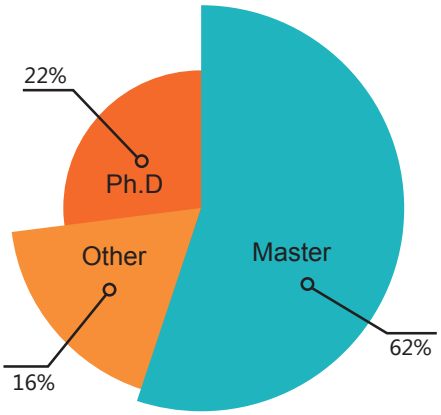
Annual Report 2014

Chinese Academy for Environmental Planning



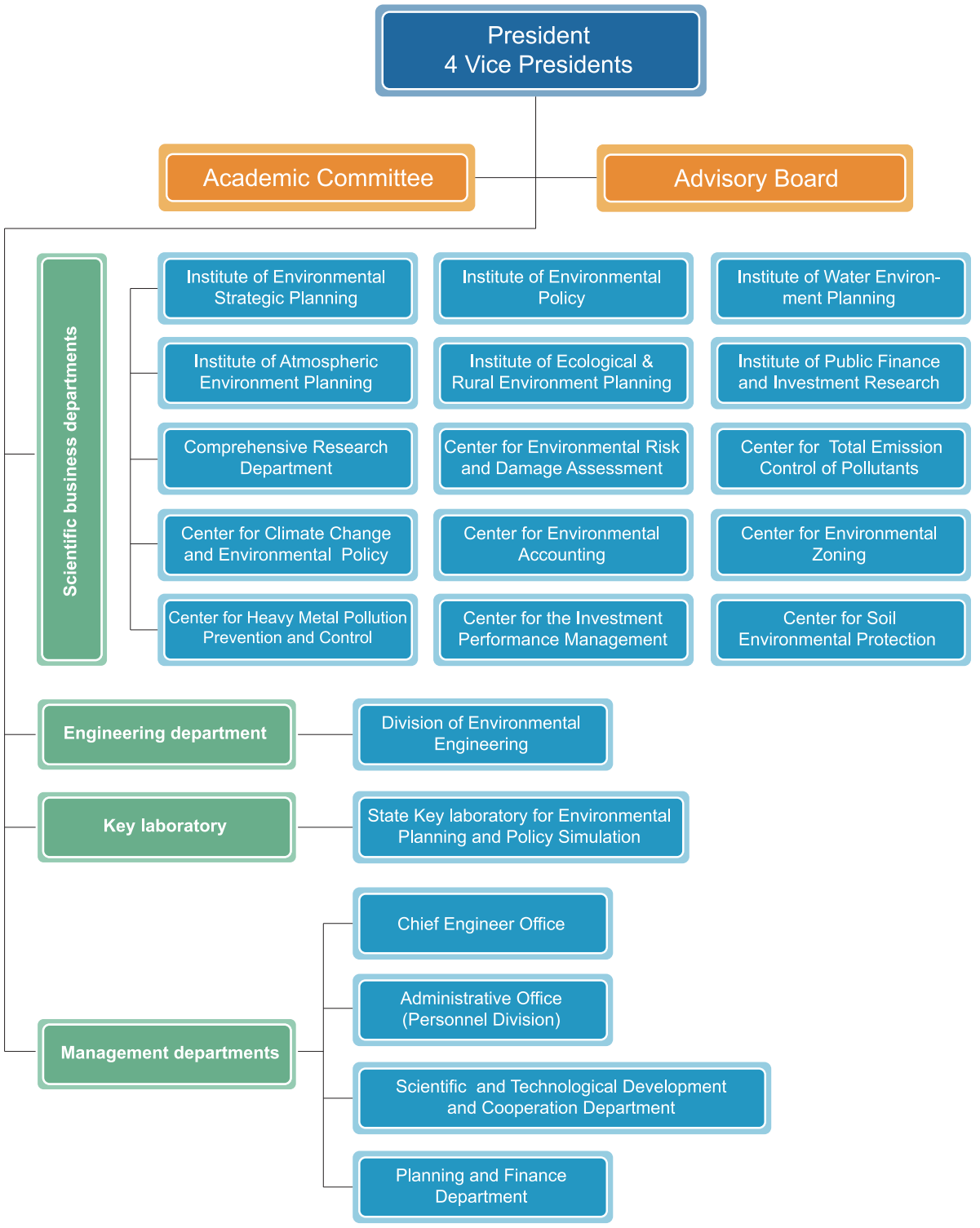
CONTENTS

Brief Introduction



The Chinese Academy for Environmental Planning of the Ministry of Environmental Protection was originally founded in 1987 as Chinese Academy for Environmental Planning, approved by Ministry of Human Resources No.[1987]131 Document of Ministry of Human Resources and was established as an independent legal entity in 2001. The major activities undertaken by CAEP include: developing national medium and long-term environmental strategic planning and annual plans, pollution prevention and control and ecological conservation and other special plans, studying on theory and methodology for river basin regional and urban environmental protection etc., analyzing on the simulation and forecast, studying on the planning formulation, conducting assessing the implementation of those plans and other techniques; providing technical consultation for the projects funded by central special fund, technical service and performance evaluation etc.; studying and formulating national plans for total volume control of pollutant emission, planning and implementation of those plans etc.; studying and providing technical support for the data analysis and environment statistics of pollutants emission, total volume control policy, environment capacity calculation, discharge permit, discharge trading and climate change etc. studying and providing technical support for the environment risk assessment and management, pollution damage assessment, economic loss evaluation etc.; providing technical support for rural environmental protection, agricultural nonpoint source environmental management and other work related to planning; providing technical support for environment function zoning and ecological function zoning; conducting environmental economic accounting and the research on the financial economic policies, ecological compensation policies and environmental auditing etc. that relates to environmental protection. Currently there are 236 staffs among which 53 researchers have PhD degree accounting for 22% of the total, 146 staffs have master degree, accounting for 62%. 21 staffs have entitles as research fellow and 41 as research associate, the scientific researchers with senior or middle-level professional titles and rich theoretical knowledge & practical experience reached 71%. To provide high quality policy making service to environmental management authority has been the mission of CAEP ever since its foundation. Remarkable progress has been achieved in the