is necessary to employ some experts or specialists by individual contracts in these fields to do some supportive works, including review and improvement of related data, and to help consultancy do field investigation in waste treatment plants, etc.
38	The consultancy needs to go to local waste treatment plants to collect necessary data and information, and arrange one time of international travel to exchange with international experts
39	Subcontracts are necessary to collect necessary data, and did coordinated researches with some specified agencies, associations, and local research institutions relate to waste treatment area. It is estimated that about 5 sub-contracts will be implemented under this component
40	Computers and office machinery that are necessary for project work
41	Report preparation and printing, as well as financial management services.
42	Expenses for contingencies such as loss due to currency fluctuations
43	Local experts in related areas (US$200 per day × 200 days, 2 persons) One key expert and one staff in the consultancy who are responsible for updating and improving GHG inventory database.
44	In order to improve the function of GHG inventory database, it is necessary to employ some experts in IT and experts in GHG inventory by individual contracts to help the consultancy to do this work.
45	Subcontracts are necessary to help the consultancy to collect latest data and information, which is necessary for updating the database and to improve the operation of

No.	Budget Notes
	database, including updating software and hardware if necessary. It is estimated that about 2 sub-contracts will be implemented under this component
46	Report preparation and printing, as well as financial management services
47	Expenses for contingencies such as loss due to currency fluctuations
48	International Specialist on project modeling (US$500 per day× 10 days, 1 person). Considering GHG projection is a very complicated issue, the international expertise in related areas would be critical for ensuring successful implementation of this project. In this case this component plans to invite one qualified international expert in GHG projection modeling to assist the consultancy to exchange knowledge for improving GHG projection modeling work.
49	Local experts in related areas (US$200 per day × 197 days, 4 persons) Key expert and staff in the consultancy who are responsible for updating and improving GHG inventory database
50	In order to improve the quality of projection, and decrease the uncertainty of projection results, it is necessary to employ some experts in projection and modeling by individual contracts to help the consultancy to do this work.
51	The consultancy needs to arrange one time of international travel to exchange ideas with international experts
52	Report preparation and printing, as well as financial management services
53	Expenses for contingencies e.g. loss due to currency fluctuations
54	Local experts in related areas (US$200 per day× 205 days, 3 persons) Key expert and staff in the consultancy who are responsible for collecting information in enhancement of public awareness on climate change, improving and operating public website of climate change, and organizing some activities for enhancing public awareness and informing policy making on climate change.
55	In order to collect all related information and improve the public website on climate change, it is necessary to employ some experts in related areas by individual contracts to help the consultancy to do this work.
56	Report preparation and printing, as well as financial management services
57	Expenses for contingencies e.g. loss due to currency fluctuations
58	Local experts in all related areas (US$150 per day × 40 days, 10 persons) Local experts in GHG inventory, V&A, GHG projection, mitigation, etc., will be convened to assist Hong Kong government to finish the 3NC and BUR report of Hong Kong SARs, including review documents, provide suggestions, assess reports, etc.
59	NDRC will organize experts to travel to Hong Kong to exchange progress and outcome with Hong Kong government.
60	Report preparation and printing, as well as financial management services

