

Global Thinking, Local Action

A Case Study of the Green School Programme in China

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Abstract

Following the rapid development of environmental education in the international arena, the environmental education in China has enjoyed a steady development in the last three decades; especially in the past ten years many EE programmes have taken place in China. Therefore, a case study on GS programme is presented in this paper to provide an insight of the EE in China.

Initiated in 1996, GS programme was aimed at carrying on education for sustainability by enhancing the school management, improving the education methods, increasing efficiency; so as to achieve the sustainability of the school development as well. By the end of 2002 the total number of Green Schools has reached 13,100 all over China and altogether 284 schools have been ratified with the State-level Green Schools Awards by the SEPA and MOE. Hereby, the aim of this thesis paper is to identify what are the major challenges and opportunities on the implementation of GS programme in China and how to improve it in the future.

Based on my fieldwork with interviews and observations as well as many document surveys, this thesis paper arrives at the following conclusions:

1. EE is not a new invention but its concept and meaning has undergone dynamic changes over the last 30 years, compatible with the changes of people's perception of the ever-increasing environmental problems. The localization of the EE/ESD depends on an integrated approach, concern about local priorities and conditions and so on.
2. China's EE awakening started in 1972 after participating the Stockholm Conference. Ever since then, the EE as a concept has been introduced to China steadily from the international agreements into national policy and documents. But so far there has been no official document on introducing ESD in the policies and the meaning of EE is still mainly focused on education for environment protection.
3. The implementation of the GS programme in China is at the initial stage—facing multiple challenges (such as the EE at the periphery of the formal school education; lack of theory research on ESD) as well as opportunities (such as new education reform; international cooperation; traditional Chinese culture). The GS is at the meeting point of the both the top-down policy streams and the bottom up stream by the media and environment NGOs. At present, the up-down approach is at the main stream, while the influence of the bottom-up approach is quiet weak. But overall, the GS programme can be regarded as a green seed has been planted in the Chinese education system and next step is how to grow it into a green big tree.

In summary, the implementation of GS programme is a process, rather than a result, which means that the sustainable development of GS programme need to be continuously localized and improved until it finally takes root and influences the sustainable development in the local community. It is needed and important of the ongoing and continuous building up of local supporting structures in and around the GS programme in China. Therefore, how to take the global thinking into local action really takes time and needs a long way to go.

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1. Introduction

1.1 General information about the thesis paper

The last three decades have witnessed rapid development of environmental education in the international arena, as the response to the worldwide gradual acknowledgement of the negative impact of humans upon the environment. Ever since the Rio Conference in 1992, Sustainable Development has been widely adopted. Consequently, the environmental education (EE), as a priority solution to achieve sustainability, was reoriented as Education for Sustainable Development/ Sustainability (ESD) in the UNESCO Thessaloniki Conference on Environment in 1997, which is aimed at empowering the young generation to confronting the future environment and development challenges.

Ever since the Stockholm Conference 1972, the environmental education has enjoyed a steady development in China. Especially in the last ten years with the rapid social and economic development, many EE programmes have taken place in China running by different organizations and developed at different level, such as EPD (Environment and Population Development Programme) by UNESCO and Ministry of Education (MOE), EEI (Environmental Education Implementation Programme) running jointly by MOE, WWF and BP, Green School Programme (GS programme) by the State Environment Protection Agency (SEPA) and the State Education Commission (later the name changed into MOE in 1998). All of these EE programmes have made positive contributions to the healthy development of EE in China.

A case study on GS programme is presented in this paper. Initiated in 1996 by *the National Action Program for Environmental Publicity and Education (1996-2010)*, GS programme was aimed at carrying on education for sustainability by enhancing the school management, improving the education methods, increasing efficiency; so as to achieve the sustainability of the school development as well. In 2000, more than 3000 Green Schools were emerged at different levels all over China, whilst 105 schools have been ratified as the first State-level Green Schools Awards by the SEPA and MOE. According to the latest statistics, by the end of 2002 the total number of Green Schools has increase exponentially to around 13,100 all over China and altogether 284 schools have been ratified with the State-level Green Schools Awards by the SEPA and MOE.

The targeted reader of this paper could be decision-makers on GS programme, researchers and students within the field of EE as well as organizations or individuals both at home and abroad who are interested in EE in China.

1.2 The aims and objectives of the study

1.2.1 Aims

Initially, my interest of the research was to evaluate the EE situation in China to study how a developing country likes China to develop EE from a relatively low environment awareness level, which later on turned out to be too broad and vague. In May of 2003, a report on the rapid development of GS programme in China drew my attention, which enlightened me to utilize the GS programme to investigate the EE in China. After reviewing many literature materials as well as carrying on a few interviews with some GS headmasters and EE scholars, the overall aim of my

research is narrowed down to identify what are the major challenges and opportunities on the implementation of GS programme in China and how to improve it in the future.

1.2.2 Objectives

The objectives of this thesis are three-folded as following:

- a. To review the overall development of the EE internationally as well as nationally in China, in order to provide a framework about how EE/ESD is introduced into GS programme from international level—through national level—to local school level.
- b. To investigate the implementation of the GS programme in China in order to summarize the achievements and problems during the implementation process and identify the influencing factors.
- c. To highlight the major challenges and opportunities for the implementation of GS programme as well as to propose recommendations for the future development of GS programme in China.

1.2.3 Some research questions

- a. What are the international EE/ESD trends both in policy documents and in practice and why?
- b. How EE/ESD was introduced and developed in China?
- c. What has EE being practiced in China?
- d. How the GS programme was initiated and developed in China?
- e. What are the achievements and problems during the GS implementation process and why?
- f. What are the main influencing factors for the implementation of GS programme?
- g. What are the major challenges and opportunities for GS programme in China?
- h. How to develop the GS programme in the future?

1.3 Research methods

This paper is a case study on the implementation of GS programme in China, which is based on empirical studies of documents survey as well as fieldwork with interviews and observations from July to September in 2003 in China. What's more, the qualitative and quantitative methods are also adopted in this paper. Although this paper does not use a specific social science theory, the work is based on an interdisciplinary approach integrating different humanities and social sciences perspectives—system analysis, sociology and sociology of law, statistics, pedagogy, political science and Chinese culture/ philosophy.

1.3.1 Case study

The case study is but one of several ways of doing social science research. “A case study is an empirical inquiry that investigate a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident.” (Yin, 1994: p13)

The major reasons for me to choose the GS programme as the case study are:

- This is the first EE project in China, which adopted the ESD as the guideline;
- The programme has gained its momentum with 13,100 GS at the fundamental education level and the experience maybe valuable for both the on-going and the future EE projects in China;
- The GS project as a local EE programme has many similarities with the Eco-school programme in Europe, which has provided a potential study area for further comparison research.

There are some arguments about case studies nowadays. For example, it is argued that one cannot generalize on the basis of an individual case (Flyvbjerg, 2001: p66). So in this paper I am not aiming at generalizing the EE in China as a whole from the GS programme. I just want to bring an in-depth study on GS programme itself to gain more knowledge on the EE development in China.

1.3.2 Qualitative method

According to *Fundamentals to Education Research* (Anderson, 1997), “An interview is a conversation between people, a specialized form of communication for a specific purpose on some agreed subject matter.” (Lindhe, 1999: p43). I had used interviews as a research method during my fieldwork, which included two parts:

First I joined a three-day Seminar named the Symposium on GS programme at Xi’an from August 10-13 with over 70 teachers and headmasters from GS all over China, in which I took the opportunity to interview around 10 headmasters and teachers during and after the meetings. The second part is that I interviewed the headmasters and teachers as well as very few students during my visits to four State-level GS, which included the following schools: Xi’an Senior High School in August, No. 15 High School in Beijing, Baiyunlu Primary School and Liangxiang Primary School in Beijing (a rural school) in September. (See 4.3.2 for the interview process, question and answers as well as some problems during the fieldwork) All interviews were not taped, as interviewees might have felt uncomfortable with that. Instead, notes were made during or after all interviews

Some scholars argued that the interview is an interactive-view where information and data are constructed rather than found, which means that the interviewees take part in the construction of the outcome of the interview (Lindhe, 1999: p44) This indicates that the interpreting of the materials has close relation with my personal cultural background and knowledge and experiences limitation.

Besides the fieldwork with interviews and observations, I also carried on the extensive document surveys on the GS programme in China. My document surveys covers books, government publications and other policy documents, journals and information from the Internet and relevant research papers, which are written in English or/and Chinese. Since the GS programme in China is a new emerging research field (it was only been national-widely known in the past three years), they are not too many resources available as I expected. During the research, I found the *Environmental Education Journal* (running by SEPA of China) is the main platform for EE participants, especially the EE experts and researchers, GS headmasters, subject teachers, even some articles are coming from the students (not so many but do have) to exchange their point of views on the theory as well as practice, not only on GS but also on EE/ESD at large. What’s more, most of the articles are based on the teacher’s pioneering experiences and many of the articles have brought up valuable critical points especially on the problems during the GS implementations and suggestions to confronting them. Last but not the least, many of their opinions are also cross-checked to be true during my interviews and observations.

1.3.3 Quantitative method

As mentioned above, I only interviewed four State-level GS during my fieldwork. Here comes the question that to how much extent that these 4 GS can be generalized on the GS development and represent 284 State-level GS, not to mention the overall 13,100 GS at all the levels. Therefore, I also intend to take the quantitative method—questionnaire surveys for the teachers and students—in order to complement the interviews and provide a picture of GS development all over China. But in

practice, I felt there are many obstacles for carrying on the survey this time. One reason is because as an individual researcher, it is hard to get the survey distribution channels from the GS administrative body as well as the support from the targeted schools. Another reason is because of the time and space constraints (further see 1.4).

But even I did not carry on the survey by myself, I have found there were already some up-to-dated surveys available on the GS programme, which taken place in 2000 and 2002 by CEEE of SEPA (the administrative body for running the GS programmes at the state level) together with Beijing Normal University. Here one point need to be stressed is that both the government body and the research universities have enjoyed high prestige for EE in China and their surveys are based on broad samples over the years, which could be a plus for the validity on the information resources. What's more, many of the research results from surveys can be cross-checked with my interviews and observations, e.g. the unbalanced development of GS, the periphery position of EE in school.