development of national environment planning, environment policy research and development, project assessments etc.. Since 2001, CAEP has accomplished more than 160 national environmental planning projects and scientific research projects, over 120 river basin and regional environment planning and over 60 international projects. CAEP has been granted 3 national awards and 24 provincial & ministerial level awards for its scientific achievements.

Organizational Structure



Overview of the Work in 2014

The year 2014 was crucial for the overall implementation of the "12th Five-Year Plan" and the research on the "13th Five-Year Plan" for Environmental Protection. CAEP completed the tasks for the year with the support of the Minstry of Enviromental Protection of the People's Republic of China and relevant departments. The staffs focused on the key tasks, provided overall service, integrated and united, and made great efforts in their work.

In 2014, CAEP enhanced the key business of environmental "planning-policy-project", promoted the compiling of basic thoughts for the "13th Five-Year Plan", supported the research, compiling and implementation of three Action Plans, for air, water and soil. CAEP undertook over 160 scientific research projects with accumulated scientific fund of 231 million Yuan. Among this, 62 projects involved financial budget with the amount over 100 million Yuan; 31 projects related to "863", scientific key themes, funds, major science and technology program for water pollution control and treatment, public welfare etc. with the scientific funds exceeding 27 million Yuan; the funds for international cooperation projects exceeded 10 million Yuan. Awards granted for Environmental Protection Science and Technology Advance include: one First Prize, one Second Prize.

President HONG Yaxiong chaired "Joint Meeting for the Heads of National Environmental Planning Institute"


"two committees" Consultation meetings National Environmental Protection Plan for the 13th Five-Year Plan Period

According to the *2014 Global Go To Think Tank Report* released by the Think Tanks and Civil Societies Programme at Pennsylvania University, CAEP was ranked 34 in the field of environment in the world. According to *2014 Chinese Think Tank Influence Report*, CAEP ranked 7th in the comprehensive influence. WU Xiaoqing, Vice Minister of MEP, noted in the report on *Ranking of the Most Recent Top Ten Think Tanks, Vigorous New Think Tank* that: Senior leaders should read this and give instructions, congratulations to CAEP. Former Environment Minister noted that: "It didn't come easy, be persistent with your efforts."

