

ACEDP Lake Tai Water Pollution Treatment Project

ACEDP太湖水污染治理项目

Newsletter

项目通讯

Issue 4 (Jul.~ Dec. 2010)

第四期 (2010年7月~2010年12月)



Lake Tai, Suzhou Municipality
太湖, 江苏苏州

➤ Project Activities (July 2010~December 2010) 项目活动 (2010年7月~2010年12月)

Highlights: 本期关注:

- Follow - up Activities Workshop on Wastewater Treatment and Recycling Technologies. 废水处理和循环利用技术后续活动
- Workshop on Integrated River Basin Management and Review of the Lake Tai Masterplan 综合管理和太湖治理总体方案回顾研讨会
- Non Point Source Nutrient Pollution Assessment and Management Training Workshop 面源营养物污染评估和管理培训研讨会
- Australian Working Visit on PSP Control Policy and Practice 点源污染控制政策和实践赴澳工作访问

➤ Project Communication Activities 项目交流活动

➤ Australian Highlights 澳大利亚湖泊整治经验

- Sewage Sludge Disposal Hydro Thermal Upgrading (HTU) Technology 污泥处置高温热解技术
- Source Catchments— Assess and Manage Catchment Water Quality and Quantity 源流域模型-水质和水量评估和管理
- A Trade Waste Customer Service Code 交易废弃物客户服务中心

Foreword 序言

WELCOME again to this new edition of the ACEDP Lake Tai Water Pollution Treatment Project Newsletter. The Project has continued to make great strides during the period between July and December 2010. Activities have included a study tour to Australia on non-point source pollution control and science based management; a workshop on wastewater treatment optimisation including a demonstration of the BioWin software at the Fuxing Facility, Suzhou; a workshop and field visit with World Bank and Ministry of Environment colleagues from the Hai River Basin; training workshop on non-point source nutrient pollution modelling; and workshop in Suzhou followed by a working visit to Australia on point source pollution control policy and practice. Each of these activities have resulted in strengthening of partnerships between Australian and Chinese agencies and organisations involved in river basin management.

The year of 2011, a Chinese new year of Rabbit is coming. We hereby wish all of you a happy new year and an excellent health. And we look forward to a successful final year of the project.

再次欢迎您打开新一期的《ACEDP太湖水污染治理项目“项目通讯”（第四期）》。ACEDP太湖项目在2010年7月至12月这段时间中，继续实施一系列重要的项目活动，取得了很好的成果。在此期间，项目活动包括面源污染和基于湖泊科学管理赴澳考察；污水处理厂系统优化研讨会（包括苏州市福星污水处理厂的BioWin模型示范）；与海河流域环保部以及世界银行办公室工作人员的会晤；面源污染营养物污染模型培训研讨会以及点源污染控制政策和实践赴澳考察。我们深信，随着本项目的不断深入，中澳两国在环境领域的合作和交流正在不断巩固和加强。

2011年，中国农历兔年到来了。我们在此恭祝各位新年快乐、身体健康。同时，我们也期待着本项目在最后一一年中能取得圆满成功。

Nigel Murphy

Project Director 项目主任

AUS Cluster Lead by Earth Systems Consulting

Earth Systems公司领导的澳洲都市系统集团



PROJECT BRIEFING

项目简介

THE Australia and China Environmental Development Partnership (“ACEDP” hereafter) is a five-year, \$25m Australian Government, AusAID initiative with the objective of supporting and improving policy development in China in the area of environmental protection and natural resources management. ACEDP aims to facilitate enduring partnerships between Australian and Chinese agencies, institutions and individuals engaged in national environmental policy development and implementation through a combination of high level policy dialogue, capacity building measures and collaboration on discreet activities that demonstrate good environmental governance.

ACEDP Lake Tai Water Pollution Treatment Project (“Project” hereafter) is a 15-month, \$1.8m project, implemented by the AUS Cluster lead by Earth Systems Consulting, and the Chinese counterpart ICC-NDRC. The Project was launched in August 2009. The objective of the Project is to increase awareness of IRBM approaches including institutional governance, science based management, and technical measures for pollution and algal control. The Municipalities of Suzhou and Huzhou respectively located along the bank of the Lake Tai were nominated as the pilot cities of the Project.

The Project concentrates on 3 main components; Integrated River Basin Management (IRBM), Science Based Lake Management, and Technical Measures in Support of Governance and IRBM (approximately 21 activities, workshops & study tours in total) both in China and Australia.