1.4 The limitation of the study

Besides the limitations that I have mentioned above, some other limitations during my study are summarized as following:

- ※ Time and space constrains: My empirical fieldwork covers only three months from July to September this year, during which the first two months were the school summer vacations in China and I only got one month (in September) to carry on my on GS interviews. Also my fieldwork mainly took place in Beijing and Xi'an of China, because most of time I live in Beijing, except I have the visited Xi'an for participating the GS seminar in August 2003. If I have more time I would like to visit more GS in more provinces as well as some Eco-school or Green schools in Europe.
- ※ Language barrier: English is not my mother tongue. Comparing to many interviews carried on in a foreign country, my difficulty mainly from another way— how to translate my research results from Chinese into English, which I hope do not cause reliability weakness or even misunderstanding for the readers.
- ※ Research background: My original major is from natural science—Biology and environmental studies and I am not really familiar with the EE from the pedagogy field (teaching and learning). So my study of the GS programme in China is more focusing on the social-economic point of view, which can also be regarded as an EE outsider's perspective.
- ※ Sources of references: My research sources are mainly from books, government policy documents, journals, Internet information (mainly from some government websites like UNESCO and SEPA) and relevant research papers. All of them are written in English or/and Chinese. If the original source is from Chinese reference, I put a note about “Chinese reference in my translation”. Since the GS programme in China is a new-emerging research field (only been national-widely known in the past three years), they are not too many resources available as I expected.

1.5 The structure of the paper

The whole paper is divided into five chapters:

Chapter I: Introduction deliberates the study aims, objectives and research questions, methods, limitations and structures of the paper.

Chapter II: International development of EE describes the international trends on EE based on the international conferences.

Chapter III: EE in China presents a contextual framework for EE in China---from a macro social-economic content to micro education situation.

Chapter IV: A case study of the GS programme in China is mainly focusing on the implementation of the GS programme in the past few years in China, try to critically investigate the major achievements and setbacks as well as to identify the influencing factors on the implementation of GS programme.

Chapter V: Conclusions and discussions summarise my reflections over the major challenges and opportunities of GS programme in China. Also try to propose some suggestions for the future implementation of the GS programme. Finally I summarize the main findings in the previous research and discuss the questions for future studies.

The total structure of the paper can be illustrated in Figure 1-1.

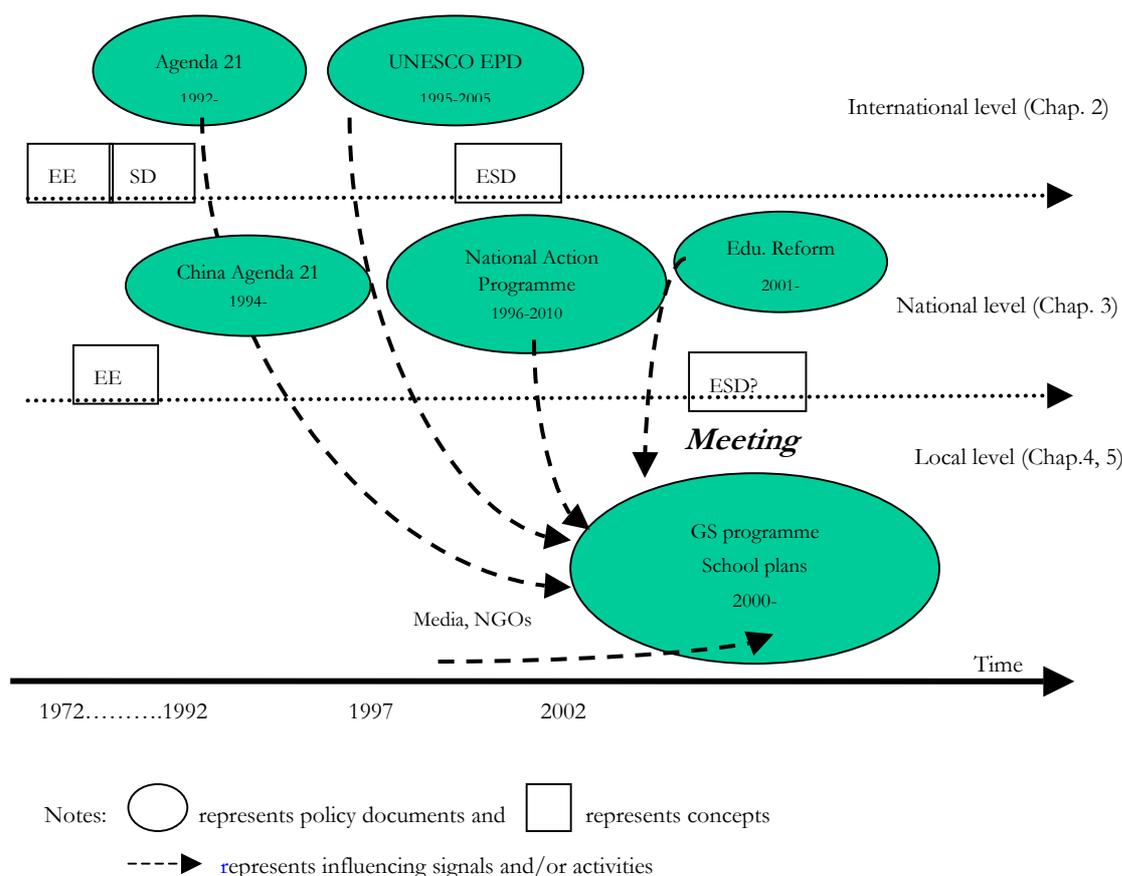


Figure 1-1: Structure of the thesis paper

2. International Development of Environmental Education

2.1 Introduction

"Our biggest challenge in this new century is to take an idea that seems abstract - sustainable development - and turn it, too, into a daily reality for all the world's people." Kofi Annan, the secretary general of the United Nations March 15, 2001

As we all known, education will shape the world of tomorrow - it is the most effective means that society possesses for confronting the challenges of the future. As a new-emerging interdisciplinary subject, the embryo of environmental education (EE) is not an accident. The increasing environment problems happened in the European and American nations in the 1950s to 60s and Rachel Carson's book "Silent Spring" in 1962 have drawn great attentions both from the government and the public in the industrialized countries and also laid foundation for the development of EE.¹

About the term of EE, it is internationally claimed that Thomas Prichard first used it in Paris in 1948 at a meeting of the International Union for the Conservation of Natural Resources (IUCN), while Wheeler argued that this term first appeared in 1947 in the book *Communities* by Parl and Percival Goodman (Palmer, 1998: p5).

Environmental education is the process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the inter-relatedness among man, his culture and his biophysical surroundings. Environmental education also entails practice in decision-making and self-formulation of a code of behaviour about issues concerning environment quality. (IUCN, 1970)

After the acknowledgement of the term, organization concerned moved towards the definition and it's meaning of EE and it is until 1970 that during the IUCN working meeting in Nevada of USA, this influential definition above was formulated and adopted (Palmer, 1998: p7).

In this paper, I'd like to review certain international conferences in policy documents as the important milestones -- from Stockholm via Tbilisi to Rio to Johannesburg conference-in order to trace the international development of EE both in policy documents and in practice.

2.2 Historic development with five milestones

Stockholm Conference in 1972 (I)

Held on June 5-16 of 1972, the Stockholm Conference was the first international convention on environment. Uphold the slogan of "Only One Earth", the conference reflected the rapidly growing global interests in and concern for the environment in 1970s. Principle 19 of the Stockholm Declaration endorsed the need for environmental education at the international level (Palmer, 1998: p7) and Recommendation no. 96 of the official documents of the Stockholm Convention states the main goals of environmental education:

¹ Liu. [On-line]. Available: <http://www.pep.com.cn/200212/ca12910.htm> (in Chinese)

From the education perspective it is recommended that the different UN department particularly UNESCO (United Nations Educational and Scientific and Cultural Organization) should attempt to set up an international plan for environmental education. It is emphasized that the education, which shall be interdisciplinary, pertains not only to formal school education, but also to heighten the consciousness of the general public. (Wickenberg, 2000: p12)

The adaptation of the need for EE during the convention has greatly enhanced its international status and perceived importance (Palmer, 1998: p7). The Stockholm conference, therefore, is regarded as the starting point for the international environmental education.

Tbilisi Conference in 1977 (II)

On October 14-26,1977, UNESCO and UNEP (United Nations Environmental Programme) held a ministerial conference on EE in Tbilisi, Georgia, attended by delegates from 66 UNESCO member states and numerous NGO representatives. During the Tbilisi conference and subsequent conferences a number of guidelines and strategies for EE have been set out. These have provided a common platform for the worldwide development of Environmental Education.

The final report of Tbilisi Conference set out three goals of EE (Palmer, 1998: p11)

- To foster clear awareness of, and concern about, economic, social, political and ecological interdependence in urban and rural areas;
- To provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment.
- To create new patterns of behaviour of individuals, groups, and society as a whole, towards environment. (UNESCO, 1977)

Tbilisi conference is regarded as the world conference on EE, not only because it was the first International intergovernmental Conference on EE, but also because its unique contributions to the basic concept and theoretical framework on EE. The vision and objectives in the Tbilisi Declaration integrated a broad spectrum of environmental, social, ethical, economic and cultural outcomes of education - all of which are central to environmental education. More important, its basic principles were successfully translated into educational policies around the world and, with greater difficulty, into schoolroom practice in many countries. Hence it is no wonder that the Final Report adopted in 1978 is sometimes referred as the “UN Declaration on Environmental Education” (Wickenberg, 2000: p13).

Rio Conference in 1992 and Agenda 21 (III)

The Rio conference has played a very important role in the evolution of EE theories. First the concept of sustainable development², proposed by the Brundtland's report "Our Common Future" in 1987, has been worldly recognized--that environment and development are regarded as two sides of the same coin. The second one is that the empowerment of people is regarded as important for sustainability. Accepted at the Rio Conference in 1992, Agenda 21, “ A global action plan for delivering Sustainable Development”, stated “ Education is critical for promoting Sustainable

² Fundamentally, sustainable development is a notion of discipline. It means humanity must ensure that meeting present needs does not compromise the ability of future generations to meet their needs. - Gro Harlem Brundtland

development and improving the capacity of the people to address Sustainable Development issues (UNCED, 1992: p12). Thus EE has been reoriented to the Education for Sustainability and this concept was further outlined in Chapter 36 of Agenda 21, on Education, Awareness and Training states:

36.3. Education, including formal education, public awareness and training should be recognized as a process by which human beings and societies can reach their fullest potential. Education is critical for achieving environmental and ethical awareness, values and attitudes, skills and behaviour consistent with sustainable development and for effective public participation in decision-making. Both formal and non-formal educations are indispensable to changing people's attitudes so that they have the capacity to assess and address their sustainable development concerns.

