

**Contribution of IESD Tongji University to Africa  
on Education for Sustainable Development**

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The paper could be considered in the main theme.

## Abstract

**Purpose** – The purpose of this paper is to introduce UNEP-Tongji Institute of Environment for Sustainable Development (IESD) and the contribution of IESD on education for sustainable development (ESD) in Africa as a model case.

**Design/methodology/approach** – A brief description of IESD, which was established in 2002, is followed by the description of the contribution of IESD Tongji University to Africa. The main activities are degree education, student exchange with summer school and leadership programme.

**Findings** – Interdisciplinary collaboration was found to be essential in creating an innovative education programme in higher education. The objective of IESD contribution to Africa is to share vast prospects and huge potential for cooperation on environmental issues. To strengthen China-Africa cooperation on environmental issues will not only provide a sound opportunity for both sides to learn from and complement each other but also share experiences for closer cooperation on environmental protection among developing countries. **Originality/value** – Information from the case study will be useful for the future collaboration between IESD and African countries on ESD.

**Keywords** Higher education, Sustainable development, Leadership, IESD, Africa

**Paper type:** Case study

## 1. Introduction

With the rapid progress of deterioration of the habitat, the international community shows more and more interests in ESD. Higher education plays a very important role in ESD. The United Nations University has been promoting Regional Centres of Expertise (RCE) on education for sustainable development (ESD) worldwide (Fadeeva and Mochizuki, 2005). However, the works providing the information of sustainability in universities in China are particularly limited. In this paper, we will introduce the UNEP-Tongji Institute for Environment and Sustainable Development (IESD) and the contribution of Tongji University to Education on Sustainable Development in Africa.

## 2. Contribution of IESD to Africa on ESD

IESD was jointly established by United Nations Environment Programme (UNEP) and Tongji University (Tongji) on May 9, 2002. The establishment of the Institute received worldwide attention.

The objective of IESD is:

- To participate in regional or global environmental projects and capacity building programs organized and coordinated by UNEP;
- To establish an internationalized educational institution in respect of environment and sustainable development, with the support of UNEP and thorough

cooperation with international leading universities, for the purposes of technical and management personnel education regionally and globally, particularly for developing countries;

- To conduct global environmental studies and technology innovations, to promote and practice environmentally sound experience and technology, and to generate scientific results in consistent with global needs for environment and sustainable development;
- To promote environmental academic exchange and to hold international conferences, and to establish research, education, and information exchange with regard to environment and sustainable development.

A Brainstorming Meeting of UNEP-Tongji Institute for Environment and Sustainable Development jointly organized by Tongji University and UNEP was held in Beijing, in September 2003. A decision was made at the meeting to establish a Regional University Consortium (RUC) to promote the notion of sustainable development through educational channels. At the moment, RUC is with University of News South Wales, Griffith University, and Wollongong University from Australia, Nanyang Technological University in Singapore, and School of Forestry and Environmental Studies of Yale University in the USA, with Tongji University taking the lead. RUC members will jointly develop education on environment and sustainable development under the platform of IESD. Located in Japan, the University of United Nations enthusiastically takes part in RUC activities.

## 2. 1 International Master’s Degree Program

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. Totally three batches of students enrolled 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. Table1 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.

Table 1 Core courses of the Master’s Program in IESD

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.

So far, totally 7 candidates from Africa enrolled in this programme. The countries were shown in fig.1. It could be expected that they would bring back the knowledge and experience from IESD and contribute to sustainable development of Africa after graduation.

## 2.2 Sino-Germany-Africa PhD Candidate Summer School

In order to encourage and enhance the communication of young scientists from China, Germany and Africa, and establish a sound base for future international cooperation, in 2005, Tongji University and Jülich Center, Germany initiated a three-year Summer School, to be held in Jülich Center, Tongji University and Africa. It was proposed that about 30 Ph.D. candidates, 10 from each region, get together to discuss ecological and environmental issues on various topics.

The First Summer School was held at Jülich Center in Germany (Europe), August 14 – 27, 2006. 8 Germany students on environmental engineering, 12 students from the college of environmental science and engineering, Tongji University, China and one African student attended the course. Field trips and lectures covered broad areas, including water, soil, sludge, vegetation, atmosphere and climate change.

The Second Summer School on water resource management was held at Tongji University in China, from 19 -29 August 2007. The 12 Chinese students were from Nanjing University, Chongqing University, Zhejiang University and Tongji University. 11 Germany Ph.D. candidates from Jülich Center, Mainz University, Cologne University, Karlsruhe University, Bayreuth University. 6 African students from Abidjan Cocody University, Nairobi University and Kenyatta University also attended the course. They visited to several waterworks, sewage-treating works in Shanghai, Mengqingyuan wetland park, Tianmu Lake and some rivers around the city. The Third Summer School is to be held in Tongji university again.

## 2.3 Training Programme

Responding to the need of Africa, a Central Africa Disaster Risk Reduction Centre in Brazzaville, Congo was initiated under the cooperation among the Government of the People's Republic of China, UNEP, other partners and stakeholders. In order to facilitate the work of the Center to be able to achieve its objectives, to support hazard identification risk and vulnerability assessment and analysis at national levels, to enhance capacity of the African countries in the area of disaster prevention and

mitigation as well as assessment, early warning, preparedness and response planning and rehabilitation and recovery, to promote development of appropriate techniques and capacities in disaster management plans and programs, the Young Environment Leaders Programme for African Countries was held on May 18-30, 2008. Referring to the specific situations of Africa, the Programme emphasizes the concept and theory of sustainable development, disaster prevention and relief, environmental and resource protections. 24 participants came from 16 African countries. Distributions of the participants were shown in Fig.1. The programme was a successful event. This will initiate a series of substantial collaboration on capacity building between IESD and African countries.



Fig. 1 Distribution of participants from Africa for master program and leadership held in IESD

### 3. Summary and conclusions

In this paper, we introduced IESD established in 2002 and the contribution of IESD Tongji University to Africa Education on Sustainable Development. China and African countries are facing common challenges in terms of climate change and other environmental challenges and the endeavors to achieve sustainable development. China and Africa share vast prospects and huge potential for cooperation on environmental issues. To strengthen China-Africa cooperation on environmental issues will not only provide a sound opportunity for both sides to learn from and complement each other but also share experiences for closer cooperation on environmental protection among developing countries. Education, training are very important approach and contributions of IESD to Africa on ESD will strengthen the capacity on ESD in Africa.

## Reference

Fadeeva, Z. and Mochizuki, Y. (Eds) (2005), *Mobilising for Education for Sustainable Development: Towards a Global Learning Space based on Regional Centres of Expertise*, United Nations University Institute of Advanced Studies, Yokohama.

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