Source (Part): ACEDP Website

<http://www.acedp-partnership.org/en/default.aspx>

“中澳环境发展伙伴项目”（如下简称“ACEDP”）为期五年，由澳大利亚发展署出资2500万澳元，旨在帮助中国加强环境保护和自然资源管理及在相关方面的政策支持。ACEDP通过高层政策对话、能力建设以及环境整治示范活动等多方面的合作，使中澳两国政府机构、组织和个人参与国家环境政策的制订和实施，促进两国间持续的伙伴关系。

“ACEDP太湖水污染治理项目”（以下简称“项目”）为期15个月，项目总额约180万澳元由Earth Systems公司代表澳大利亚都市系统集团（AUS）负责实施。本项目的中方合作伙伴是国家发改委国际合作中心。项目于2009年8月正式启动，目的是促进流域综合管理体制变革，提高机构的科学管理能力，及交流控制蓝藻治污的技术方法。太湖沿岸的苏州市和湖州市被确定为本项目的试点城市。

本项目将重点关注流域综合管理、科学的湖泊管理和支持流域综合管理和环境整治的技术措施等三个领域，预期在中国和澳大利亚相继实施约21个具体活动。

部分信息来源：ACEDP网站

<http://www.acedp-partnership.org/en/default.aspx>

PROJECT IMPLEMENTATION PARTNERS

BOTH the Chinese Partner and its Australian counterpart are included in the project implementation partners.

Chinese Implementation Partner

International Cooperation Center, National Development and Reform Commission (ICC-NDRC)

Chinese Local Implementation Partner

Suzhou Municipal Development and Reform Commission (MDRC) and Huzhou MDRC

Australian Implementation Partner

Aus Cluster Lake Tai consortium lead by Earth Systems Consulting

The Cluster comprises Earth Systems, Hyder Consulting, Melbourne Water, Victorian Environment Protection Authority (EPA), and Victorian Department of Sustainability and Environment (DSE).

For more information, please visit the Website below

ICC-NDRC <http://www.icc-ndrc.org.cn/>

Suzhou MDRC <http://www.fgw.suzhou.gov.cn/>

Huzhou MDRC <http://fgw.huzhou.gov.cn/>

Earth Systems <http://www.earthsystems.com.au/>

Hyder Consulting <http://www.hyderconsulting.com/>

Melbourne Water <http://www.melbournewater.com.au/>

Victorian EPA <http://www.epa.vic.gov.au/>

Victorian DSE <http://www.dse.vic.gov.au/>

项目执行方

项目执行方包括中方执行机构和澳方执行机构两部分。

中方执行机构

国家发改委国际合作中心

中方地方执行机构

苏州市发改委、湖州市发改委

澳方执行机构

澳洲都市系统集团由Earth Systems公司牵头组成的“太湖项目组”

项目组由Earth Systems公司、Hyder Consulting公司、墨尔本水务、维多利亚州环保署和维多利亚可持续和环境部组成。

更多详情，请访问以下网站

国家发改委国际合作中心 <http://www.icc-ndrc.org.cn/>

苏州发改委 <http://www.fgw.suzhou.gov.cn/>

湖州发改委 <http://fgw.huzhou.gov.cn/>

Earth Systems公司 <http://www.earthsystems.com.au/>

Hyder Consulting 公司 <http://www.hyderconsulting.com/>

墨尔本水务 <http://www.melbournewater.com.au/>

维多利亚州环保署 <http://www.epa.vic.gov.au/>

维多利亚可持续和环境部 <http://www.dse.vic.gov.au/>

PROJECT ACTIVITIES
(JUL. 2010~DEC. 2010)

**Follow - up Activities Workshop on
Wastewater Treatment and Recycling
Technologies in Suzhou**

The Project conducted a follow-up activity on wastewater treatment and recycling technologies between July and September 2010. The activity included a technical workshop on wastewater nutrient removal optimisation and sludge treatment conducted in September 2010; A one day demonstration of the BioWin model for wastewater treatment optimisation at the Fuxing WWTP in Suzhou; and a trial on sewage sludge reuse and disposal using hydrothermal upgrading (HTU) technology conducted between May and September 2010.

The WWTP optimisation demonstration conducted by John Messenger (Aus Lake Tai Cluster WWT Expert) showed how Dynamic modelling, supported by good steady state calculations, has the power to evaluate, reasonably quickly, the impact of changes on a wastewater facility such as Fuxing. Participants showed a great interest in the demonstration of the Biowin Model and its potential use to improve the performance of existing WWTPs and inform decisions about future capital investments for wastewater treatment across the Basin. An extension proposal to support the continuation of this work has since been developed and is currently being considered by the PCO and AusAID.

John Sanderson (Aus Lake Tai Cluster) led a review of available and up-coming technologies for sludge reuse and a series of experiments on sludge from the Fuxing WWTP to evaluate the potential for hyperthermal utilisation in the Basin. The research found that there are a number of up-coming HTU technologies becoming available, with potential for application in the Basin.