Thessaloniki Conference in 1997 (IV)

In December 1997, UNESCO Conference on Environment and Society was held in Thessaloniki, Greece. I mention this conference because there are some interesting perspectives from the Thessaloniki documents. Here, the expression of “ Education for sustainability” was reoriented to “education for Sustainable Future”. According to the document, sustainability is not refined within environment; it also included other expressions such as poverty, population, health, food security, democracy, human rights and peace. In short, sustainability respects the culture diversity and the traditional values and ethics. (The broaden of the content can thank to the document has been circulated among the organizations, such as FAO, IUCN, UN-DESA, UNEP, UNFPA, WHO, WB and so on) (Wickenberg, 2000: p22-23)

World Summit on Sustainable Development in 2002 (V)

After 30 years since the Stockholm conference in 1972, the international community is more concern about how to put EE into action. During the Johannesburg conference in 2002, the volunteer partnership is adopted in the Earth Charter. “The partnership of government, civil society, and business is essential for effective governance.”³ From word to action is the major focus for EE for more than 30 years and Johannesburg Conference highlighted the partnership as an effective means to achieve this goal, with special emphasis on NGOs, community and media’s roles.

Therefore from this part, we can see that the concept and meaning on EE enjoys a dynamic changing both in width and depth— ranging from the nature conservation in 1960s, to environment protection in 70s, to education for sustainable development or sustainability in early 90s and education for a sustainable future in late 90s; from transforming scientific knowledge towards empowering people of all ages to assume responsibility for creating a sustainable future. All these changes have reflected the deep transfers of peoples’ perception on environment issues—that environment problem has explored its social dimension, environmental problems has close interdependence with other social problems, such as poverty, wasteful consumption, urban decay, population growth, gender inequality, health and so on. Therefore environment and development are regarded as two sides of the same coin.

³UN. [On-line]. Available: http://www.earthcharter.org/news/index.cfm?id_activity=458&actual=2002

2.3 Environmental education in practice

2.3.1 Spontaneous practice

Practice on environmental education is nothing new—traditionally it has been part of the informal education from one generation to the next. The relation between the human being and the nature has been very clear in most societies. Land has always been cultivated in various manners and the concept of carrying capacity has been known from a practical point of view around the world. (Lindhe, 1999: p20)

Even the early practice of EE in the formal education can be traced to the 19th century. E.g. the outdoor environment research in England. The students from the geography and forest often spontaneously organize the environmental activities. It is not until 1960s with the worldwide explosion of environmental problems that EE has really entered the empirical stage. (Xu &Zhu, 1993: p213-228)

But in general these spontaneous practices only focused on nature conservation and did not draw too much attention from the public because their influences took place in very small scale within the scientific fields such as Geography and ecology.

2.3.2 UNESCO-UNEP experience (1975—now)

Following the international conferences mentioned above, since 1975 UNESCO together with UNEP has initiated a series of EE programmes in order to promote the implementation of goals and objectives of EE.

a. *UNESCO-UNEP International Environmental Education Programme (IEEP) (1975—1995)*: The creation of the United Nations Environment Programme (UNEP) was initiated at the UN conference on Human Environment in Stockholm, Sweden 1972. UNEP was to supervise and protect the global environment and to spread information. The importance of education was stressed and in 1975 the UNESCO-UNEP International Environmental Education Programme (IEEP) was created, which has laid solid foundation for the worldwide EE practice.(Zhu(a), 2002)

b. *UNESCO-Environment, Population and Development programme (EPD) (1995—2005)*: In order to promote the concept of sustainable development, UN Commission on Sustainable Development (UNCSD) was set up in 1993. With its coordination, UNESCO proposed a programme on Education for Sustainability-- Population and Development programme (EPD) in 1995, which showed that the EE began to integrated with the development education as well as the population education and all together work towards the sustainable development. (Tian, 2001: p16-18)

c. *UNESCO-Decade of Education for Sustainable Development (ESD) (2005-2015)*: During the 2002 Johannesburg conference, UNESCO, in its role as task manager for Chapter 36 of Agenda 21 launched a *Decade of Education for Sustainable Development (2005-2015)*, as well as various partnership projects with other public, private and intergovernmental players, such as “Global Higher Education for Sustainability” and “Teaching and Learning for a Sustainable Future”.⁴ The

⁴ UN. [On-line]. Available: http://www.earthcharter.org/news/index.cfm?id_activity=458&actual=2002

aim now is to localise future Agenda 21 activities and bring in citizens and NGOs in the work on the community level.

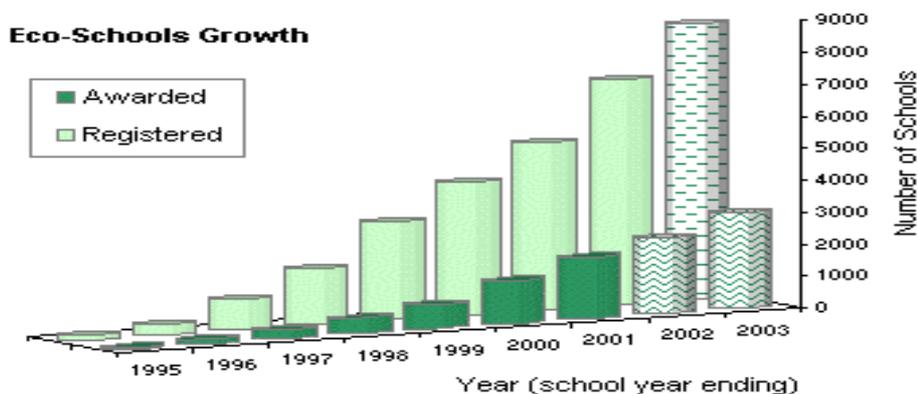
The international community, such as UNESCO and UNEP, has made great efforts in promoting EE/ESD in action all over the world. But in general, the last 25 years since the Tbilisi conference has witness little progress from the international agreements into the practice at the local level—just as the former Director-General of UNESCO, Federico Mayor admitted in 1997 that “so little action has been taken in the field of EE”(Wickenberg, 2000: p22). Some reasons are discussed as following:

- a) From EE to ESD, the concept of EE become more general and complicated, which has not only integrate environment, education, but also other dimensions such as political, economic, cultural factors, whilst in practice, there is a lack of an integrated approach to address all the issues together.
- b) Also there is not one ready-made concerted implementation plan that could apply to all the countries around the world, because each country has different national conditions such as political structure, economic level, cultural traditions, education system and so on. It needs to be developed through all the stakeholders concerned to participate in the decision-making and it must be adapted to the local priorities and conditions.
- c) Education for sustainable development demands effective educational changes and innovation such as relevant curriculum development, professional development and pedagogical principles, whilst the whole process needs to take a long time.

2.3.3 International Eco-school programme in Europe (1994—now)

The Eco-Schools programme was developed in 1994 on the basis of the need for involving young people in finding solutions to environmental and sustainable development challenges at the local level. The programme was initiated by Member organizations of the Foundation for Environmental Education (an non-governmental organization) with the support of the European Commission. Since the programme's development in 1994, there are about 9.000 Eco-Schools in 25 countries in Europe and South Africa in 2003 (see Figure 2-1).⁵

Figure 2-1: The development of Eco-school programme in Europe



⁵ FEE. [On-line]. Available: <http://www.eco-schools.org/aboutus/aboutus.htm>.

I mentioned the Eco-school programme, one reason is because –besides the setbacks in EE/ESD as a whole, the Eco-school programme as a local initiative has made one step forward such as integrating the SD concept into the school management. Also because the Eco-school programme shares many similarities with the GS programme in China (details see 4.2.4), which can provide some valuable experiences for the development of GS programme in China. But because of the space constrains, I will not further explore the comparison study of both the programmes in this paper.

2.4 Summary

Taking a retrospect view of the evolution of environmental education, we can draw the following conclusions:

EE is not a new invention but its concept and meaning has undergone dynamic changes over the last 30 years, compatible with the changes of people's perception of the ever-increasing environmental problems.

With the importance of EE has been stressed first at the Stockholm conference in 1972 and reaffirmed in all the UN conferences thereafter. The practice of EE at the local level is far from satisfactory, due to lack of an integrated approach, little concern about local priorities and conditions and so on.

Therefore, the implementation of EE should be think globally but act locally, which means at present each individual nation on the one hand should respect the internationally acknowledged EE theory and on the other hand need to explore its own way to carry on EE with the consideration of its own national priorities and conditions.

3. Environmental Education in China

3.1 Introduction

For centuries China stood as a leading civilization, outpacing the rest of the world in the arts and sciences. But in the 19th and early 20th centuries, China was beset by civil unrest, major famines, military defeats, and foreign occupation. It is not until 1949 that the New China regained its sovereignty.⁶ Covering almost 10 million square kilometres, China is the world's largest developing country with a population of 1.3 billion people.

As a developing country, China is embarking on the road of rapidly promoting industrialization and urbanization process, whilst the environmental pollution and ecological degradation are becoming important factors restricting China's economic and social development. In order to achieve the strategic goal of national social, economic and ecological sustainability in China, environmental education is stressed as an important means to enhance the environmental consciousness of the entire nation and further to carry out the strategy of sustainable development (See Figure 3-1). (Zhong, 1993: p95-109)

This chapter hereby is mainly focusing on describing the EE at the national level in China, by tracing how EE/ESD was introduced and developed in the policy documents as well as in practice in China. Also an analysis on some interrelated aspects such as population pressure, social-economic nexus, traditional culture as well as environment destruction are presented in order to set a scene for understanding EE situation in China.

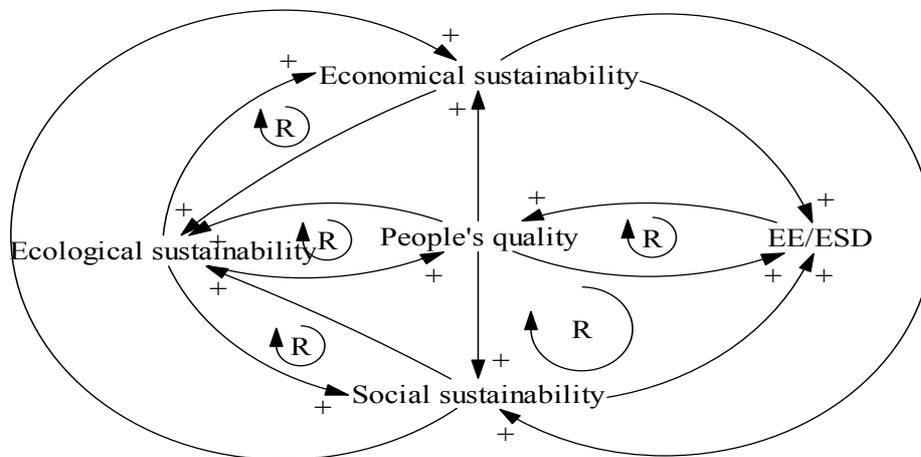


Figure 3-1: CLD on EE/ESD and sustainability

3.2 Matrix for environment education in China

In order to understand the EE situation in China, it is better to locate itself within all the aspects related to EE in China, which I called a Matrix for EE in China. This Matrix includes the vertical aspects including EE at international level (see details in Chapter 2), national level and local level

⁶ CIA. [On-line]. Available: <http://www.cia.gov/cia/publications/factbook/geos/ch.html>

(see details in Chapter 4), and horizontal aspects including population pressure, social-economic nexus, traditional culture, and environment destruction as well as education system. From the structure of the paper (Figure 1-1), the reader can easily get the vertical picture of EE from Chapter 2 to 4. I, therefore, am going to explore the horizontal picture in this chapter (with the detailed information on education system in 3.4.1).

