

Higher Education for Sustainable Development in China

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Abstract: In this paper, general introduction on higher education for sustainable development in China was given. The characteristics of HESD was summarized.

Key words: ESD, higher education

1. Introduction

With the rapid progress of deterioration of the habitat, the international community shows more and more interests in ESD. However, the works providing the overviews of sustainability in universities in China are particularly limited. In this paper, general introduction on higher education for sustainable development in China was given.

2. Policies related with HESD in China

Chinese government pays more and more attention to environmental protection, climate change and sustainable development since Earth Summit in 1992, which can be seen from the policy documents during the period of 1973-present. Take into consideration that the Education for Sustainable Development (ESD) has only a short history in the world and there is no national policy document with the exact name of ESD in China, we would like to introduce Environmental Education (EE) policy instead of ESD policy.

The environmental education policy in higher education can be divided into two parts: one is the policy for the environmental major, which is to foster the specific personnel; the other is for the non-environmental major, which is to popularize the environmental education.

In 1973, the State Council required universities to set up major and curriculum on environmental protection and foster technical personnel in “The Provisions of Protection and Improvement of Environment”, which is the first document with the requirements on environmental education. Since then, China started to foster the personnel in the field of

environmental protection.

The importance and meaning, foster way and implementation approach were clearly defined in the “Law on Environmental Protection of the People’s Republic of China (for trial)” (1979), “The Decisions on Enhancing Environmental Protection Work at Present Time” (1981), China’s Agenda 21(1994) and “National Action Guideline for Environmental Propaganda and Education (1996-2010) (1996) and so on.

Up to now, China has already formed a multi-level education system of technical (vocational) school students, junior college students, undergraduates, masters and PhDs. The institutes of higher learning have already fostered a lot of technical and management personnel for China’s environmental protection career.

3. HESD activities in China

3.1 General introduction

China has a history of HEE for about 40 years. Since the beginning of 1970s, environmental protection discipline was first established in Peking University.

In 1978, the first batch graduate students was enrolled in the department of environmental protection in Beijing Normal University. And environmental protection program was given in more than 100 universities so far. ESD is already integrated with a series programmes such as urban planning, management and so on.

In Tsinghua University, one elective course of “Introduction on Sustainable Development” was given to Ph. D candidate of all the departments since 1997. A series of “green courses” were given to undergraduate students since 1998. Such as “Introduction on cleaner production”, “Industrial ecology” “Risk assessment” “Introduction on environmental laws” , “energy and environment” in Tsinghua University. “Green education” philosophy was added to experiment, social practice, extra-curricular activities and so on. “green association” was founded by undergraduate student. And a series of activities were conducted such as “refuse the paper greeting cards to save the tree”

In Beijing Normal University, symposium on Teachers’ Training was held on ESD. A series of books on ESD for the Implementation of DESD(seven books) were published. The column of ESD in the Journal of Environmental Education was developed.

3.2 HESD activities in Tongji University

3.2.1 Establishment of IESD

UNEP-Tongji Institute of Environment for Sustainable Development(IESD) was established jointly by UNEP and Tongji University on May 9, 2002. The Institute is situated in the premises of Tongji campus and is an organic part of Tongji’s College of Environmental Science and Engineering (CESE). IESD’s governance is vested upon its Supervisory

Board comprising of members from UNEP and Tongji as well as other prominent professionals in China and elsewhere in the field. Figure 1 shows the structure of IESD.

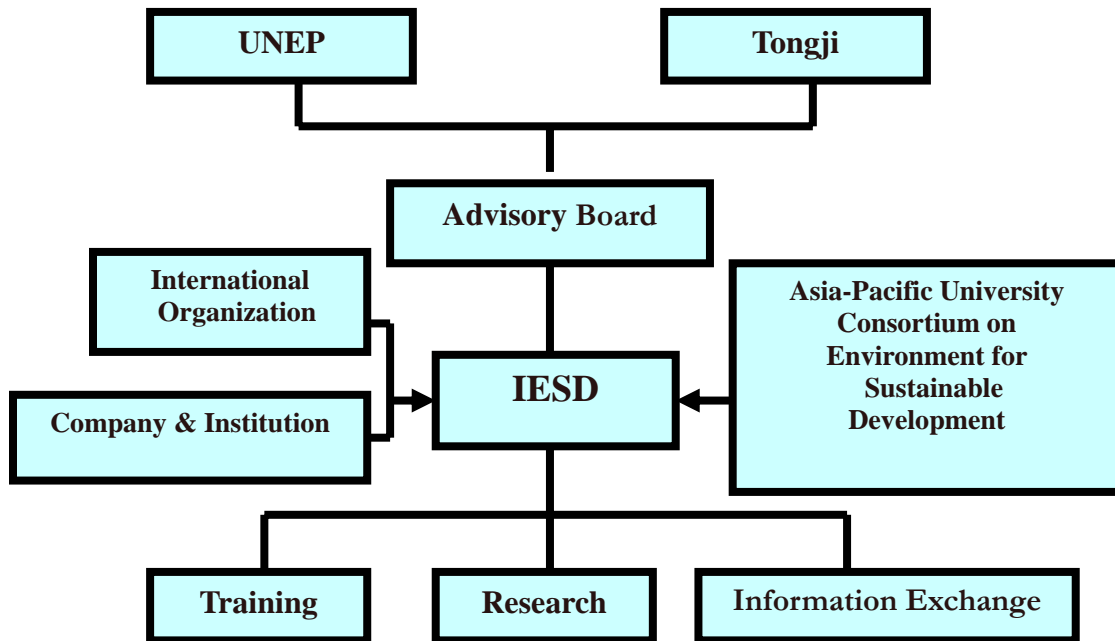


Figure 1 Structure of IESD

IESD's aim is to become an important base of research, education, and information exchange for sustainable development.