项目活动

(2010年7月~2010年12月)

废水处理和循环利用技术后续活动研讨会

项目于2010年7月至9月开展了“废水处理和循环利用技术后续活动”。此次活动包括废水处理营养物质去除优化的技术研讨会和污泥试验成果分享。以及苏州市福星污水处理厂系统优化Biowin模型试运行和在2010年5月至9月开展的利用污泥热解技术的污泥回用和处置试验。

John Messenger (澳洲都市系统集团水处理专家)在污水处理厂系统优化示范中阐述了一个动态模型,并由较好的稳态计算支持。该模型能够有效评估且合理地针对污水处理厂设施的变化作出相应的改良。当地与会者对试点示范Biowin模型的运行表示了极大的兴趣。当地的参加者提出延伸活动中的污水处理厂系统优化部分,以进一步建立完善模型并对污水处理厂工作人员培训。这个建议将上报项目办作为项目延期活动的内容之一。

John Sanderson (澳洲都市系统集团)介绍了澳大利亚在污水处理厂运行/管理的新型技术/经验,以及专门针对太湖城市所面临的不足/挑战领域,包括一个新的污水污泥处置技术的审查,在苏州市福星污水处理厂试用污泥高温热解技术(HTU)。研究发现在太湖流域应用污泥高温热解技术是可行的。



PROJECT ACTIVITIES (JUL. 2010~DEC. 2010)

Non-Point Source Pollution and Science-based Lake Management Study Tour

Following the Huzhou workshop in late June, the Project conducted a study tour to Australia, in September 2010. It provided an overview of Non-Point Source Pollution (NPSP) and science-based lake management. A delegation comprised of 8 delegates attended the study tour, including the representatives from NDRC, and municipalities of Suzhou and Huzhou.

The tour presented Australian experience and use of mechanisms with a particular emphasis on both NPSP and the links between management agencies and research institutes to ensure an evidence based approach to address complex environmental issues. Delegates visited Melbourne, Canberra, and Adelaide to meet with different water & environment related stakeholders and various regional, state and federal agencies. These activities covered governance, importance of developing a scientific basis, Australian non-point source pollution examples, surrounding legislation, and policy framework, operational methods and monitoring requirements. These issues whether then adapted and presented in context of the Lake Tai water pollution situation in China by the delegates.

In a summary, the study tour delegates were impressed with the initial thoughts of how to develop NPSP management and how to apply it in the Lake Tai basin. Several findings were identified as follows:

- Management of urban stormwater;
- Understanding of the science and management of algal blooms;
- Collaboration between the government agency resource managers and the university researchers;
- Community engagement associated with both ownership of the problems and implementation of the solutions; and
- Integrated water resources management and the national reform agenda in Australia.

项目活动

(2010年7月~2010年12月)

面源污染和基于湖泊科学管理赴澳考察活动

继六月下旬湖州市的研讨会之后，8名来自国家发改委，苏州市和湖州市的政府官员代表于2010年9月赴澳大利亚进行了“面源污染和基于湖泊科学管理”的考察。

此次考察的目的是介绍澳大利亚的经验和实施机制，特别强调了面源污染以及管理机构和科研院所的联系，以确保采用有据可查的办法来解决复杂的环境问题。在为期11天的考察中，代表团访问了墨尔本，堪培拉，阿德莱德和拜恩斯代尔的不同水资源和环境方面的利益共同方。代表们出席了各地区、州和联邦机构的演讲，研讨会以及实地考察。这些活动涵盖了基于科学发展的管理的重要性，澳大利亚的面源污染的实例，围绕立法和政策框架，运作方法和监测要求。这些是否适用于太湖水污染现状有待于代表们进一步讨论。

考察团对如何发展面源污染管理以及如何适用于太湖流域留下了深刻的印象。若干研究结果和问题被确定为如下：

- 城市暴雨径流的管理；
- 藻类暴发的科学管理；
- 政府机构资源管理者和大学研究员之间的合作；
- 社区与相关的问题产生者保持联系以及相应的实施办法；
- 水资源综合管理和澳大利亚国家改革议程。

PROJECT ACTIVITIES (JUL. 2010~DEC. 2010)

Workshop on Integrated River Basin Management and Review of the Lake Tai Masterplan

To commence the Integrated River Basin Management (IRBM) component of the Project, a four day workshop on IRBM was conducted in Beijing including a field trip to Haihe Basin Committee in October 2010. The workshop invited representatives from relevant government authorities at central, provincial and city levels to exchange information and learn the experiences of the World Bank-Global Environment Facility (WB-GEF) Haihe Basin Project in the areas of

- IRBM at basin, provincial and county levels;
- Technical studies undertaken; and
- Relevance to the Lake Tai Masterplan and identify gaps and future needs to improve IRBM governance.