No.	Budget Notes
61	Expenses for contingencies e.g. loss due to currency fluctuations
62	Local experts in all related areas (US$150 per day× 40 days, 10 persons) Local experts in GHG inventory, V&A, GHG projection, mitigation, etc., will be convened to assist Macau government to finish the 3NC and BUR report of Macao SARs, including review documents, provide suggestions, assess reports, etc.
63	NDRC will organize experts to travel to Macau to exchange progress and outcome with Macau government.
64	Report preparation and printing, as well as financial management services
65	Expenses for contingencies e.g. loss due to currency fluctuations
66	Local experts in related areas (US$200 per day × 173 days, 16 persons) Key experts in different related areas who are responsible for writing and translating 3NC reports according to research outcome of foregoing components.
67	Other experts and specialists are employed by individual contracts to review and improve the contents of 3NC reports, including both Chinese and English reports.
68	NDRC (PMO) will organize international exchange activities, including study tours, international workshops, etc. to learn experiences from other countries and discuss important issues with international experts, especially experiences in development of NCs, improvement of methodologies of GHG inventory. These international exchange activities will assure successful implementation of 3NC project.
69	Computers and office machinery that are necessary for project work in this component.
70	Report compilation, printing and publishing, as well as financial management services
71	Communications costs (mail, telephones), transportation expenses, etc.
72	Expenses for contingencies e.g. loss due to currency fluctuations
73	Many workshops and seminars are necessary to discuss progress and outcomes in order to assure the quality of 3NC reports. The cost of related workshops and seminars, including meeting rooms, hotel accommodation, foods, meeting materials, interpreters, etc.
74	Local experts in related areas (US$200 per day × 205 days, 10 persons) Key experts in different related areas who are responsible for writing and translating BUR reports according to research outcome of foregoing components. *The adjusted budget allocation per year is based on the revised timetable for the completion and submission of the 1BUR and 3NC Report (with 2BUR as an Annex).*
75	Other experts and specialists are employed by individual contracts to review and improve the contents of BUR reports, including both Chinese and English reports.
76	NDRC (PMO) will organize during the first 2 years international exchange activities, including study tours, international workshops, etc. to learn experiences from other countries and discuss important issues with international experts, especially experiences in development of BUR. These international exchange activities will assure successful accomplishment of BUR report. *The adjusted budget allocation per year is based on the revised timetable for the completion and submission of the 1BUR*

No.	Budget Notes
	and 3NC Report (with 2BUR as an Annex).
77	Report compilation, printing and publishing, as well as financial management services (year 1 & year 2). *The adjusted budget allocation per year is based on the revised timetable for the completion and submission of the 1BUR and 3NC Report (with 2BUR as an Annex).*
78	Expenses for contingencies e.g. loss due to currency fluctuations (year 1 & year 2). *The adjusted budget allocation per year is based on the revised timetable for the completion and submission of the 1BUR and 3NC Report (with 2BUR as an Annex).*
79	Many workshops and seminars are necessary to discuss progress and outcomes in order to assure the quality of BUR reports (year 1 & year 2). The cost of related workshops and seminars, including meeting rooms, hotel accommodation, foods, meeting materials, interpreters, etc. *The adjusted budget allocation per year is based on the revised timetable for the completion and submission of the 1BUR and 3NC Report (with 2BUR as an Annex).*
80	Project coordinator in PMO (US$4000 per month × 48 months) for rural project management work
81	Some experts are needed to assist PMO to review and improve related project management reports.
82	Computers and office machinery that are necessary for PMO work
83	Direct Project Costs for UNDP CO
84	Communications costs (mail, telephones), transportation expenses, etc.
85	Expenses for contingencies e.g. loss due to currency fluctuations
86	Financial management services(not include direct project costs), audit expense
87	Communications costs (mail, telephones), transportation expenses, etc.
88	National consultant for mid-term and final-term evaluation
89	International consultant for mid-term and final-term evaluation

Summary of Budget Allocation for Project Activities

Source	Year 1	Year 2	Year 3	Year 4	Total
GEF	**2,076,550**	**2,121,649**	**1,806,751**	**1,275,050**	**7,280,000**
NDRC (in kind)	**200,000**	**200,000**	**200,000**	**200,000**	**800,000**
UNDP CO(in kind)	**25,000**	**25,000**	**25,000**	**25,000**	**100,000**
Total	**2,301,550**	**2,346,649**	**2,031,751**	**1,500,050**	**8,180,000**