Highlights 2014

Tasks entrusted by MEP

- Mid-term evaluation on the implementation of National Environmental Protection Plan for the 12th Five-Year Plan Period
- Study on the basic thought of National Environmental Protection Plan for the 13th Five-Year Plan Period
- Action Plan on Air Pollution Prevention and Control
- Action Plan on Water Pollution Prevention and Control
- Action Plan on Soil Pollution Prevention and Control
- Research on the National Action Plan on Rural Ecological Environmental Protection
- Implementation of National Plan on Groundwater Pollution Prevention and Control
- Technical support for the implementation of Planning for Heavy Metal Pollution Prevention and Control
- Technical support for the total emission reduction of pollutants
- National environment function zoning and research on the matching policies
- Assessments on environment pollution damage
- Environmental economic accounting
- Area plans as a whole and analysis of environmental economic situation
- Supervision and management of ecological environmental protection
- Environmental project consultation and performance evaluation
- Technical support for environmental protection industry
- Risk management of hazardous wastes and chemicals

Training on the Analysis of Environmental Economic Situation in 2014

Training on Action Plan for Air Pollution Prevention and Control

Tasks entrusted by Three Gorges Project Construction Committee under the State Council

- Research on the standards for the investment and operation costs for the construction of sewage treatment plant in the ecological barrier zone at three gorges reservoir area

- Research on the operation mechanism of urban sewage treatment plant and plan for the treatment and disposal of sludge at three gorges reservoir area

Tasks entrusted by South-North Diversion Project Commission of the State Council

- Technical evaluation of the implementation of the "12th Five-Year Plan" in 2013 for the water pollution control and water & soil conservation in Danjiangkou reservoir area and upper reaches

Tasks entrusted by National Development and Reform Commission

- Strategic research on the ecological environmental protection for the city clusters of Yangtze River Delta, Qinghai & Tibet and Chengdu &Chongqing

Tasks entrusted by Ministry of Science and Technology

- Research on the "13th Five-Year Plan" scientific innovation supporting the construction of ecological civilization
- Research on the safeguard system for the sustainable development policies of risk management for the contaminated soil and sites
- Research on the comprehensive environment control technology model and industrialization promotion mechanism for the water shortage villages and towns in the cold northern
- Research on the technical system for the total volume reduction of air pollutants in China

  Calculation of the total volume of heavy metals discharge and research on environment statistics
- Research on ecological environmental safety threshold and spacial management zoning in the economic circle in Urumqi
- Technical research on the identification and assessments on the environment pollution damage by acute water environment pollution incidents
- Characteristics and control of VOC emission from industrial coating pollution sources

Tasks entrusted by National Tax Administration

- Research on the coordination of environment tax standard and emission standard
- Research on the tax counting basis for environment tax

Tasks entrusted by China Poverty Alleviation and Development Center

- Assessment on the impact of national major environmental policies on the poverty

Key Projects

Inception meeting for the major water program Development Strategy & Policies for Water Environmental Industry and Demonstration Research

CAEP undertook over 160 various scientific projects in 2014 among which 62 projects involved financial budget including Research on National Environmental Planning, Joint Prevention and Control of Regional Air Pollution, Survey and Assessment on the Basic Environment Status of National Groundwater, Supervision and Management of Environmental Protection at Key River Basins, Supervision and Management of Soil Environmental Protection, National Environmental and Economic Policies, Technical Research on the Calculation of Total Discharge Volume of Heavy Metals and Environment Statistics, Policy Research on Pollution Emission Reduction Technologies etc.. CAEP led 4 major science and technology program for water pollution control and treatment including Research on the Policy Supporting Platform for the Water Pollution Prevention and Control Planning in Watersheds, Development Strategies & Policies for Water Environment Industry and Demonstration Study. CAEP led 10 theme studies on MEP Research Program including the Research on the Technical System of the Groundwater Pollution Control in the Typical Regions of North China Plain, Research on the National Technical System for Total Volume Control of Air Pollutants, Research on the Scientific Contribution to Pollution Emission Reduction and National Action Plan for Emission Reduction etc.. CAEP led 12 theme studies on the projects of National Nature Science Foundation of China including Study on Roadmap of $PM_{2.5}$ Control and Policy Mechanism, Research on the Cost-Benefit Analysis Model for Environment Risk Control in Chemical Industrial Park, Ecological Environment Cost Calculation and Trend Simulation For the Regional Economic Development in China etc.. CAEP led 2 theme studies for the projects of National Social Science Fund including Policy Design of Chinese Environment Tax and Effects Research etc.. CAEP led 2 projects for national 863 and 973 program including Research on the Safeguard System of Sustainable Development Policies for the Risk Management of Contaminated Soil and Sites. CAEP led 14 international projects including Research on the Synergetic Control of Multi-pollutants in Cities, Policy Research on the Improvement of the Environment Statistics System Framework in China, Measuring China's Environmental Industry Accounting Framework Based on Environmental Goods and Services Sector (EGSS), etc..