It was identified that the properties of the two projects were quite different and the representatives learnt the following points including:

- The main goal of the GEF Haihe Project was to annually reduce water pollutants in the river flow by 10% and therefore reduce groundwater abstraction by 10% each year as well. ;
- The design characteristics and majority of the project's major objectives were achieved.;
- Innovations in IRBM theories and applications were generated, including the core parts of Evaluation Transpiration (ET) quotas/assessments in different regions, Knowledge Management (KM) system development, construction of the Strategic Action Plan;
- An appropriate management mechanism and

项目活动

(2010年7月~2010年12月)

流域综合管理和太湖治理总体方案回顾研讨会

2010年10月，太湖水污染治理项目专门开展了流域综合管理（IRBM）研讨会。研讨会邀请来自中央、省、市各级有关部门的官员和代表共同交流和探讨在太湖流域开展流域综合管理工作，交换和学习世界银行-全球环境基金海河流域项目的经验，特别针对以下领域：

- 基于流域、省、县各级的流域综合管理；
- 技术研究的工作；
- 相关的太湖治理总体方案及其情况；以及审查太湖治理总体方案并找出差距和未来需求，以改善流域综合管理治理。

这两个项目的性质完全不同。代表们获得的信息包括：

- 该项目的主要目标是每年减少水污染物增长率的10%，且每年减少地下水超额开采的10%，从而达到污染物的减少和水流量的增加。
- 海河项目的设计特点和主要目标在很大程度上通过大量成果和新机制的建立得以实现。



PROJECT ACTIVITIES (JUL. 2010~DEC. 2010)

data sharing system in different government authorities. Within Haihe project, the Ministry of Environmental Protection (MEP) and Ministry of Water Resources (MWR) signed a coordination contract; and

- In terms of data collection they analyse this data using different models such as SWAT.

Although the concept of IRBM for the Lake Tai Basin already had potential, it was worthwhile examining the research and practices of the existing Haihe project.

The workshop also provided the opportunity to review the implementation and future needs of the Lake Tai Masterplan, as well as hear the comments and feedback of the IRBM study tour to Australia from the Chinese side. A potential visit to TBA and Jiangsu Provincial LTMO on the knowledge of Lake Tai Masterplan implementation and future needs was confirmed.

项目活动

(2010年7月~2010年12月)

- 在流域综合管理的理论和应用方面得到了很多创新，包括评价的核心部分蒸腾蒸发（ET）在不同地区的配额和评估，知识管理（KM）系统开发实施和战略行动计划建设。

- 海河项目中确立了一个合适的管理机制，以及在不同的政府部门之间建立数据共享的系统平台。环境保护部和水利部签订了合同以协调共同管理海河流域项目框架的工作。

- 在数据收集方面，他们使用不同的模型如SWAT等分析数据。

所有的系统、机制以及政府当局的合作模式，对太湖流域流域综合管理而言是令人印象深刻的一个新概念，这是值得后续研究和实践中可以借鉴的经验。

研讨会还进一步指定回顾了《太湖总体方案》的执行情况和未来需求，并听取中方流域综合管理赴澳考察团的意见与建议。与太湖流域局以及江苏省太湖办关于进一步了解《太湖总体方案》的执行情况和未来需求的访问也已被确定。



PROJECT ACTIVITIES (JUL. 2010~DEC. 2010)

Non Point Source Nutrient Pollution Assessment and Management Training Workshop

A training workshop on NPSP assessment and management was held in Suzhou in November 2010 to target the outcomes from the former Huzhou workshop and the Australian study tour. Three Australian NPSP experts together led the three days of training. The workshop was to provide additional capacity in the area of NPSP assessment and control using some special tools and management approaches. Training contents included:

- NPSP identification and risk assessment;
- NPSP accounting and assessment; and
- NPSP Management Options.

Australian trainers introduced and trialed two models (Source Catchment models using E2, and Bayesian Networks) to address nutrient transport processes and farm nutrient management, which took an interactive approach. Under the guidance of the Australian experts, the Chinese participants tested these models, with the hope that through this approach, a reduction algal blooms in Lake Tai would be achieved. The Chinese experts were engaged to collate all available information on NPSP; to report an initial assessment of NPS pollution for Lake Tai; to identify key information gaps; and to recommend approaches that could be adopted to fill these gaps. This is preparatory work for further activities to be decided for potential follow-up work.

Suzhou organisers led the workshop participants and the Australian experts to a field excursion activity to a village which has already a number of practices to help control rural NPSP.

项目活动

(2010年7月~2010年12月)

面源营养物污染评估和管理培训研讨会

2010年11月下旬，针对之前的湖州市研讨会成果以及赴澳考察团的收获，在苏州市成功召开了面源营养物污染（NPSP）评估和管理培训研讨会。3名澳方面源污染专家主持了此次为期3天的培训。此次研讨会的目的是为参与者提供在面源污染评估和控制领域使用的一些特殊的工具和管理方法。培训内容包括：

- 面源污染识别和风险评估；
- 农业系统的面源审计和评估；
- 面源污染管理方法；

研讨会期间，两位培训专家采取互动方式，分别介绍和试用了两种模型工具（使用E2的源流域模型和Bayesian网络模型），以解决营养物迁移过程和农场营养物管理问题。中方参与者在澳方专家的指导下，直接试用了这些模型。通过这一方法，有利于帮助降低太湖蓝藻的大规模暴发。中方专家将帮助整理有关面源污染的信息，并对太湖的面源污染总体形势进行初步评估，找出关键的差距和薄弱环节，并提出改进的意见和建议。这将是对项目后续可能开展的工作的必要准备。