Population pressure

Population seems to be the No. 1 issue should be stressed which has close relationship to the social, economic and ecological development in China. Due to multiple reasons, China witnessed a “baby-boom” from 1950 to 1970s. In the mid-1970s, Chinese government adopted the family planning policy- “One couple, one child”, which later became the fundamental national strategy in 1982. (Shen, 1996: p15)

The changes of the population policies in the past 50 years has mainly resulted into two aspects: one is the total population have increased from 0.4 billion in 1949 to 1.3 billion in 2003 and it is projected to reach its peak with 1.7 billion in 2050 (UNDP, 2002: p41). Another is although the rapid momentum of population growth have been under control, the population pyramid (see Figure 3-2 below) shows that from the year 2000, China has entered an aged society, while the social welfare system in China is still at the initial stage.⁷ What’s more, more than 80% of Chinese population are living in the rural area with relatively low income and social welfare but high illiteracy rate, which also put high pressure on the overall social and economic development.

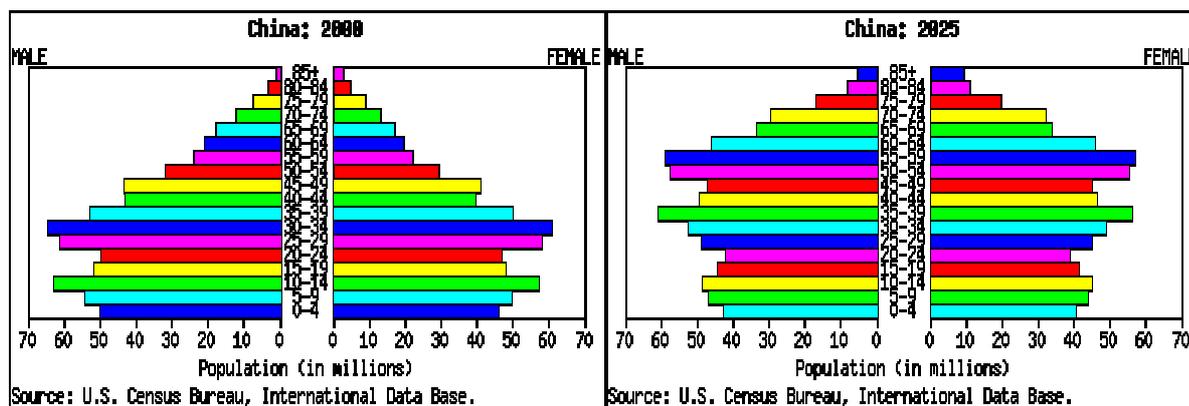


Figure 3-2: Population pyramid summary for China⁸

Note: The resource of this Figure is from the US Census Bureau based on the population estimates of the UN Population Division for the period from 2000 to 2050.

Social and Economic Nexus

In late 1978, China adopted the “Reforms and Opening-up Policy”, which began moving the national economy from a Soviet-style planned economy to a more market-oriented system. In the last five years the average GDP growth rate remains at 7.7% (compared to 3.2% in the world). In 2002, the GDP reached \$1237.2 billion USD, ranking as the sixth-largest economy in the world.

⁷ According to internationally recognized standards, if people aged 60 and above account for 10 per cent of the population of a country or region, that community is considered an ageing society. (Zhan. [On-line]. Available: <http://www.cpirc.org.cn/enews/20020329.htm>) (in Chinese)

⁸ US Census Bureau. [On-line]. Available: <http://www.census.gov/cgi-bin/ipc/idbpypyr.pl?cty=CH&out=s&yymax=200>

Accession to the World Trade Organization helps strengthen China's ability to maintain strong growth rates. But China is still the world largest developing country, based on a relatively low economy base, the per capita GDP is very low (just \$890 USD in 2002), which means China is still ranking as middle- and low-income country by the World Bank.⁹ Also China faces the uneven development among the East, Middle and West China¹⁰ (e.g. East China includes 11 provinces which accounts for 13.48% of the national land and 41.25% of the total population) (Hu, 1989: p2-7; UNDP, 2002: p41-47)

Accompanying the rapid economic development, many social problems emerged or worsened—such as the overwhelming economic disparity among the east, middle and west China, the widening income gap between rich and poor, insufficient food supply, increasing unemployment, incomplete social welfare system, inadequacy of education especially in the rural areas—all these have consequences on the quality of people's life in China. (UNDP, 2002: p47-50; Brown, 1995)

Traditional Culture on “Human-Nature”

As far as 10,000 years ago, the Chinese people began to cultivate the land along the Yellow River and Yangtze River and have summarized the intensive organic farming through their daily experience, which have laid solid foundation for agricultural civilization of China to come into being in 2000BC. This seems to be the same start of the ancient Babylon Civilization, which also generated from two rivers. But the end of the story is quite different. The Babylon Agricultural Civilization collapsed at the early age because of the misuse of the Nature—irrational irrigation and land use. While the Chinese Civilization have survived and continue to be prosperous for thousands of years. What makes the difference? The real secret of the civilization maybe is derived from the unique oriental ethics and philosophies. (Zhang, 1997: p31; Callicott, 1997: p67-75) For thousand of years, the Chinese people have formulated their unique indigenous economic and cultural systems to practice sustainable development under the theme: human and nature are integrated in harmony.

Yin-yang

Yin-yang, the two complementary cosmic forces, shape and balance all cosmic matter, including human existence. In the human–nature relationship, nature is understood as *yin* and therefore the receptive part, while human are *yang* and the active part. Accordingly, any aggressive human action upon nature would violate the principle of balance, and excessive behaviour would be considered unnecessary and potentially damaging. The idea of *yin-yang* balance, therefore, provides a basic principle for treading more gently on the earth. (Pei, 2002: p245-260).

Taoism, Confucianism, and Buddhism

Based on *yin-yang*, Confucianism and Taoism share the same fundamental ideas of a cosmic harmony. Overall speaking, Confucianism enjoys a status of “imperial philosophy”, while Buddhism and Taoism are mainly practiced in China as folk religions. For the influence of these philosophies or religions, Chinese society's relation to nature has been dominated by values rooted in Confucianism and Taoism. Their relation is just like an old Chinese saying portrays-- the typical imperial official will abide by strict Confucian rules during professional service, while devoting

⁹ Wang et al. [On-line]. Available: [http:// www.zgxxb.com.cn/paper/2462/2462-5-01.htm](http://www.zgxxb.com.cn/paper/2462/2462-5-01.htm). (in Chinese)

¹⁰ During the 4th meeting of the People's Congress in 1986, the economic development is divided into three zones, namely East China, Middle China and West China.

private life to Taoist virtues of seeking the heart of natural mysticism through poetry and arts. (UNDP, 2002: p8-10; Callicott, 1994: p67-85)

Although the pursuit of harmony, balance, and order are central to both Confucianism and Taoism, the two philosophies differ when it comes to “how” and “why”. *Taoism is a more nature-centre view, which believes nature as a sacred pattern for society, thus it seeks accommodation with nature and believes and advocates harmony between “heaven and humankind”* (Callicott, 1994: p77-82). While *Confucianism is more human-cantered view, which treats nature as a reflection of the social order*, any human action on nature is thus understood and evaluated in relation to its social implications, and activities with the purpose to improve nature are seen as beneficial also to society. (Pei, 2002: p245-260)

Environment destructions

Despite the strong foundation in Chinese philosophy of nature as something to be treasured and cared for, China has failed to escape environmental problems throughout ancient and modern history. Historically, due to increasing population pressure, the Chinese landscape has been gradually altered over the past thousands of years--extension of agriculture, felling of forests for building material and dredging of channels for transport and etc have entirely changed the landscape of eastern China.

But it is not until the recent decades that the large scale environmental destruction have ever so intensively happened. The rapid urbanization and industrialization are gained at the high expense of serious environment degradations. Due to the extensive mode of economic growth, the intensifying exploitation in natural resources and the comparatively backward technological and management standards, numerous environment issues emerged or worsened-- air pollution (greenhouse gases, sulphur dioxide particulates from coal industry), acid rain; water shortages (particularly in the north); water pollution from untreated wastes; deforestation; desertification and etc.¹¹ What’s more critical, China is the most populous country in the world (20% of the world's total), but the arable land per capita is only one fourth of the world average level. (Zhang, 1997: p112; UNDP, 2002: p17-37) “History has left little manoeuvring room to us and to our posterity; the time we have to make change is short; and the conditions we will have to accept are arduous” (UNDP, 2002: p1)

All these aspects together with the education system constraints (see 3.4) have shaped a horizontal environment for the development of EE in China and their interaction as well as influences can be further discussed in Chapter 4.