Areas Received Services from CAEP for Environment Projects

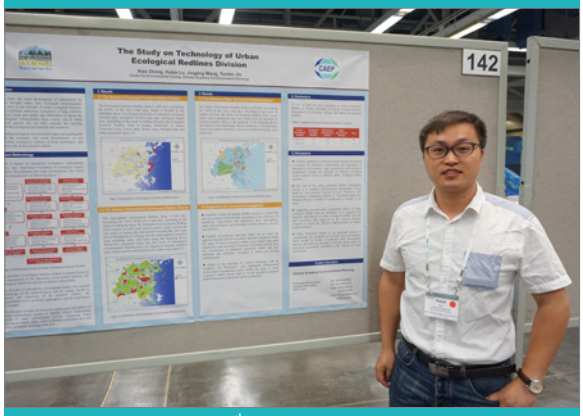
Academic Exchanges

Focusing on the key tasks, CAEP actively expanded international and domestic exchanges on scientific research, conducted 21 international academic exchanges including OECD/EPOC high level working conference, Clemon "International Forum for Ecological Civilization" etc.; organized 11 domestic academic exchanges including Seminar on National Environment and Health, The 3rd National Environmental Planning and Policy Model-Academic Seminar on Water Environment Simulation and Modeling, National Joint Meeting for the Heads of National Environment Planning Institute etc.; held 7 trainings on the Research of Global Disease Burden Assessment and Analysis, Workshop on the Simulation Information Technology of Water Environmental Management, and Experts Workshop on "New Urbanization" etc..

Prof. WANG Jinnan Presented Key Speeches at the OECD/EPOC high level meeting

Speaking at International Forum on "Ecological Civilization"

Signing Partner agreement at Sino-EU Sustainability Programme

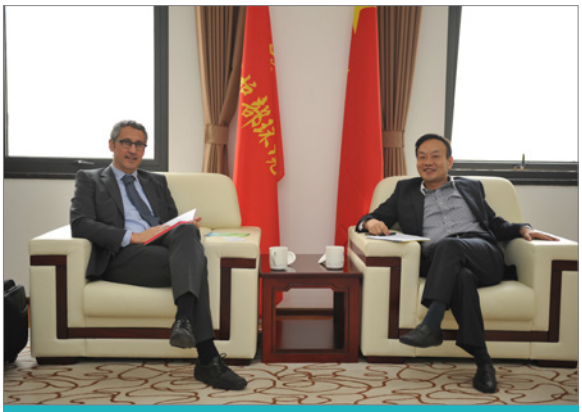


Participating in the 99th Annual Ecological Meeting in U.S. displaying research achievements in the division of ecological red line in cities

Participate in UNEP INC 6 on Mercury document in Bankok

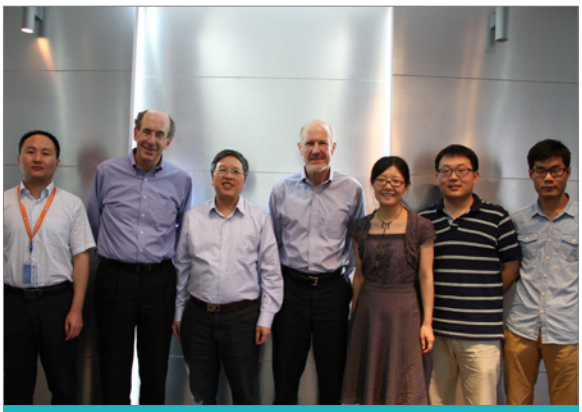
JICA training on Capacity Building for the Pollution Control Planning for Ozone and $PM_{2.5}$

Hosting first Sino-Japan-Korea air pollution policy dialogue



Belgium Flamand Technology Research Institute visiting CAEP

Present speeches in the 3rd International Seminar on Climate Change



President of U.S. Health Effect Institute visiting CAEP

Prof. WANG Zijian speaking at the 1st Academic Meeting on Environmental Planning as honored expert