Table 3 Project Budget by Components

Components	Fund Source	Year 1	Year 2	Year 3	Year 4	Total
Component 1：Updating of National GHG Emission Inventory and GHG Inventory Database, and Enhancement of GHG Emission Forecasting and Modeling Systems	GEF	1,174,700	1,171,700	1,064,000	539,600	3,950,000
Component 2: Assessment of impacts of vulnerability and adaptation to climate change	GEF	28,800	28,800	28,800	28,800	115,200
Component 3: Updating of climate change mitigation, measures, options and actions	GEF	26,900	26,900	26,900	26,900	107,600
Component 4: Improving Public Awareness and Informing Policy Decision Making on Climate Change	GEF	43,500	42,900	42,300	21,300	150,000
Component 5: Inventory of GHG emissions and other relevant information on climate change in Hong Kong and Macao SARs	GEF	90,000	50,000	90,000	70,000	300,000
Component 6: Supplementary Support for Achieving Convention Objectives and Publication and Dissemination of the 3NC Report	GEF	260,400	315,200	377,200	372,000	1,324,800
Component 7: Supporting China Biennial Update Report completed and submitting to the UNFCCC	GEF	360,700	359,700	86,000	86,000	892,400
Project Management	GEF	88,683	91,316	88,684	91,317	360,000
Monitoring & Evaluation	GEF	2,867	35,133	2,867	39,133	80,000

SECTION IV: ADDITIONAL INFORMATION

PART I: OTHER AGREEMENTS (SEE ATTACHED)

A: GEF Operational Focal Point Letter of Endorsement
B: Co-Financing Letters

PART II: STAKEHOLDER INVOLVEMENT PLAN

The following table describes the various organizations/institutions that will be involved in the 3NC project implementation, mainly in the GHG emission inventories, and in the preparation of the 3NC report and the 1 BUR:

Table 4: Role of Participating Organizations/Institutions

Name of Participating Entities	Description	Involvement in 3NC Project
NCSC	Established in 2012 to lead the work on the preparation of the National Climate Change Inventory and National Communication and other UNFCCC obligations	Energy Inventory, industrial process inventory, database management, 3NC and 1BUR
ERI, NDRC	Established in 1981 to conduct research related to energy strategy and policy	Hong Kong GHG inventory and others
Tsinghua University	Established in 1911, this is a leading academic institution in the area of energy system analysis and others	Emission forecasting, mitigation
Xi'an Thermal Power Research Institute	Established in 1951, this institution is specialized in thermal power energy-saving and greenhouse gases emission research.	Energy sector GHG Inventory
Shenyang Branch of China Coal Research Institute	Renamed in 2008, this institute is specialized in coal industry research.	Energy sector GHG Inventory
National Administrative Center for Energy Saving	Established in 1990, this institution is specialized in GHGs emission inventory in the Energy sector.	Energy sector GHG Inventory
China Coal Transportation and Sale Association	Established in 1998, this association is specialized in research on coal use and consumption	Energy sector GHG Inventory
China Petroleum and Chemical Industry Federation	Established in 2001, this group is specialized in petroleum and chemical industry research.	Energy sector GHG Inventory
China Nitrogen Fertilizer Industry Association	Established in 1992, this association is specialized in nitrogen fertilizer producing process and energy	Energy sector and Industry sector GHG Inventories

Name of Participating Entities	Description	Involvement in 3NC Project
	consumption research.	
China Iron and Steel Association	Established in 1999 to collect information and provide technical service to iron and steel companies in China.	Energy sector and Industry sector GHG Inventories
China Cement Association	Established in 1987 to collect information and provide technical service to cement factories in China.	Energy sector and Industry sector GHG Inventories
China Non-Metallic Minerals Industry Association	Established in 1987 to collect information and provide technical service to non-metallic minerals factories in China.	Industrial sector GHG inventory
China Electricity Council	Established in 1998 to collect information and provide technical service to power generation companies and power grid.	Energy sector GHG Inventory
China Automotive Technology and Research Center	Established in 1985, this center is specialized in automotive industry energy-saving research.	Energy sector GHG Inventory
Coal Information Institute(SAWS)	Established in 1959, this institute is specialized in coal use and consumption research.	Energy sector GHG Inventory
China Coal Research Institute	Established in 1957, this institute is specialized in coal industry research.	Energy sector GHG Inventory
China Metallurgical Industry Planning and Research Institute	Established in 1972, this institute is specialized in research on GHGs emission from metallurgical industrial processes.	Industrial processes
China's Association of Fluorine and Silicon	Established in 1988	Industrial processes
China Association for Science and Technology	Established in 1958	Industrial processes
China Coking Industry Association	Established in 1994, this association is specialized in energy consumption and industrial process research in the coking industry.	Energy sector GHG Inventory, industrial process
Institute of Atmospheric Physics, Chinese Academy of Science	Established in 1966, this institute is specialized in climate change research.	Agriculture sector GHG inventory
Institute of Environment and Sustainable Development in Agriculture(IEDA), CAAS	Established in 1953, this institute is specialized in agriculture sector GHG inventory and agriculture environment science.	Agriculture sector GHG inventory, CCA adaptation
Chinese Academy of Forestry	Established in 1958, this academy is a specialized research institution on forestry, including GHGs	LULUCF sector GHG Inventory