3.3 Development of environmental education in China

China’s environment awakening started in 1972 after the Chinese government participated the United Nation Human Environmental Conference in Stockholm in 1972. From then on, a series of environmental policies and measures have been taken place by the Chinese government in order to bring environmental pollution and ecological destruction under control. When tracing the policy documents, the overall development of the EE in China can be divided into two stages by the Stockholm Conference in 1972 and Rio Conference in 1992:

¹¹ CIA. [On-line]. Available: <http://www.cia.gov/cia/publications/factbook/geos/ch.html>

Stage One: 1972--1992

China's environmental awakening came around 1972. When the Chinese government sent its first delegation to the United Nations Conference on the Human Environment in Stockholm, Sweden, that year, China was still a very much self-enclosed society in the middle of the Cultural Revolution turmoil. In 1973, the first National Conference on Environmental Protection was convened in Beijing and in 1974, the State Council of the Group on Environmental Protection was established. These events, followed by a series of legislative efforts in the late 1970s, marked the beginning of the government's efforts to place environment protection on the national agenda. The 1979 promulgation of China's Law on Environmental Protection represented the beginning of environmental legislative efforts that are still ongoing today. Since 1983, environmental protection, along with population control, has been described as a "fundamental national policy" in official documents. As the Environmental Protection Law was formally enacted in China in 1989, the Official Report on the State of the Environment in China published since 1990.¹²(Lin, 2003: p15-16)

Article 5: The State shall encourage the development of education on the science of environmental protection, strengthen the study and development of the science and technology of environmental protection, raise the scientific and technological level of environmental protection and popularise scientific knowledge of environmental protection. (Environmental Protection Law, 1989, China) (IGES, 2001: p29-30)

After participating in the Belgrade EE Workshop in 1975 and Tbilisi conference in 1977, China started to prepare environmental education plan and policy in the country. In 1982, high school's textbook "Geography", which includes contents of environmental education was published in China. In 1991, China established a national committee of leading environmental science institutions of higher education and launched "environmental education" as an optional subject in school education. It was in 1991 that the environmental education was officially positioned into school education, when "environmental education" would be introduced as a selective subject in a secondary school. (SEPA, 1991: p215-235; Palmer, 1998: p179-180) The above-mentioned conferences and documents have played positive role in establish the EE system in China.

From this stage, we can see that EE as a concept has been introduced to China steadily from the international agreements into national policy and documents. The main meaning of EE was focused on environmental protection. But, the terms "environmental education" is not looked at the contents of Environment Protection Law enacted in 1989. (IGES, 2001: p30) Therefore, it is difficult to say that the environmental education has been smoothly constructed as a real system by legislation in China.

Stage two: 1992—now

In 1992, when UNCED was held in Rio de Janeiro, China organized an Environmental Education Policy Meeting and pressed syllabus, compulsory for primary and secondary schools, which emphasizes environmental education in basic education. Since 1993, environmental education training courses targeting schoolmasters and curriculum coordinators in junior high school has been organized. China endorsed National Agenda 21 in 1994 (SC, 1994) and the first volume of a journal titled Environmental Education was issued in 1995. In 1996, *the National Action Program for*

¹² EPI. [On-line]. Available: http://www.wzepb.gov.cn/seagull/book/educate_teacher/ (in Chinese)

Environmental Publicity and Education (1996-2010) was drawn up and announced, in which the Green School programme is initiated (see further in 4.2.1).¹³

In my research, I could not find about the ESD being integrated into the government policy or documents. After consulting with prestige scholars (Professor Zhu Huaixin and Dr. Tian Qing) on EE in China, actually there has been no official document so far on introducing ESD in the policies. But I noticed that this concept suddenly appeared in the articles of the Chinese magazine *Environmental Education* in 2001 and 2002, mainly because EE researchers had read the official documents about ESD in other countries like England. And the training workshops about EE initiated by WWF-China were called ESD since then. Generally speaking, the meaning of EE in China mainly refers to Environmental Protection Education in China.

3.4 Practice of environmental education in basic education system

3.4.1 EE and the basic education system in China

In China, the Ministry of Education assumes the responsibility of educational administration at the national level. MOE prescribes guidelines for the curriculum, the courses, and credit requirements from kindergartens through high schools. Curricular standards for elementary and secondary schools are described in the courses of study produced by Ministry of Education. MOE is also responsible for authorizing textbooks for elementary and secondary schools.

The basic education in China covers the education ranging from kinder gardens, primary school and secondary schools. According to the statistics by MOE, by the end of 1998, there are 181,400 kinder gardens (with 24,030,300 children), 609,600 primary schools (with 139,538,000 students) and 77,800 secondary schools (with 63,010,300 students).¹⁴

The primary school usually refers to preliminary school or primary school. The secondary schools include the junior middle school (also called middle school) and senior middle school (also called high school). In China, the compulsory education covers 9 years spanning from primary school to junior middle school. According to the statistics from UNESCO in 2002, the entrance ratio in China for the primary schools is 98.9%, while for secondary schools, 73.6% and for universities or colleges, 7.5% (compared to the world average level 19%).¹⁵

About the EE situation in the basic education, just as the National Action Programme for Environmental Publicity and Education (1996-2010) has pointed “On the whole, it is not yet in a position to fully meet the requirements of the modernization drive. Specifically, a mechanism of social education has not taken shape, elementary education has not developed in a balanced way, there is a shortage of teachers and teaching materials, specialized education has not been adapted to the needs of a socialism market economy, and on-the-job education has been developing slowly.” (SEPA, MOP&SEC, 1996: p5) But more recently some favourable changes such as the curriculum reform by the MOE from 2001 have provided new momentum for EE in the basic education system.

¹³ Liu. [On-line]. Available: <http://www.pep.com.cn/200212/ca12910.htm> (in Chinese)

¹⁴ MOE. [On-line]. Available: <http://www.moe.edu.cn/base/zonghe/04.htm>. (in Chinese)

¹⁵ Yang. [On-line]. Available: <http://www.hubce.edu.cn/cbb/qwjs/lib/19806.html>. (in Chinese)

On June 18 of 2001, the MOE issued the Guiding Principles on the Curricula Reform of the Basic Education in China (Trial¹⁶), which stipulate that from the second semester of 2001, a new curriculum system would be gradually promoted in all the primary and secondary schools all over the country. The major aim of this education reform is take the students at the centre of the education system, through the adjustment and reform on the function, structure, content, evaluation, management, to improve student's quality in moral standards, social responsibility, innovative and practice ability, learning motivation, environmental awareness and information capability. (Yao, 2002: p18-20) In short, this education reform is to establish a quality education system, which is focusing on developing student's capability towards further challenges.

In the new curriculum standards sponsored by MOE, environmental awareness and sense of sustainable development have been included as priorities of curriculum development. Also the word of "Participation" was been highlighted, which has a little meaning of "empowerment" and also means "Democracy" in some extent. (Wang, 2002: p4-7)

The mainly changes includes gradually changing the traditional education concept and methods: e.g. from exam-oriented towards exam-oriented together with quality education; from Duck-feeding method (indoctrination) to Inquiry method which has promoted the student's activeness and creativity), from the traditional enclosed information system to a more open and dynamic one. (Zhao, 2001: p29)

But does it mean that the new quality-oriented education system will take over the traditional exam-oriented system? The answer so far is not-- it is conceived that for a relatively long period, the education system will witness the coexistence of both the traditional text-oriented system and the quality-oriented system, mainly because the exam-oriented education system is still one of the most effective way of promoting basic education in China, especially under the current population pressure and economic constrains. In fact, this coexistence is rather a plus value than a dilemma—because these two systems can be regarded as complementary with each other.

3.4.2 Current Environmental Education Programmes in China

There are many on-going environmental education programmes within the formal education frameworks in China now, nationally including Hand in Hand Earth Village; Green Hope Initiative; Green Schools; Environment, Population and Development (EPD); Environmental Education Initiative (EPI); Eco-Curricular Activity; The Young Masters Program (YMP); and internationally including GLOBE Project, Roots and Shoots, Environmental play and etc. (IGES, 2001: p125-142)

All these EE programmes are different in many aspects such as objectives, organizers, time span, progress and lessons (the Table 3-1 in Appendix 1 shows some detailed information about the on-going EE programmes in China). But from the table we can identify that except the GS programme, all the other EE programmes are still focusing on environmental protection as the major objectives. This can draw two point of views: one is that the EE in China is still at the initial stage—the concept of EE still at the level of Tbilisi Conference; another view is whether it is more suitable for focusing education on environmental protection for the students in the basic education (ageing 4 to 18) and later on focusing on ESD when they moving to higher education (above 18).

¹⁶ Trial is a Chinese conventional way of testing a new policy.

3.4.3 Environmental education in the non-formal education

The EE in the non-formal education is not the main focus of the paper, but here I want to mention that some NGOs, environment clubs as well as the media have played very important role in enhancing the public's environmental consciousness. For example, the first pure environmental NGO ----"Friends of Nature" is set up in 1994 and "Global village of Beijing" also was found in 1996. The foundation of these two environmental NGOs is regarded as a historic landmark in the history of Chinese environmental movement, because at that time the general public have never know what is NGO, what does the Environmental NGOs do.¹⁷ This influence latter on became the under-stream for the development of EE in China from a bottom-up approach. As I illustrated in Figure 1-1, the school teachers and students are standing at the meeting point of both the top-down stream from the government EE policy /guidance and the bottom-up under-stream from the NGOs as well as the media. But in general, these bottom-up streams are still very little compared with the up-down streams, because most of the NGOs and environment clubs were set up within the last 9 years and their influence is still quiet weak¹⁸. But it is good to see that they are already there and I hope they will play a larger role when the EE comes to the localization stage.

3.5 Summary

1. China's EE awakening started in 1972 after participating the Stockholm Conference. Ever since then, the EE as a concept has been introduced to China steadily from the international agreements into national policy and documents. But so far there has been no official document on introducing ESD in the policies and the meaning of EE is still focused on education for environment protection.
2. In practice, there are many on-going environmental education programmes within the formal education frameworks in China, most of them took place in the recent 5-6 years. The EE at a whole is still at the initial stage. For example, Most of the EE programmes are still focusing on environmental protection as the major objectives. The bottom-up streams from the NGOs and media are still very little compared with the top-down policy streams.
3. Although ESD so far have not been introduced to any government policy and documents yet, more and more domestic scholars and teachers have started to carry on research on ESD. Especially more recently some favourable changes such as the curriculum reform by the MOE from 2001 have provided new momentum for EE in the basic education system. In the new curriculum standards sponsored by MOE, environmental awareness and sense of sustainable development have been included as priorities of curriculum development. Also the word of "Participation" was been highlighted, which has a little meaning of "Empowerment" and also means "Democracy" in some extent.

¹⁷ Zeng [On-line]. Available: <http://english.kfem.or.kr/international/symposium/2001/ChinaZengpaper2nd.doc>. (in Chinese)

¹⁸ Wu. [On-line]. Available: <http://www.china.org.cn/english/2002/Jul/36833.htm>. (in Chinese)

4. A Case Study of the Green-School Programme in China

4.1 Introduction

Following the previous chapters on the development of EE both internationally and nationally, this chapter is centred on EE at the local level by focusing on the GS programme in China.

As mentioned in 3.4, the GS programme is one of the on-going EE programme in China, which is so far the largest EE programme according to the implementation scope in China. Also there are multi-level participants involved in the implementation process—the government including SEPA and MOE, university researchers, the headmasters, teachers, students, parents- which provides a unique opportunity to use a system way to analysis the relationship and influence among various factors. Therefore, I have taken the implementation of the GS programme in China as my case study based on fieldwork with interviews and observations as well as document surveys.