Scientific Research Platform

State Key Laboratory for Environmental Planning and Policy Simulation

Based on the major needs for national environmental protection, many studies were conducted by the Key Laboratory in 2014 including the research on compiling the synergetic planning for the ecological environmental protection in Beijing-Tianjin-Hebei region, the reform system for national ecological environment management, the system for national environment asset accounting, the monitoring and early warning mechanism for national environment bearing capacity, and the environment investment contribution calculation of the action plan for water and air pollution prevention and control. The laboratory undertook the studies on the policy supporting platform for watershed pollution prevention and control planning (Major Science and Technology Program for Water Pollution Control and Treatment), the studies on the scientific contribution of pollution emission reduction and the national action plan for scientific emission reduction, applied studies on the legalization and standardization of national typical environment quality models (Special Funds for National Environmental Projects in Public Interest) etc.. The laboratory hosted the 3rd National Academic Seminar on the Methodology for Environment Planning Simulation Models and Academic Seminars on "Mega Data and Environmental Planning"、"Integration of Regulations and Environmental Planning". The capacity of building the laboratory was improved, China's environmental planning and policy simulation platform (CEPP) and economy-resource-environment mega data system were developed, studies on the models for SWAT watershed environment quality, CMAQ regional air quality model, and Gempack general equilibrium model were further promoted，over 40 environment relevant rules were incorporated into the data system.

Multi-media meeting room

Laboratory for Environment Damage and Ecological Restoration

Based on the two important platforms which include Environment Damage and Ecological Restoration Laboratory of CAEP and Beijing Key Laboratory for Environment Damage and Pollution remediation，Environment Damage and Ecological Restoration Laboratory

were set up in the second half of 2014. Sampling tools currently available in the lab include: geological compass, GPS positioning storage tool, portable VOC detector, X fluorescence analyzer for heavy metals and other monitoring devices and soil gas samplers, organic glass for water sampling and other tools, protective equipments and portable monitoring devices. The lab is dedicated to provide the platform for hardware and practices in the assessment of environment damage which is the important basic insurance for the scientific quantification of environment damage, to provide basic methodology of the identification for industrial and regional environment risks, quantification and control, and to provide professional devices and equipments, technical support and effective support for environment restoration. Since the establishment of the laboratory, studies have been conducted on environment risks, damage and ecological restoration mechanism, damage assessment cases. The technical approaches and standard system for the identification and assessment of environment damage have been developed and improved, advanced and practical technology and equipments for environment damage and ecological restoration have been developed which actively promoted the standardization of environment damage identification and assessment and industrialization of the restoration technology output.

Laboratory ultra pure water purifier

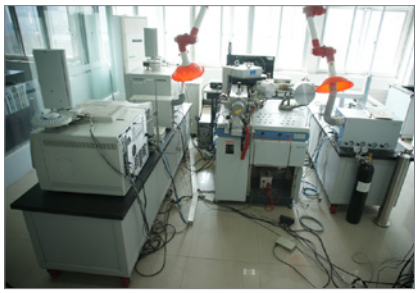

Detector for heavy metals


Centrifugal machine for large capacity freezing

Laboratory for Groundwater Environment

Based on the national key laboratory of bio-geology & environment geology and the academic innovation base for watershed hydrological process and wetland ecological restoration, CAEP together with China University of Geosciences (Wuhan) provide personnel, technology and equipments, jointly established domestic first class and internationally leading Laboratory for Groundwater Environment. The lab aims to address the national major needs for groundwater environment, guided by the scientific theory on water cycle in epigeospheric system, it is mainly targeting at the groundwater utilization and sustainability of environmental protection. Focusing on the formation and evolution of groundwater and its interconnection with environment system, supported by the environment isotope technology, microorganism and water quality analysis technology, digital simulation and information technology, the lab continuously innovated and developed the scientific theory for groundwater environment

restoration and the technology for environment engineering, including the studies on the evolution process of groundwater formation and circulation, conservation and restoration, and the exploration of key technologies for groundwater environment engineering. Scientific innovation has been emphasized to promote the new norm of the coordinated development of human activity and groundwater environmental protection to provide scientific bases for addressing water environment improvement.