It takes active part in DESD and EfSD programs:

- Feb. 2005, UNESCO Bangkok Workshop on Regional Strategy for DESD
- Sept. 10, 2005, China Launch of DESD.
- Oct. 29~30, 2005 Beijing Int. EPD Conference
- April 2006, UNU Workshop on RCE for EfSD
- April 2006, Anji Workshop for RCE
- August 2006, UNESCO Workshop on National Guidelines for Establishing DESD Indicator Systems

3.2.2 Main Activities in IESD

IESD has attained great achievements in the following 3 main aspects in cooperation with UNEP, Regional University Consortium (RUC), governments and corporations. Besides, IESD also contributes to the construction of RCE in Anji, China. RCEs aspire to achieve the goals of the UN Decade of Education for Sustainable Development (DESD, 2005-2014), by translating its global objectives into the context of the local communities in which they operate.

- Leadership Training Programme
- International Master's Degree Program (Environmental Management and Sustainable Development)
- Research on environmental science and engineering

1) Leadership Training Programme

IESD has organized quite a lot leadership training programmes or training programmes in the cooperation with UNEP, UNESCO, government and cooperation.

- 2004~2008 Asia-Pacific Leadership Programme
- 2008 leadership program for Africa developing countries on hazard prevention and sustainable development
- 2006~2008 IESD-HSBC Leadership Programme
- 2006, Leadership Programme for Small Island Developing States (SIDS) on Sustainable Development, supported by Ministry of Commerce (MoC)
- 2006 UNEP/GPA/UNESCO training program 1
- 2006, UNESCO/UNEP Training on Water Management

A lot of leaders from different countries have been trained through the above programmes. For example, the participants of four Asia-Pacific Leadership Programmes from 2004~2007 covers 27 countries in Asia-Pacific regions; 24 participants of 2006 Leadership Programme for SIDS covers 20 small island developing states attended; 23 participants of 2008 leadership program for Africa developing countries covers 17 countries in Africa.

2) International Master's Degree Program (Environmental Management and Sustainable Development)

International Master's Degree Program in "Environmental Management and Sustainable Development" was launched in September 2006. The degree is awarded by Tongji University, but with a UNEP certificate. The instructors come from Tongji and RUC. There are totally three batches of students in IESD so far.

International Master's Degree Program in "Environmental Management and Sustainable Development" is pioneering program, which aims to educate and prepare students for leadership roles on sustainable development and equip them with the various concepts and knowledge on economic progress, social systems, environmental protection and resource conservation issues, in the context of human/society-environment-economic dimensions, molded in an integrated and holistic fashion.

The innovative curriculum is designed in the consideration of the three "element" model – human harmony, environmental harmony and sustainable development. Table 1

shows the core courses of the Master’s Program. In 2007, IESD adds a new course named “Climate Change” to address the problems caused by climate change and ask the students to recognize the climate change problems in the cities or countries they come from.

Table 1 Core courses of the Master’s Program

Field	Course
Human dimension	Environmental Ethics
Environmental dimension	Environmental Science
Social dimension	Environmental Sociology
Economic dimension	Environmental Economy and Circular Economy
Frames and tools	Frames and Tools for Sustainable Development
Management and policy	Environmental Management and Policy

The instructors are required to address critical issues, integrative and analytical thinking through problem solving approach. This approach tries to not only provide the students with the academic knowledge, but also teach the students the thinking way and the capacity to solve the problem.

3) Research on environmental science and engineering

In the terms of research, IESD seeks to cooperate with different sectors, such as UNEP, RUC, corporation and governments. The research covers a large range of topics, which is related to the environmental protection, resource saving and sustainable development:

- Solid waste landfill and incineration
- Resource reuse
- Environmental impact assessment and planning
- Eco-city planning and management
- Carbon emission reduction
- Environmental economics (Green GDP and accounting)
- Circular economy

3.2.3 Resource-efficient Campus Construction of Tongji University

Tongji University has been taking the lead in building a resource-efficient campus nationwide since 2003. It put forward the slogan of “thrift is virtue, thrift is wisdom, thrift is quality, thrift is responsibility”. “Thrift is virtue, thrift is quality” advocates for the enhancement of the conservation awareness. “Thrift is wisdom” put emphasis on the “efficiency”-to save resources with minimum capital investment. “Thrift is responsibility” means that university should make use of its academic strength to promote

the construction of conservation society.