4.2 The Green-school programme in China

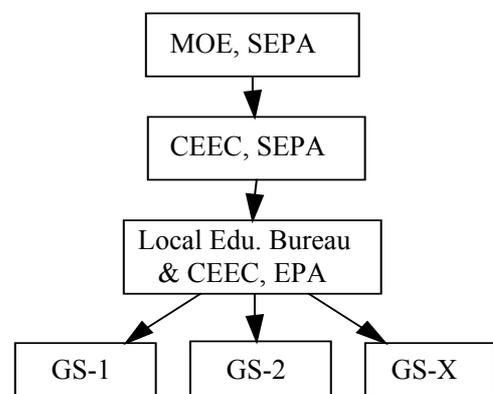
4.2.1 Brief introduction of GS programme

In December 1996, *the National Action Framework for Environmental Publicity and Education (1996-2010)* was jointly issued by the State Environment Protection Agency (SEPA), the Ministry of Publicity (MOP) and the State Education Commission (later the name changed into Ministry of Education (MOE) in 1998). Under the Article 11 of Part two, the Framework proposed that (italics mine):

2.11 By 2000, we should have gradually founded "green schools" across the country. As the main indicators of such schools, their students shall conscientiously learn the contents of *environmental protection* included in the teaching materials of various courses, the teachers and students shall have intense environmental consciousness, they shall take an active part in environmental supervision, publicity and education geared to the needs of society, and their campuses shall be clean and beautiful. (The National Action Programme for Environmental Publicity and Education (1996-2010) by National Environmental Protection Agency, Propaganda Department of the CPC Central Committee, State Education Commission, People's Republic of China) (SEPA, MOP&SEC, 1996: p8)

Framework of the Green School Programme is a network system that has been established from the central government until the local GS (See Figure 4-1). The GS programme was initiated by the MOE and SEPA and administrated by the Centre for Environmental Education and Communication (CEEC) of SEPA (a governmental organization under SEPA). Local GS (including kinder garden, primary school, junior and senior middle schools and professional schools) are responsible for the implementation at the local level, with the supervision by the local GS administration. (CEEC, 2001: p4)

Figure 4-1: Framework of GS



At present, there are three levels of GS—namely national, provincial and city or town level GS—recognized by the state, province and local authorities.(CEEC(A), 2003: p22-23) By the March of 2001, more than 3000 Green Schools were emerged by different levels all over China. According to the latest statistics, the number of Green Schools has increase exponentially to around 13,000 in China by end of 2002. (Jiao, 2001 &2002: p7-9, p11-12)

4.2.2 Meanings and objectives

Meanings of GS

According to the Guide on GS, the definition of GS is based on the school, carrying on education for sustainability by enhancing the school management, improving the education methods, increasing efficiency, so as to achieve the sustainability of the school development as well. (Huang, 2001: p10-12)

Objectives of GS

- The students shall learn the contents of the environmental protection included in the teaching materials of various courses;
- The teachers and students shall have intense environmental awareness;
- The students shall take an active part in environmental supervision, publicity and education geared to the need of the society.
- The campus of the GS should be clean and beautiful. (SEPA, MOP&SEC, 1996: p8)

4.2.3 Evaluation system and standards of GS in China

A. Evaluation system: there are different kinds of evaluation standards according to different level of GS (CEEC(A), 2001: p3)

Macro-principle, quantitative-----core standards-----national level (the highest level)

Micro-principle, quantitative-----provincial standards-----provincial level

Micro-principle, quantitative-----city standards-----city level

B. The core evaluation standards: (CEEC(A), 2003: p20-21)

1. Set up GS committee, which is responsible for making action plans, to safeguard the implementation and evaluate the EE work in different department within one school;
2. Promote effective approach if environmental management, embody the idea of environmental management into daily management by controlling and decreasing pollution, reducing waste, saving energy and recycling resource, practicing personal responsibility for environment in daily life;
3. Provide fund and material, technological support for environmental education activities as possible as it can be based on its capacity;
4. Maintain and classify the archives and documents related to EE well;
5. Integrate environmental education contents into different subjects on national, local and school-based curriculum;

6. Develop some EE topic study and encourage teachers to participate in EE training;
7. Try to create ecological culture, atmosphere within campus, teachers and students could actively take part in activities on environmental protection with higher environmental awareness;
8. Call for environmental friendly life-style; teachers and students can voluntarily practice well for environment in personal life;
9. Plant trees and beautify the campus, provide sound environment for both teachers and students;
10. Encourage students to set up eco-club to participate in school environment management;

4.2.4 Comparison to Eco-School Programme in Europe

It is hard to tell when and where the word GS first came into being in China, but it is said that the original concept of GS could be traced to the Eco-school in Europe (see 2.4.3). A comparison between the two programmes is introduced in order to make a clear understanding of GS in China.

Similarities

- Both of the two programmes share the same focus of localising EE/ESD and are based on four components: green education (teaching and learning), green (school) management, green school environment, green life in the community;
- Both stress on a comprehensive environmentally friendly curriculum;
- Both enjoy relatively beautiful school environment.

Differences

- Eco-schools in Europe was initiated by an NGO of FEE as a bottom-up approach, while in China the GS are proposed by the government-- the SEPA, MOP and MOE – using a top-down approach. NGO's role is not very active.
- Eco-schools focused on the full participation in the school management, including headmaster, teachers, but also workers and students. The terms such as empowerment, equity, respect, and democracy are highlighted in the management. Whilst the decision making of management of GS in China still mainly depend on the headmasters.
- EE priority focuses on the energy and resources in Europe, while environment pollution in China;
- In Europe, Eco-school is an open system – school is no longer considered to isolated from the community and on the contrary both of them should complement with each other and work together to promote the sustainable development of the society. While in China the community participation is still at the initial stage. (Huang, 2001: p10-12; Zhu, 2001: p342-347)

Analysis

(1) From the concept point of view, we can see although ESD was not mentioned in the *Action Plan (1996-2010)*, it was introduced later in the official definition of GS, but there lacks a further clarification about what the concept of ESD stands for (compared with the traditional EE). What's more, through the objectives and evaluation standards, we can find the "environmental protection" has been more intensively used, which imply that the notion of ESD is still at the word level and has not been integrated into the environmental education practice yet.

(2) From the evaluation standards, we can find most of the articles are requirements rather than need. So to what extent, these requirements can encourage teachers and students real participation?

(3) From the comparison, although the two programmes share very similar objectives and programme components, their difference in implementation framework, methods and priorities, which means the localization of EE programme should take into consideration of the local conditions and priorities.

4.3 Field work on the GS in China

In order to have a better understanding of the implementations of the GS programme in China, a fieldwork was carried on from July to September in 2003 in China.

4.3.1 Field work process

First I joined a three-day Seminar named the Symposium on EE and GS programme at Xi'an from August 10-13 with over 70 teachers and headmasters on GS all over China. The main theme is to introduce the EE theory both in China and abroad, exchange successful experiences on the EE in GS and group discussion. I took the opportunity to interview around 10 headmasters and teachers during and after the meeting. As a new-comer into EE, the seminar and interviews quickly broadened my views on EE.

Secondly, I visited several GS—namely Xi'an Senior High School in August 12th, 2003; Baiyunlu Primary School, Liangxiang No. 3 Primary School (a rural school) and No. 15 High School in Beijing in September and interviewed with the headmasters and teachers who in charge of EE as well as few students (only in the Baiyunlu Primary School). The selection behind is mainly because I stayed at Beijing, where there are 9 GS at the national level so I choose two of middle schools and two of primary schools (including one in Rural area) as the case studies (almost half of the total 9 GS). Besides the Xi'an Senior High School, I will together visit 5 GS. But it turned out I only visited 4 GS (I didn't fulfil my original plan to visit No. 13 Middle School in Beijing, because the busy schedule for the headmaster.). Besides the formal interviews, I have also made informal conversations with some teachers and parents, which together with my observations have been reflected in the analysis part later in this chapter.

Thirdly, I got the opportunities to discuss or interview with some GS experts who have participated the whole management process from the beginning—for example Professor Zhu Huaixin from Zhejiang University, Dr. Tian Qing from the Beijing Normal University as well as some programme officers from CEEC, SEPA—all of them have brought me very constructive views about the GS programme in China

The major problem for my fieldwork is the time constrains both for me and for school—all the schools are fully occupied by the class studies, since September was the opening of a new semester; Also some headmasters said they didn't have EE class or activities at that day during my visiting. What's more, I just visit the GS as an individual researcher.

All interviews were not taped, as interviewees might have felt uncomfortable with that. Instead, notes were made during or after all interviews.

4.3.2 Fieldwork interview questions and findings

A series of questions and answers from interviews are summarized as following based on my notes taking during the interviews and visits of the GS programme in China:

Why did your school apply for the GS programme?

The government promotion is the major motivation, because it means that EE will be the national trend in the near future, so the qualified schools want to be the pilot schools in this aspect. Also many schools (especially new-established schools) have linked the GS award as an important factor to increase the school's reputation so as to enhance their competitiveness. What's more interesting, there are certain schools that have started EE spontaneously and have already made certain progress before their applications. Their experience shows that more early started EE, the more active they are during the GS development.

What do you think the "Green" means in the name of Green Schools?

Usually the teachers think the "Green" means environment or environment protection. Also it means the green environment at school. The students are more directly think the green means to plant more trees and grasses. But hardly found in both that they link the name "Green" to sustainable development.

What are the major changes of your school after participating the GS programme? How do you feel about these changes (surprised, happy or so-so)?

The school environment has been improved dramatically in many places—Most schools have allocated certain budget to renovate the old buildings and/or beautify the surrounding environment. Some schools even replace the coal-based boiler into a natural-gas-based one, which has immediately changed the local environment. Some schools contribute to the library, set up recycle trash bin and so on. In a word, the hardware improvement becomes the first impression when enter a GS. Many teachers have also mentioned that kind of environmental friendly culture (E.g. Eco-club) are developed in the GS.

What are the major factors influence the participants' interests for the development of GS?

The teachers' motivations are more influenced by whether the school highlight the EE or not; do the school has special arrangement of EE (e.g. regular meetings); why the school apply for GS; whether there are in-service training of EE; whether there are clear plan from the school to set EE into the curriculum (many teachers complain that they have already been full occupied by the curriculum)? For the students they are more concerned whether they have EE class to learn the concerned knowledge. They are very delighted if the EE can create more opportunity for social activities, such as planting trees, visiting sites (they guess it is a good chance to play outside and free from the indoctrinated class)

What are the major difficulties for GS?