Isotope-ratio mass spectrometer for stable gas

Experts visit groundwater and environment experimental laboratory

Center for Climate Change and Environmental Policy

The Center conducted studies on the status of non-CO_2 greenhouse gas emission control in China, international trend of emission reduction, impact of our greenhouse gas emission control. The research findings China Initiate Non-CO_2 Greenhouse Gas Emission Reduction Plan At Earliest Date were submitted to the State Council through the reference of National Nature Science Foundation， and made comments by the Vice Premier LIU Yandong. It spared no efforts to provide technical support to Ministry of Environment Protection for combating the climate change, compiled Technical Guideline for the Environment Risk Assessment of CO_2 Capture, Utilization and Storage (exposure draft) and its description. It completed the report on Greenhouse Gas Emission Accounting and Recommendations of National Key Industries on Environmental Statistics, completed detailed environment interpretation reports of 3 working groups for IPCC AR5.

Environment Management Seminar on CO_2 Capture, Utilization and Storage

CO_2 leakage site in Qinghai

Acceptance Meeting on Greenhouse Gas Emission Statistical Accounting and Environment Regulation Capacity

Center for Environmental Accounting

The Center actively participated in the thoughts on reform and development for the "13th Five-Year Plan", completed the studies on the preliminary issues in the development planning of environment statistics in China, proposed recommendations for the framework and reform of future environment statistics system. Based on the future environment statistics development framework, it initiated studies on the preliminary issues in the development planning of emission reduction statistics, selected Henan and Gansu Province as the case analysis of the development for emission reduction statistics, summarized the existing major issues in the current environment statistics, and proposed recommendations for the future framework of environment statistics system and its implementation in the near term.

ADB Project Conclusion Meeting for the Reform of Environment Statistics System

Inception Workshop on Improving the Institutional Framework for Environment Statistics System in China

Annual Meeting of China Council for International Cooperation on Environment and Development (CCICED)

Center for Environmental Zoning

The Center deepened the studies on the key issues and correlative system for environmental function zoning, studied the mechanism for the assessment and early warning based on the environment resource bearing capacity in the function zones, the connection of national park system and environmental function zoning, the red line system for ecological conservation based on environmental function zoning etc.. It drafted Opinions on the Implementation of National Planning for Main Function Zones and the Enhancement of Environmental Zoning Management, Measures for the Examination and Assessment of Environmental Function Zoning, National Ecological Red Line——Technical Guideline for the Identification of Safe Environment Quality Baseline and other documents. It steadily promoted the pilot projects for the compilation of provincial environmental function zoning, guided altogether 13 pilot provinces (regions) for the compilation and improvement of environmental function zoning plans in the first and second batch. It improved the Technical Guideline for the Compilation of Environmental Function Zoning, further guided some pilot provinces regions in the inception of the compiling environmental function zoning at municipal and county level, completed the identification of the environmental function zoning and ecological red line

plan in Overall Arrangement for the Ecological Environmental Protection in Beijing,Tianjin and Hebei Province, initiated studies on compilating the Plan for the Ecological Environment Function Zones in Tibet Autonomous Region.

Environment Workshop in Ezhou Meeting on the Pilot

Dispatch and Technical Exchange for Environmental Function Zoning

Site visit of Liangzihu Lake（Ezhou）, Ecological Civilization Demonstration Area

Center for Heavy Metal Pollution Prevention and Control

The Center provided technical support to the implementation of the “12th Five-Year Plan ” for the comprehensive control of heavy metals pollution, measurement and verification of the atmospheric emission quantity of heavy metals, work plan for the studies on the thought for the heavy metal plan during the "13th Five-Year Plan" period etc.. It participated in the supervision and inspection of the project implementation in 20 key demonstration regions; completed tasks of providing technical support for the special fund distribution of the heavy metal pollution prevention and control in 2014. It promoted international cooperation on early warning of heavy metals pollution, completed survey on the heavy metal pollution in Hunan Qinghai province etc. and the typical cases studies of control plan.

Unveiling ceremony of the Center

Signing strategic cooperation agreement with Flamand Technical Research Institute (Belgium)