苏州市组织者带领与会者和澳大利亚专家赴苏州市一处农业面源示范工程村进行实地学习考察，发现农村面源污染控制已在此取得了很好的治理实践并取得了成功经验。



PROJECT ACTIVITIES (JUL. 2010~DEC. 2010)

Point Source Nutrient Pollution Control: Source Identification and Auditing Workshop

Following Following the NPSP training, the Project conducted a workshop on Point Source Pollution (PSP) Control: Source Identification and Auditing with 25 people in attendance. Experts from Earth Systems and Melbourne Water served as the PSP specialists, focusing on the following points:

- Current approaches of PSP control identification, auditing and management in China and Australia;
- Current status of PSP identification and nutrient pollution load assessment and auditing and identify areas for further improvement;
- Propose follow up activities which will help strengthen capacity and current approaches; and
- Arrange the following PSP Australian study tour with Chinese colleagues.

A series of presentations regarding PSP were made and there was discussion around the following topics:

- PSP control approaches in Australia and clear explanation on the differences between Melbourne and Australia;
- General situations of Chinese practices and development in PSP control;
- Comments on the basis of experiences and practices in controlling PSP in daily work;

As a result of the PSP workshop presentations and discussions it was concluded that the future direction of the Chinese trade waste regime is advanced. However it is important to identify existing limitations and priority areas for enhancing PSP control and implementation in these two cities of Suzhou and Huzhou.

项目活动

(2010年7月~2010年12月)

点源营养物污染控制：污染源鉴别与 审计研讨会

继面源污染培训会之后，太湖项目就“点源营养物污染 (PSP) 控制：污染源鉴别与审计”专题，在苏州市召开了为期两天的专题研讨会。共25人参加了此次会议。来自澳思公司和墨尔本水务的专家担任此次会议的点源污染专家，就以下方面展开：

- 阐述目前中国和澳大利亚在点源营养物污染控制鉴别、审计和管理方面的方法；
- 考察当前湖州和苏州点源鉴别和营养物污染负荷评估和审计的现状，并确定进一步发展的领域；
- 提出点源营养物污染鉴别和审计的项目后续活动，以加强能力建设并改进目前的做法；
- 与中方代表协调，安排点源污染赴澳考察工作。

研讨会上，中澳专家通过专题发言和讨论，就点源营养物污染控制的经验和方法等作了一系列的介绍和演讲。包括：

- 澳大利亚点源污染控制方法和详细解释了墨尔本与澳大利亚的不同；
- 中国在点源污染控制方面的方法和经验；
- 苏州市和湖州市日常治污工作中积累的经验 and 实践。

关于中国交易废物制度的未来方向被提及讨论，以及确定两个试点城市在改进点源污染控制和执行情况的限制因素以及优先领域。



PROJECT ACTIVITIES (JUL. 2010~DEC. 2010)

Australian Working Visit on Point Source Pollution Control Policy and Practice

In December, a Chinese delegation visited Australia for a working visit on the Point Source Pollution (PSP) Control policy and practice under the leadership of AUS Lake Tai Cluster.

As was confirmed in the November workshop, the visit aimed to provide municipal government officials with firsthand experience of PSP policy and practice including:

- Legislative and institutional framework;
- Permitting and enforcement;
- Cleaner production systems; and
- Industry partnerships.

The delegates visited state government agencies, water companies and industry in Victoria and New South Wales (NSW) for presentations and information exchanges focused on drivers for better PSP management; current policy, regulatory/incentive framework (trade waste standards and industry guidelines); permitting, monitoring, enforcement and key action roles and responsibilities in implementation.

Site visits were conducted at a number of companies in Victoria and NSW across a range of industries relevant to Lake Tai's industrial profile. The purpose of these visits was to examine the relationships between the EPA, water businesses, industry and the community and how industry are meeting nutrient management and discharge responsibilities.

项目活动

(2010年7月~2010年12月)

点源污染控制政策和实践赴澳工作访问

2010年12月，中方代表共9人，赴澳大利亚进行“点源营养物污染控制政策和实践赴澳工作访问”活动。访问活动由澳洲都市系统集团太湖项目组组织实施。

在11月的研讨会基础上，此次访问旨在为市级层面的官员提供点源营养物污染控制政策和实践方面的第一手资料，包括：

- 立法和法规框架；
- 行政许可和执法；
- 清洁生产机制；
- 行业合作伙伴关系。

中方代表实地参访了澳方政府机构，以及维多利亚州和新南威尔士州的多家水行业。在访问中通过发言、报告和讨论等多种形式，获得了关于点源污染控制政策和实践的诸多信息。澳方的专家报告围绕营养物管理的驱动机制、现行政策、法规/激励机制（“交易废物”标准和行业导则）、行政许可、监测、执法和关键以及责任等方面展开。



PROJECT COMMUNICATION ACTIVITIES

项目交流活动

Visit to Nanjing Institute of Environmental Science, MEP

The AUS Lake Tai Cluster visited Nanjing Institute of Environmental Science, MEP (NIES) in September 2010. NIES is a major Chinese agency with a range of experience in dealing with Lake Tai water treatment projects. It was mainly responsible for the non-point source section of the *National Water Treatment Program of Lake Tai*, and was directly under the leadership of MEP with over 200 technical researchers and engineers.