For the teachers or school: the pressure of compete for enrolment ratio to a higher school; the lack of professional EE teachers or high demand of teacher's training on EE; lack of necessary teaching resources or facilities; lack of an integrated approach to put EE into the core subject (from periphery into the centre of the educational process); Also some questions like which teaching methods should be adopt for EE? How to bridge the gap between student's knowledge and behaviour (students can only behave good at schools); how to get the acknowledgement and support from the student's parents (some parents think the social activities are waste of time for students)

For the students: the pressure of enter a higher school (especially for middle and high school students); the timing guidance from the teachers when they facing problems; more out-of-class activities.

4.3.3 Some observations and reflections during the fieldwork

a) GS is not the only award for school; I have noted that every school have enjoyed different kinds of awards at the entrance. At Xi' an senior high school, there are 25 awards under different names by different authorities in recent years, such as "Key Senior high School" and "Civilized School" by the Shanxi provincial education commission, "Garden School" by the municipal government, "Pilot school for Science and Technology" by the district government and so on. Of course it is a pride for the school, I just wonder to what extent that all these targets could be implemented at the same time.

b) Most of the teachers and students are willing to take actions to protect the environment, but they are not clear about what and how to start. This is a strong feeling during the fieldwork.

c) Students can behave better within school than out of school. For example, they will not throw the waste paper in school, but do it when walking on the street after buying snacks from the vendors.

d) Students in the primary school are more active in taking the EE activities than those in middle or high schools—mainly because they are at the compulsory education level and need not to worry about the examination pressure. Also the EE activities are very suitable to satisfying children's curiosity.

e) I was really very impressed when I enter the fifth floor of the main building of the Baiyunlu Primary school in Beijing—the whole 1000-meter floor are decorated into an environmental education centre—with paintings in all the walls and ceilings to demonstrate different kinds of the natural environment over the history and around the world. For example water is explained by the topic of natural water cycle, fresh water, acid rain, water reuse and purification, water soil erosion and so on. For practice activities, they showed how to use the waste to produce handicraft articles; use waste newspaper to make pencils; reuse waste paper to produce cards. I have joined one class for paper reusing to make cards and found students are so delight to participate and they spontaneously write down the words like "protect the nature", "save water" "love the world" on their cards without any instruction from the teacher.

4.4 Some achievements and problems on the implementation of GS programme

Based on my fieldwork with interviews and observations as well as many document surveys, a brief overview of some achievements and problems of the implementation on the GS programme will be carried on and followed by some related analysis.

4.4.1 Achievements

A. Certain concept breakthrough

GS programme is the first programme, which try to establish the ESD as the guiding principal and integrated four components (including green education, green management, green environment, green life in the community) in the GS programme. Especially the school management component offers the opportunity for the teachers and students could participate in the school's decision-making process. (Huang, 2001: p10-12; Zhu (b), 2002: p7-10)

B. Rapid growth

The GS has enjoyed a very high growth rate over the past four years. According to statistics, the total number of GS has increased from 3207 in the year of 2000 to 130,000 in the year 2003. (Comparing totally 7,000 GS developed in Europe by the FEE during the period 1994 to end of 2002) What's more, the GS scope has been extended to a broad range from kinder garden, primary school, middle and high schools and professional schools. (Jiao, 2001&2002: p7-9, p11-12)

C. Information dissemination

A *Guide Book on Green School* was edited and published by the CEEC, SEPA in 2001, which has provided not only some basic information about the GS programme, but also established standardized criteria for the implementation of the GS programme. A website on GS ([Http://www.greenschools.com.cn](http://www.greenschools.com.cn)) as well as a newsletter named *Newsletter on Green Schools in China* (twice a year) have been initiated ever since the end of 2001. What's more, several seminars and trainings have been organized for school headmasters, teachers as well as project officers, which substantially increased their theoretical knowledge as well as empirical capabilities in their EE work. (CEEC(A), 2001:5-6)

D. Detailed data on implementation (Jiao, 2001&2002: p7-9, p11-12)

According to the two survey of national GS performance by CEEC, SEPA in 2000 and 2002.

- a) 100% integrating EE contents into subject class-teaching and learning;
- b) 90% create their own ecological culture atmosphere, such as library with environment books, videos and classroom for EE (while 70% in 2000);
- c) 93% set up school EE committee (while 80% in 2000) and 63% have regular meeting concerning GS;
- d) 89% ensure the financial support to organize activities related to environmental education
- e) 92% try their best to plant trees and grass in order to beautify the campus;
- f) Nearly 73% take environment friendly actions, such as using natural gas in boiler instead of coal, purifying polluted water, resources and energy saving, waste classification (while 50% in 2000);

Analysis on the achievements

Compared with the developed countries, even many neighbouring developing countries, EE in China showed a very late start but with a very rapid development. The major reason are derived from the following aspects:

(1) Government promotion has played a very important role. In China, government —mainly refers to MOE, SEPA in this paper—take the lead in prompting the EE, mainly because the government is regarded as the first awakening group on environment problems. Comparing with the Eco-school programme in Europe, China use the administrative power to carry on the GS all over the country in order to integrate environmental education into basic education stages. Therefore, with the government support, the GS programme once initiated could easily reach a national wide scale.

(2) The education reform has provided a timing opportunity for the promoting of EE in the basic education system. The rapid growth of GS after 2001 was just coincident with the new round of curriculum reform.

(3) Media in China has played an important role in increasing public awareness of the environment problems especially in the last decade. Therefore, even before the GS programme, the teachers and students have already got some information on environment problems as well as sustainable development mainly from TV, internet and newspapers, so that they are somehow ready to take some actions to improve the surrounding environment and even the global environment a large.

4.4.2 Problems

Besides the achievements many problems also emerged during the implementation process:

A. Certain concept confusions

In practice, the meaning of GS is not crystal clear to many schools. What's more, what the SD means in GS? How to implement it? What ESD means? Also many educators did not know how to embrace to terms such as 'participation', 'empowerment' and 'sustainable living' in their work. Instead they continue to practice natural science under this new theme (ESD). (CEEC(A), 2001: p7)

B. Uneven development

The quality of GS differs from province to province (The quality of GS in East China is better than in the Middle and West China, in the city better than in rural area); Also the total number as well as growth rates are different among provinces--Usually the economically developed area are better and more active than the less developed ones. (West China lags behind East China and Middle China) (See Appendix 2:Table 4-1 and Appendix 3: Figure 4-2) (CEEC(A), 2001: p7; Jiao, 2001&2002: p7-9, p11-12)

C. Periphery status in basic education

Although the government have paid more importance in EE, in the teaching and learning process, the EE is located as periphery instead of core courses, especially with the increase of grades. The

major reason is that EE is not an independent subject and is mainly integrated into other subjects like Geography, Biology and Chemistry, which are usually considered to be periphery subjects (not compulsory subjects for the entrance examination to universities); Also the main focus on EE at schools is still focusing on the knowledge study on natural science and environmental pollutions. The after-class practice (which is the important outreach of the in-class knowledge.) is repeating planting trees, collecting public waste and so on from entering into the school until the graduation. So with the increase of student's age, the interests of the majority students on environment are decreasing. (Lin, 2001: p12-15; Yin, 2002: p23-25)

D. Lack of effective monitoring system

Although the GS has required the assessment from the concerned authority every two years (newsletter, 2001: p4), who will be the monitor to supervise the continuous improvement of the GS as well as the government? In the western countries, it is usually the NGO and communities that will function as the monitors, where public actions often precede those of the government and enterprises. But, in China NGO forces have relatively very weak influence.

E. Lack of updated information

Database on GS is not fully developed. My experience shows that it is not so convenient to get the first hand data during the research and the info on the website is not updated quickly. Also some teachers said that there is a lack of information exchange among schools, since the newsletter so far only been issued once.

F. Other items during the implementation (Jiao, 2001&2002: p7-9, p11-12)

- a) 40% having experiences to exchange with schools outside local place (while 12% in 2000);
- b) 17% clearly put forward environmental management as an integrated component in school EE (while 10% in 2000);
- c) Only 25% students have invite their parents to take part in school environment activities (while 1% in 2000);
- d) Only 40% schools can provide the opportunity to send the teachers out to have EE training;

Analysis on the problems

(1) Traditional education system hinders the development of GS. Because this education system is focusing on exams, scores and high competition for enter higher schools and pay little attention to improve student's capability on creativity. What's more, these system emphasizes on knowledge study while students are keeping away from the social practice. Thus in China, schools at all level are regarded as "Irony Towers", which means they are isolated from the outside world.

(2) By a top-down approach, Government do not take full consideration of the local needs and conditions. E.g. quota distributions of national GS from each province, which directly lead to all the state-level GS, are not be regarded as same quality even they are under the same evaluation criteria.

(3) Also the GS development level echoes the uneven development of the overall education level across China, which are mainly influenced by the uneven economic development among the three economic zones in China.

4.5 Identifying the influencing factors in GS programme

From above analysis, we can see there are multi-layer factors influencing different aspects of the development of GS programme. Hereby I try to clarify some important factors that influence the quantity as well as the quality of EE at GS schools:

First, the whole picture of the GS programme can be seen as an extension of the EE Matrix (see 3.2), which means the influencing factors can be divided into two dimensions-- vertical and horizontal level. For the vertical level mainly refers to the GS programme is the integrated part of EE process as well as the basic education system at large, which can be further related to the social and economic aspects of the country; For the horizontal level, the programme includes both EE theory and practice. And the practice can be further developed into project organization/management, project implementation as well as project monitoring.

Secondly, I intend to group the detailed factors into different layers or aspects in order to provide a panorama of the GS programme.

For the GS level

A. EE theoretical framework in GS: importance of EE/ESD theory, development of the meaning of the concepts of EE/ESD (especially in the context of GS), teaching methods on EE/ESD

B. EE practice in GS:

Project organization/management (mainly Government): government policy on GS, MOE and SEPA documents on GS, university and research institute participation in the management process

Project implementation (schools), school management, teaching and learning process, school environment, community activities; also there are some factors influence the motivation of headmaster, teachers and students:

For headmaster: the MOE/SEPA requirement on EE or GS; the priority consideration about the enrolment ratio or the student's capability; competition among schools at the same level; finance of the school, personal version about the EE; media influence; student parent's requirement

For teachers: MOE curriculum, enrolment ratio pressure, access for adequate professional training on EE theory, method and practice; EE materials and facilities; headmaster's requirement; self-interests (mainly take place in the biology and geography teachers), media

For the students: pressure to enter higher education, teacher's requirement, interests on environment problems; the access to the social activities, parent's opinion, and media

For the EE or education system level

Population for the school-aged children; the financial budget for education; what and how of EE theory and practice; pyramid structure of the education system in China; the exam-oriented

education system focusing on the enrolment ratio, new education curriculum reform focusing on the student's capability and etc.