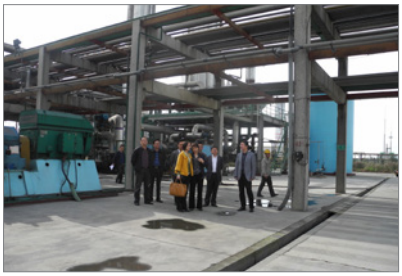
Obsolete pyrite acid plant

Center for the Investment Performance Management

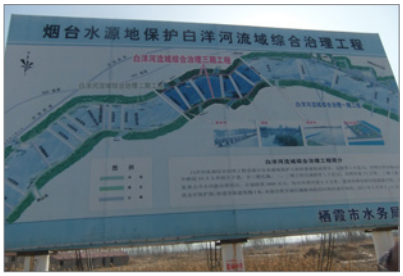
The Center completed the review draft the Temporary Measures for the Management of Performance Evaluation on the Pollution Control Projects of Central Special Fund which was adopted at ministerial special meeting. It organized the implementation of performance

evaluation on the projects of central special fund and conducted assessments, completed the technical reports on performance evaluation and provided reference for important decision making. It initiated the project "Study on the Performance Evaluation Mechanism for Heavy Metal Control in Hunan Province" entrusted by Hunan Provincial Environmental Protection Bureau, drafted Temporary Management Measures for the Performance Evaluation on the Heavy Metal Pollution Control Projects in Hunan Province (advisory draft), established the methodology system for the performance evaluation on the heavy metal pollution control projects in Hunan Province. It developed a set of technical documents for performance evaluation including the detailed rules for the evaluation, self evaluation report and outline for the compilation of performance evaluation report etc.， promoted the work of National Research Center for the Environment Investment and Performance Evaluation which shifted its focus from theoretical methodology research to in-depth practical work for the performance evaluation on different types of projects. It improved significantly the operation approaches, organization management and evaluation experience.

Integrated control project in key control zone for heavy metal pollution in Jiangxi Dayu



Zero emission project for the sewage from nitrogen fertilizer manufacturing at Sichuan Jinxiang Chemical Industrial Group



Integrated control of water pollution in Baiyanghe River Basin in Yantai

Center for Total Emission Control of Pollutants

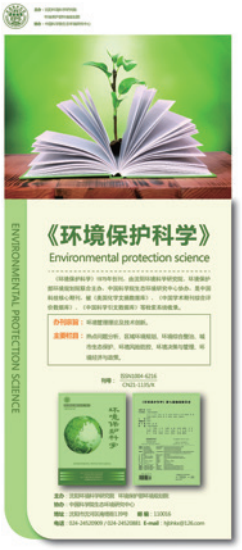
The studies conducted and technical support provided by the Center include: research and development of national plan for total volume control of pollutants, planning and its implementation plans etc., other topics such as: analysis on the pollutants emission data and environment statistics approaches, total volume control system and policy, environment capacity measurement, emission permit, emission trading and climate change etc..

Center for Soil Environmental Protection

The Center undertook basic work including the research and development of plans, policies and standards for soil environmental protection, conducting major scientific programs of soil conservation, plans for R&D, expanding international cooperation and academic exchanges for soil conservation.

Academic Periodicals

- *Chinese Journal of Environmental Management* ISSN 1674—6252
- *Environmental Protection Science* ISSN 1004—6216



Scientific Achievements

Awards in 2014

- Study on Technical System of Environment Damage Assessment and Its Application won the first award of Environmental Protection Science and Technology Advance Award of the Ministry of Environmental Protection.
- CO_2 Emission Accounting. Based on the First National Survey on Pollution Source won the second award of Environmental Protection Science and Technology Advance Award of the Ministry of Environmental Protection.