Name of Participating Entities	Description	Involvement in 3NC Project
	emission research.	
Chinese Research Academy of Environment Science	Established in 1975, this is a specialized research institution on environment science, including GHGs emission research.	Waste sector GHG inventory
Nanjing Institute of Technology	Established in 1915, this institute is specialized in waste management technology and waste-related GHGs emission research.	Waste sector GHG inventory

PART III: PROJECT RISKS AND ASSUMPTIONS

The effective implementation of this project is highly dependent on the following three assumptions. Firstly, there is a strong and standing Implementing Agency which is able to effectively supervise and facilitate the full implementation of corresponding functions by relevant project participants. Secondly, there is a long Term and standing operational mechanism for financial supports, including the GEF funds and domestic in-kind contributions, so as to ensure the effective implementation of activities under this project. Thirdly, there is a standing project team with deep sense of responsibility and efficiency, which is able to effectively carry out all activities of the project. Therefore, the risks of this project are related to the possible failure to meet the above three assumptions. The potential risks that may arise in the implementation of this project and corresponding necessary assumptions are also valid for all outputs of the project.

Furthermore, to ensure that all outputs of this project can be produced as scheduled and with high quality, it is also necessary to enhance the sense of responsibility and to improve further the capacity of the project participants. The international experts as well as the external review experts should also play an effective role.

In addition, a good external environment, including stable domestic and international political, financial and social environment, is also necessary for the effective implementation of this project.

PART IV: PROJECT MONITORING AND EVALUATION PLAN

Table 5: Preliminary Project Monitoring and Evaluation Plan

Type of M&E activity	Responsible Parties	Budget, US$	Time Frame
Inception Workshop	NDRC, UNDP CHINA, PMO	Part of Component PMO budget	Within first two months of project start up
Inception Report	PMO, UNDP CHINA	Part of Component PMO budget	Immediately following IW
Project Targets, Indicators and Measurement of Success Indicators	PMO	Part of Component PMO budget	Project startup, middle, and the end
Measurement of Success Indicators for Project Progress Performance	Prepared by PMO, supervised by UNDP CHINA, examined by GEF-UNDP regional coordination office and executive agencies	Part of Component PMO budget	Annually prior to APR/PIR and to the definition of annual work plans
APR and PIR	PMO, UNDP CHINA, GEF-UNDP	Part of Component PMO budget	Annually
Tripartite Project Review	NDRC, UNDP CHINA, GEF-UNDP-Asia-Pacific Regional Coordination Unit, Ministry of Finance, PMO	Part of Component PMO budget	Every year, upon receipt of APR
Steering Committee Meetings	NDRC PMO	Part of Component PMO budget	After IW and at least once a year thereafter
Half Yearly Report and Technical Report	PMO Hired consultants as needed	Part of Component PMO budget	TBD by PMO and UNDP CHINA
Mid-Term External Evaluation	PMO UNDP CHINA	32,633	One and half a year after project start up
Final External Evaluation	PMO, UNDP CHINA GEF-UNDP Asia-Pacific Regional Coordination Unit, External Consultant (Evaluation	36,633	At the end of project implementation

Type of M&E activity	Responsible Parties	Budget, US$	Time Frame
	Consultant)		
Terminal Report	PMO, UNDP CHINA, External Consultant	Part of Component PMO budget	At least one month before the end of the project
Audit	NDRC, PMO, UNDP CHINA	10,734	Annually
Visits to field sites	UNDP CHINA, GEF-UNDP-Asia-Pacific Regional Coordination Unit Government representatives		Annually
Total indicative cost (Excluding Project Team staff time and UNDP staff & travel expenses)		US$ 80,000	