The purpose of the visit was to share information about technologies and successful case studies from both the Chinese and Australian sides and to find some potential areas for the future collaboration. HTU technologies and those experiences of WWTP operation and investment were presented by the Australian experts. Meanwhile, the Chinese counterpart introduced several projects that NIES had led during the 11th Five Year Plan. The two sides recognised the opportunity to further strengthen this partnership in the upcoming 12th Five Year Plan in the areas of i) Rural NPSP control and management; ii) new technologies in sludge treatment and disposal; and iii) new approaches of energy reuse and energy efficiency.

访问环境保护部，南京环境科学研究所

澳洲都市系统集团代表于2010年9月访问了环境保护部下属南京环境科学研究所（NIES）。据了解，南京环境科学研究院是一个主要的中方机构，曾在太湖水治理方面有丰富的工程经验，并负责《国家太湖水环境治理方案》的非点源污染治理部分。它是环境保护部直属的，拥有总规模超过200名的技术研究人员和工程师。

此次访问旨在交流中澳双方的技术和成功案例，并寻找未来合作的一些潜在领域。澳大利亚专家提出了HTU技术，污水处理厂的运作和投资的经验。与此同时，中方专家介绍了一些研究院在十一五规划中的项目。双方表示要进一步加强即将到来的十二五规划期间的双边合作，在以下领域：i) 农村非点源污染控制和管理； ii) 污泥处理和处置的新技术； iii) 能源再利用和能源利用效率的新方法。



PROJECT COMMUNICATION ACTIVITIES

项目交流活动

Meeting with PMO for the Project Extension

An informal meeting between AUS Cluster and the Project PMO was held in Beijing on November 29th 2010, to discuss potential project extension activities. The progress of the Project was reported to the PCO and several draft proposals which stemmed from existing ACEDP projects were internally presented and discussed. The draft proposals were considered in relation to the feedback from the municipal attendees of the November workshop. The AUS Cluster revised the proposal on the basis of the comments from the PCO and the Chinese counterpart ICC NDRC. A total of three project extension proposals were finally submitted, including i) Integrated Approach to the Management of Stormwater Pollution in Towns and Cities; ii) Policy Applications of Catchment Modelling and Non Point Source Pollution Management and iii) Policy Oriented Enhancement of Wastewater Collection and Treatment.

与项目办就太湖项目延伸的讨论会议

2010年11月29日，澳洲都市系统集团代表与项目办为了寻求项目延伸与巩固领域在北京召开了一次非正式会议。由澳洲都市系统集团向项目办上报项目的进展并于内部讨论加强现有的中澳环境发展伙伴项目的建议草案。该建议草案集合了参加11月研讨会与会者的反馈意见。澳洲都市系统集团根据项目办的意见和国家发改委合作中心的要求修订了该建议草案。项目延伸与巩固建议最终提交了三个子项目，包括i)城镇和城市管理暴雨径流污染的综合方法；ii)流域模型和非点源污染管理的政策应用；iii)加强废水收集与治理的政策导向。



PROJECT COMMUNICATION ACTIVITIES

项目交流活动

Consultation Visit to Jiangsu Provincial Lake Tai Management Office and Lake Tai Basin Authority on the Lake Tai Masterplan and Governance

The AUS Cluster visited the Jiangsu Provincial Lake Tai Management Office (JLTMO) and Lake Tai Basin Authority (TBA) on November 30th and December 1st respectively. The visit aimed AUS Cluster to gain a better understanding of the arrangements and needs of IRBM in the Lake Tai area at basin and provincial levels for. JLTMO was directly under the leadership of Jiangsu Provincial Government and TBA was one of the seven basin authorities under the administration of MWR.

Informative meetings were held with JLTMO and TBA in Nanjing and Shanghai. The Australian team proposed a series of questions regarding the Masterplan implementation and its future needs. It was established that a mid-term review of the Masterplan would take place in 2011. The main questions raised by the AUS Cluster were listed as follows:

- Main progress of the implementation of the Masterplan;
- Current challenges and issues being faced;
- Institutional coordination and arrangements;
- Laws and policies;
- Awareness and participation of stakeholders; and
- Reporting and monitoring of implementation

As was known from JLTMO, Jiangsu has taken a series of actions to fulfil the objectives in the Masterplan including an implementation of over 600 projects since 2007. The central government makes annual audits to the provincial government and coordinates water treatment across provinces. The provincial government is in charge of the coordination across cities. All the water quality targets have been met with the exception of nitrogen. Jiangsu has introduced new mechanisms including permitting systems, stricter standards, and pollutant trading (COD and TP) to improve its original pollution discharge systems.