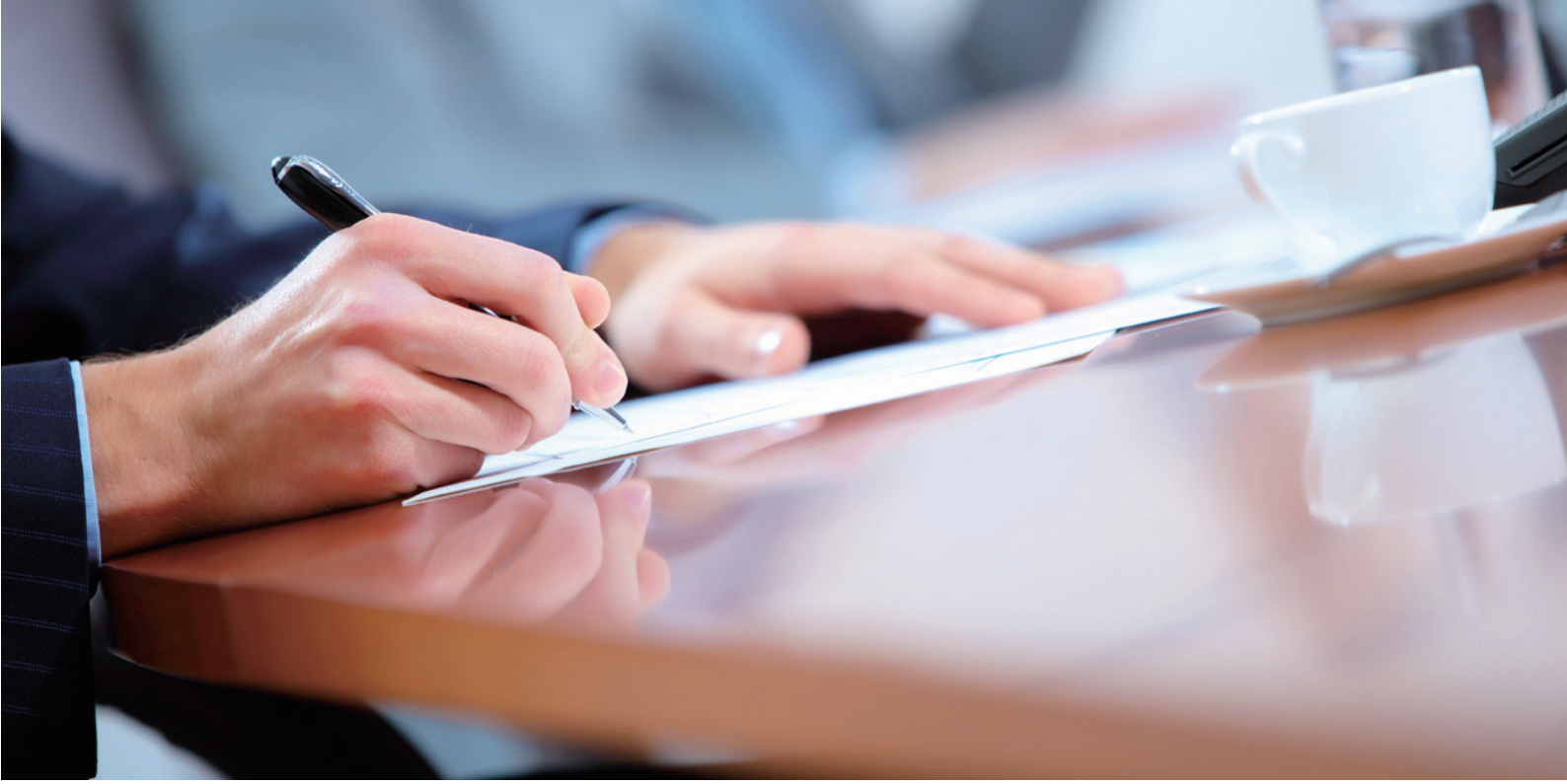
Published Books

CAEP published 15 research monographs including *Environmental Planning, Environment Accounting, Study on Environmental Protection Investment in China, Study on the Key Technologies for Assessment and Examination of Implementation of*

National Environmental Protection Plan, Exploration and Practices in the Theoretical Methodology of Urban Environment Master Plan etc..

Patent and Software Copyright

- A Purification Device for the Multi-stage Treatment of Groundwater Contamination, A Device for the In-situ Remediation of Groundwater Contamination Using Micro-Nano Bubble for the Enhancement of Aeration, A PRB Overcoming Passivation of Iron altogether 3 new practical patents were authorized.
- CAEP successfully declared 6 software copyrights such as Evaluation System for the Groundwater Pollution Sources Carrying Capacity, Risk Ranking System for Groundwater Contamination at Gas Station, Platform for Displaying Water Environment Space in Watershed etc..



Internal Publications

- The *Chinese Reference for Environmental Decision-making* (in Chinese) is the policy consultation report produced by CAEP based on the special theme research, targeting at major environment issues, formulation of environment planning and policy. 23 issues were published in 2014.
- The *Chinese Environmental Policy Research Working Paper* (in English) is a new internal publication produced by CAEP for the purpose of facilitating the academic exchange with foreign colleagues on research results on environmental policies and lessons learnt in the implementation of such policies. 2 issues were published since its born in 2014.

Published Essays

- Published 131 essays, among which 13 were cited by SCI, 20 by EI and over 80 essays by GCJC.

Chinese Academy for Environmental Planning

8 Dayangfang, BeiYuan Road, Chaoyang District, Beijing 100012, China
Tel: 86-10-84910863
Fax: 86-10-84918581
E-mail: caep@caep.org.cn
Web: http://www.caep.org.cn