According to the above ideas, Tongji University has figured out its resource-saving solution:

- Develop the conservation awareness through education and propagation,
- Promote the conservation efficiency through management,
- Realize the maximum resource saving through technological innovation.

To carry out the solution, Tongji University has set up the organization of “Resource-Efficient Campus Construction Committee”. In this organization, Resource-Efficient Campus Supervision Office is responsible for the management and supervision in the daily life. Guided by the Supervision Office, students’ organization is responsible for the education and propagation of resource saving and emission reduction on the campus. The Resource-Efficient Campus Construction Expert Commissioners provide on technical guidance to the construction of Demonstration projects which have great effect on decreasing energy consumption and emission.

Through the technology innovation, Tongji University not only saves the energy and water, but also set up a series of demonstration projects, which can be the practice base for the students inside or outside the campus.

Saving energy through education, management, and technology has brought remarkable effects. The total water and electricity fee is 47.01 million RMB, much less than that of the budget (see Figure 2).

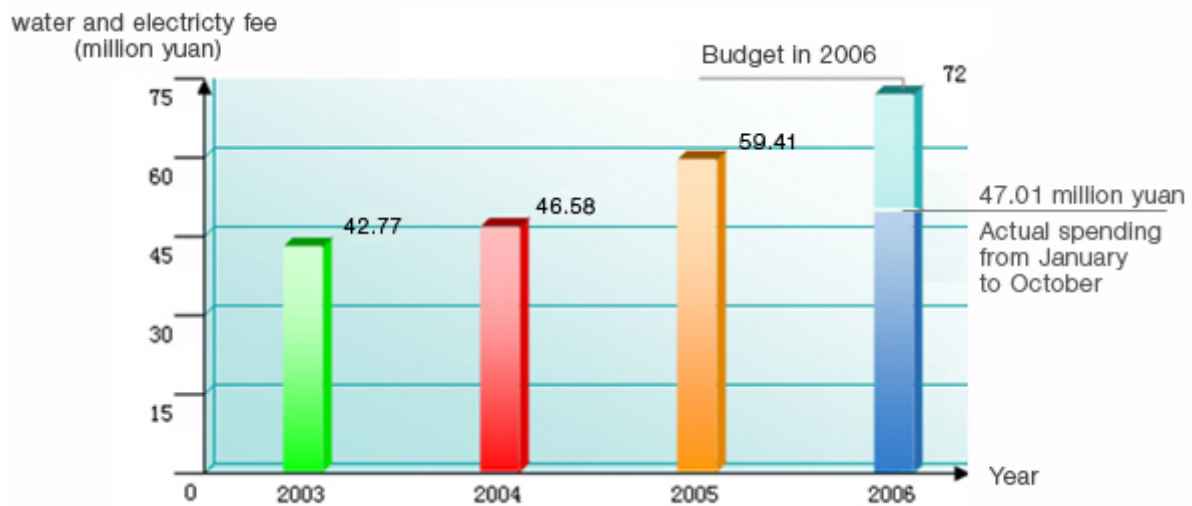


Figure 2 Water and Electricity Fee of Tongji University

Source: Website of Tongji Green Campus: <http://www.tongji.edu.cn/sc/english/index.asp>

Tongji University has been built up as the resource-saving demonstration model of the resource-efficient campus nationwide. Authorized by National Ministry of Education

and Ministry of Construction, Tongji University was leading the editing of the supervisory and Technical Guidelines of Building Resource-efficient Campus in Colleges and Universities.

Furthermore, on January 30th, Construction of Sustainable Development Campus Seminar organized by National Ministry of education was held in Sino-French Center of our university. Leaders of 32 key universities directly under the Ministry of Education took part in the seminar and released “Construction of Sustainable Development Campus Declaration” (Tongji Declaration).

The Declaration emphasized that universities should recognize the importance and urgency of building the resource-efficient and sustainable development campus from the historical height of harmonious development between human and nature, with the attitude of responsible for our descendants. According to the Declaration, university also reached the following consensus:

- The idea of resource-efficient and sustainable development should run through the whole process of talents cultivation
- The idea of resource-efficient and sustainable development should be combined with scientific research in colleges and universities
- Universities should reinforce the management and supervision of energy utilization, save energy to the greatest extent and raise the utilization efficiency of resources to obtain the maximum school-running benefit.
- Universities should set good examples in leading and promoting the sustainable development of the whole society.

4. Summary

Compared with ESD in basic education, higher education has the following characteristics:

- Higher education tends to be more initiative and spontaneous in the promotion of ESD, the construction of resource-efficient and sustainable development campus.
- Higher education has great academic strength, which leading the construction of the resource-efficient campus. It could offer much more support in science and technology to energy saving and emission reduction for the society.
- Higher education not only educates its own students, it also has the function of training the government leaders and teachers from basic education. Furthermore, its laboratories and demonstration projects can be the good practice bases for the public, not only the students on campus.

Based on the current activities on HESD in China, it could be inferred that ESD demands all kinds of education. Compared with the basic education, higher education is supposed to play a more important role in the promotion of ESD, because the in-depth

problems of ESD are to be coped with by university research and education.