访问江苏省太湖办和太湖流域管理局，咨询《太湖流域水环境综合治理总体方案》执行情况 and 太湖综合整治情况

澳洲都市系统集团代表分别于11月30日和12月1日访问了江苏省太湖办（JLTMO）和太湖流域管理局（TBA）。此次访问旨在为国际顾问提供关于太湖流域及省级流域综合管理的安排和需要更多的认识。JLTMO是直属于江苏省政府，TBA是水利部下属的七个流域管理机构之一。

与JLTMO及TBA的会晤分别在南京和上海进行。澳方提出了关于《太湖总体方案》实施和未来需要的一系列问题。《太湖总体方案》将在2011年进行中期审核。由澳方提出的主要问题如下：

- 实施《太湖总体方案》的主要进展；
- 当前所面临的挑战和问题；
- 机构的协调和安排；
- 法律和政策；
- 利益共同方的认识意识和参与；
- 执行情况的报告和监测

从JLTMO得知，江苏省已采取了一系列行动履行其在《太湖总体方案》的目标，包括自2007年实施的超过600个的项目。中央政府采取对省政府和协调跨省的水治理进行年度审计，省政府则对协调城市间的工作负责。

PROJECT COMMUNICATION ACTIVITIES

项目交流活动

Jiangsu has also clearly identified gaps in knowledge and problems including i) need to understand that it is an expensive, long term process to treat algal blooms and black odour water; ii) there is a lack of funds and investment; iii) further innovation of pollution control mechanisms, especially management approaches is required.

TBA mentioned that a variety of governance and management measures had been implemented following the introduction of the Masterplan. The real investment scale was largely exceeded and the provincial and municipal levels of governments were the main investment bodies. Water quality and the local ecological systems have been greatly improved. Several network platforms have been developed by TBA, such as an information exchange platform; environmental information communication platforms, and water resource platforms. A large amount of water was transferred from the Yangtze River and the recycling of waste water is underway and some of the issues relating to water pollution control have been addressed. With regards to knowledge gaps and future needs, it was reported that: i) it's an issue to control large amount of algae blooms by manual salvage; ii) there is still a backlog of heavily polluted industries that require restructuring; iii) the improvements in water quality remain in an unstable position including the unachieved TN target; and iv) a common issue for the established platforms is the lack of meaningful data.

所有的水质指标除了氮则全部达标。江苏省已采用新的机制，包括许可制度，严格的标准，污染物交易（COD和TP）以对原有的污染排放系统改革创新。江苏省还明确表示了其差距的问题包括i)认识到治理藻类暴发和黑臭水体是一个长期而耗资巨大的任务； ii)缺乏足够的资金和投资； iii)需要进一步创新污染控制机制，特别是管理方法。

从TBA得知，《太湖总体方案》制定的各项治理措施与管理措施正在有条不紊地进行中。目前项目实施进行和投资力度远大于《太湖总体方案》确定的进度和投资，省市级政府是投资的主要来源。水质以及当地生态系统改善效果明显。目前已经有一些网络平台，如太湖流域管理局的信息交换台，环保信息交流平台，水利平台等。引江济太工程和废水回收利用在很大程度上解决了太湖流域水资源缺乏的问题。针对差距和未来需求，太湖流域存在的水污染环境环境问题包括： i) 蓝藻防治难度大，现大量人工打捞处理； ii) 产业结构调整难度大； iii) 目前水质指标不稳定，总氮指标实现难度大，水质指标不稳定； iv) 确立的平台缺乏数据。



AUSTRALIAN HIGHLIGHTS

Sewage Sludge Disposal Hydro Thermal Upgrading (HTU) Trial

Hydrothermal Upgrading (HTU) is a thermo-chemical process for converting wet biomass feedstocks to crude biofuel products. Feedstock moisture content is typically high (50% - 80% moisture is common). The HTU process involves moderate temperatures and pressures (T = 300 - 350 °C, P = 120 to 180 atm) and residence times of 5 to 20 minutes. Water is present as a liquid under these conditions. In simple terms, HTU can be described as a de-oxygenating process - removing oxygen from the biomass materials as water and CO₂. The products from HTU are crude bio-oils (suitable for upgrading to bio-diesel), gases (predominantly CO₂ with some CO), water (with dissolved organics), biochar and ash. Yields depend on the exact processing conditions, residence times, feedstock characteristics and catalytic effects. The thermal efficiency of the HTU process is high (70 - 90 per cent).

The advantages of the HTU technology are as follows:

- No pre-drying process;
- Carbon dioxide captured as a near-pure liquid;
- Completely remove of pathogen or pathogenic bacteria;
- Generate clean water;
- Compared with landfill, it saves land resources;
- Generate crude bio-oil which can be further refined into bio-diesel;
- Unlike traditional incineration, the reaction does not generate air pollutants; and
- The reactor is smaller in space than the incinerator.

(Source from: Earth Systems)

澳大利亚湖泊整治经验

污泥处置高温热解技术试验

高温热解技术 (HTU) 是湿生物质转化为生物燃料产品的热化学过程。原料水分含量通常很高 (常见的在50%-80%)。该HTU过程涉及适宜的温度和压力 (T= 300 - 350°C, P=120-180atm), 停留时间为5到20分钟。水在这些条件下以液体形式存在。简单来说, HTU是一个去氧过程 - 去除生物质材料中的以水和CO₂形式存在的氧。由HTU得到的产品包括原油生物油 (适用于提炼生物柴油), 气体 (主要是CO₂以及CO), 水 (溶解有机物), 生物炭和灰分。产量取决于具体的加工条件, 停留时间, 原料特性和催化作用。HTU过程的热效率高较高 (70%-90%)。

HTU技术的优点包括如下:

- 无预干燥过程;
- 收集二氧化碳;
- 彻底清除病原体或致病细菌;
- 产生清洁的水;
- 与填埋法相比, 可以节省土地资源;
- 原油生成生物油, 可进一步提炼生物柴油;
- 不同于传统焚烧, 反应不产生空气污染物
- 该反应堆所占空间比焚化炉小。

(资料来源: 澳思公司)



AUSTRALIAN HIGHLIGHTS

Source catchments– Assess and manage catchment water quality and quantity

Source Catchments is a water quality and quantity modeling framework that supports decision making and a whole-of-catchment modeling approach. It is designed to help natural resource managers and consultants develop targets, prioritize improvement programs and measure the effectiveness of a broad range of catchment management activities.

The software provides a framework for modeling the amounts of water and contaminants flowing through a catchment and into major rivers, wetlands, lakes, or estuaries. Source Catchments integrates an array of models, data, and knowledge that can be used to simulate how climate and catchment variables (like rainfall, evaporation, land use, vegetation) affect runoff, sediment and contaminants. Source Catchments also enables local knowledge, data and models to be combined with industry best practice to generation effective, transparent catchment management scenarios and options.

For example, Source Catchments can be used to understand issues such as:

- Quantity and quality of rainfall-driven runoff and groundwater reaching streams in the catchment under present conditions
- Alterations made to quantity and quality of runoff by climate variability, different land uses, or riverbank restoration – now, or in the future
- Optimal locations for on-ground work to maximize water quality improvement
- Impacts of bushfire, flood, drought, construction activity or water extractions on the quality of receiving waters
- The effect of land use change on water quality and quantity into receiving waters.

(Source from: <http://www.ewater.com.au>)

澳大利亚湖泊整治经验

源流域-流域水质和水量评估和管理

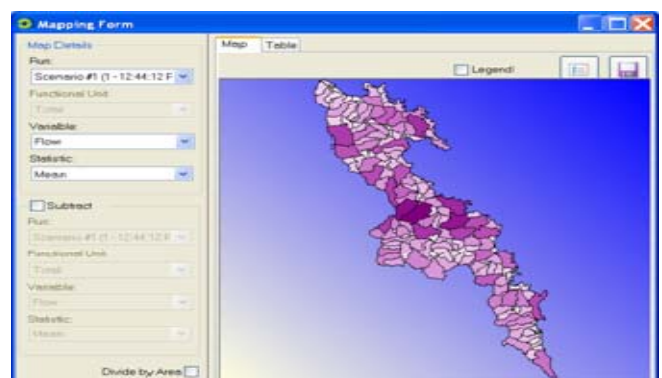
源流域是水质和水量的建模框架，支持决策的制定和整个流域的建模方法。它的目的是帮助自然资源管理者和顾问发展目标，优先改善计划和衡量一个范围广泛的流域管理活动的成效。

该软件提供了一个建模框架，模拟子流域向主要河流，湿地，湖泊或河口输送水量和污染物的数额。源流域集成了一系列的模型，数据和知识，可以用来模拟气候和流域的变量（如降水，蒸发，土地利用，植被）对径流，泥沙及污染物的影响。源流域也可以将当地的知识，数据和模型结合起来，对行业最佳实践提供有效的，透明的流域管理方案和建议。

例如，源流域可以用来解决如下问题：

- 在目前的条件下，流域中降雨径流和地下水的水质和水量
- 由气候变异，不同的土地利用，或河岸径流水质恢复引起的降雨径流水质和水量的改变 - 现在，或者将来
- 最大限度地改善水质
- 林区大火，洪水，干旱，人为建筑活动或水提取物对受纳水体水质的影响
- 土地利用方式的改变对水量和水质的影响。

(资料来源: <http://www.ewater.com.au>)



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