For the social-economic level

A. Economic factors: GDP, per capita GDP, industrialization, production and consumption, state overall development strategy

B. Social factors: social welfare, health care, population growth, one-child policy, people's living standard, diploma-based employment system, parents' higher expectation for the children

C. Environment factors: natural resources scarcity, environment degradation, international environment problems such as Climate Change; local environment problem such as pollution

Finally, all these factors reinforce with each other thus shaped the problems and achievement of the GS programme. In 5.1, there will be a graph (see Appendix 4: Figure 5-1) to utilizing some of the factors to illustrate the challenges and opportunities of GS programme in China.

4.6 Summary

1. According to *the National Action Framework for Environmental Publicity and Education (1996-2010)*, the Green-school programme in China was initiated by the State Environment Protection Agency, the Ministry of Publicity and the State Education Commission in 1996. The aim of GS is based on the school, carrying on education for sustainability by enhancing the school management, improving the education methods, increasing efficiency; so as to achieve the sustainability of the school development as well.

2. In order to have a better understanding of the implementations of the GS programme in China, a fieldwork was carried on from July to September in 2003 in China. During the Field work, I mainly participate the Symposium on EE and GS programme at Xi'an from August and visited 4 state-level GS, namely Xi'an Senior High School in Xi'an in August, 2003 as well as Baiyunlu Primary School, Liangxiang No. 3 Primary School and No. 15 High School in Beijing in September; What's more important, I have interviewed as many headmasters and teachers, GS experts, students as I can in order to achieve the first-hand data.

3. Based on my fieldwork with interviews and observations as well as many document surveys, a brief overview of some achievements and problems of the implementation on the GS programme has been summarized and analysed. Also some detailed factors of the GS programme have been identified in order to provide a foundation for the further analysis in the next chapter.

5. Conclusions and Discussions

In the previous chapters, we have traced the trends of both the theoretical concepts as well as the practice on environmental education from the 1972 Stockholm conference until 2002 World Summit; from EE in 1977 to ESD in 1997; also from the international level -through the national level-to the local level (the GS programme). All these are essential for fulfilling the main aim of this thesis paper-- to identify what are the major challenges and opportunities on the implementation of GS programme in China and how to improve it in the future.

5.1 Major challenges and opportunities on the GS programme

5.1.1 Major challenges

A. Traditional education system keeps the EE at the periphery of the formal school education

a) The major challenge for GS programme comes from the traditional education system- the pyramid-like structure determines only a small fraction of students can enter the higher education. Thus major focus for the schoolteachers and students as well as the parents is how to pass the entrance examination to from primary school to secondary school, from high school to the university. This high competition is usually at the expense of the student's creativity and interests. (Zhu, 1995: p106-107) The rooted causes are the pressure of large population and limited education recourses.

b) As a result, the traditional education system is based on the examination-oriented evaluation principle- the only judgment of students are their scores during exams, which have become the priority focus from the headmaster of the school to all the teachers and students, and even the parents. In order to make high scores, usually the schools are divided into key school and ordinary school, and the subjects are separated as core subjects (Chinese, Mathematics, English)(which are compulsory subjects during the national entrance examination to colleges) and periphery subjects (Geography, Biology). (Lin, 2003: p15-16; Yin, 2002: 23-25) Since EE in the basic education does not have an independent subject, it is usually required to be integrated into Geography or Biology in most cases. Thus the EE automatically enjoys the periphery status as Biology and Geography.

c) Also the teaching method dominated by the teachers in the traditional education system is not suitable for the EE, which is more demanding on critical thinking and problem-solving and student-centred methods. (Lin, 2001: p12-15)

B. GS programme in general is still at the initial stage, thus more work need to be done to promote it from surface level into taking roots

a) Although the GS has enjoyed rapid growth rate in the past three years, the overall level of GS is still at the initial stage—except the school environment, other important components such as students and teacher's involvement in the decision-making of school management, voluntary participation in community activities are still at the surface stage, which more action need to be done. (Zhang, 2002: p20-22)

b) Government role is a double-edged sword. On the one hand, taking into consideration of the national condition in China, only the government has the power to start a national campaign to promote the EE all over China during short period (SEPA &MOE, 2001 & 2003). On the other hand, this top-down approach seldom takes into consideration of the initiative at the local level, especially the motivation and involvement of the students and teachers as well as community people, which is the supporting structure at the local level. So that even when the government supports later decrease in the GS programme, this programme can still survive and continuously progress.

c) In order to make the GS programme to take roots, the active involvement of the teachers and students are very important. As shown in the Figure 1-1, the GS is at the meeting point of the both the top-down policy streams and the bottom up stream by the media and environment NGOs. At present, the up-down approach is at the main stream, while the influence of the bottom-up approach is quiet weak.

C. Theory research on ESD needs to be enhanced

a) Education for sustainable development is an emerging but dynamic concept that encompasses a new vision of education that seeks to empower people of all ages to assume responsibility for creating a sustainable future (UNESCO(a), 2002: p 7). Thus it took 10 years from the first notion of SD in 1987 to be integrated into EE (later reoriented to ESD) in 1997 by the international community (Tian, 2001: p16-18). All these means that the research on the ESD should be carried on in a continuous way and the localization of the ESD concept need to take time.

b) About the term ESD, by reviewing the government documents as well as consulting the EE experts in China, I found that so far ESD has not been adopted into any government documents. It is until the year 2001 that this term becomes popular in the academic circle. Although in the guideline book on GS (SEPA, 2003: p5) pointed that using SD as the guiding principle, there lacks a clear definition of SD in the GS content.

c) The relationship between EE and ESD also need to be clarified. In China, thanks for many years pioneering work, EE has draw wide attention both from the government and the public. The term for EE equals to education for (or on) environmental protection in majority people's mind. For the people who have not studied the evolution of EE theories, it is hard to connect EE with ESD, which the latter sounds a brand new concept but has few connections with environment. So how to translate ESD into a properate term is highly demanded, which requires both representing the SD tendency as well as the theory development continuity. Some examples could be environmental education for SD, education for environment and development; education for environment protection and SD.

5.1.2 Major opportunities

A. The new round of education reform -- the curriculum reform (details see 3.3.1) can go with the EE hand in hand

- a) Basic education provides the foundation for all future education and is a contribution to sustainable development in its own right (UNESCO(a), 2002: p 13). There is a need to refocus many existing education policies, programmes and practices so that they build the concepts, skills, motivation and commitment needed for sustainable development. (UNESCO(a), 2002: p18) The new round of curriculum reform in China just provided this kind of refocusing opportunity.
- b) On the one hand, the curriculum reform has provided a unique opportunity for EE. In the new curriculum reform, the EE have been clarified according to the teaching and learning contents as well as recommended teaching methods. What's more, the new curriculum is characterized with comprehensive integration with various subjects (Compared to the separated individual subjects before), which is just coinciding with the multi-disciplinary requirements stressed by the EE. For example, in primary school—a natural science curriculum will include nature and geography; in junior school—the physics, chemistry and biology are integrated into one course called natural science, while history, Geography are called social science (Wang, 2002: p4-7; Zhang, 2002: p17-18)
- c) On the other hand, the EE, in return, also provides a breakthrough for carrying on the Education Reforms in primary and middle schools. Since this new round of education reform is aimed at establishing a quality education system (with the students at the centre), which is focusing on developing student's capability towards further challenges (Yao, 2002: p18-20). While the EE has already promoted on taking the student as the subject instead of an indoctrinated object. (Zhao, 2001: p29) Therefore, the GS—as an important component of the basic education system as well as the pilot place for EE-- can provide a pioneering role in both promoting the EE as well as the quality education.

B. International cooperation has very large potential

- a) EE (including GS) is still at initial stage in China, which has facing numerous problems during the implementation process, such as how to integrate SD into school management; how to involve teachers and student's participation in the decision-making; how to promote the school's influence on environment and SD into the community at large. While many other countries, especially some developed countries have a longer history of EE development and accumulated very valuable experiences on both theory and practice. International cooperation will set up a bridge to facilitate the information exchange among countries. For example, Eco-school in Europe has many similarities with the GS in China. Therefore, it would be very helpful if both of the programmes can establish mutual cooperation relations.
- b) The previous and on-going international programmes (details see 3.3.2) such as the EEI (by MOE, WWF and BP), EPD (MOE and UNESCO) and Youth Master Programme (by CEEC, IIIIEE of Lund University) has made positive contribution to the rapid dissemination of the EE theories as well as practices. This is also been examined by the GS I have visited in summer, three of the four GS have participated in either EEI or EPD programmes before, which have laid solid foundation for their smooth implementation of GS programme.

c) International cooperation can implement various forms, including international conferences, seminars, exchange visits, trainings, long-distance teaching through Internet and so on. It seems the Internet long-distance training will have a promising future due to its broader coverage of training targets as well as direct and first-hand information exchange. For example, the UNESCO's Initiative on a Multimedia Teacher Education Programme¹⁹. But language barrier seems to be the major obstacle for the international training activities.(from YMPiC evaluation report in CEEC(a), (2003))

d) Hosting the 2008 Olympics in Beijing and accession to the World Trade Organisation (WTO) are certain to provide the world's most populous country with extraordinary opportunity for international attention and scrutiny.

C. Revitalization of the traditional Chinese culture can play a shot-cut to carry on research on EE theory and practice

a) Thanks to the profound Chinese culture, Chinese people have developed an agriculture civilization lasting for thousands of years, which could be regarded as a successful story of sustainable development in the past (see Zhu Tan's book on *Theories and Practice on Environmental Ethics*). Unfortunately, the valuable indigenous philosophy and knowledge have been undermined during the last century due to by the experience of semi-colonization in 1890a as well as rapid industrialization in 1950s. It is not until the Rio conference, when the term on SD has become world wide acknowledged and accepted that China also adopted it into the state development strategy, but how to translate it into local dimensions as well as how to implement it remains a big challenge for the country concerned.

b) When looking at the traditional Chinese philosophy (see 3.2.1.3), one cannot doubt how coincident the SD is reflected in the remote indigenous culture such as holistic view of the nature, thus maybe could be used as a shortcut to localize the meaning of SD and also find the cutting point for implementing. (Zhu(b), 2002:p7-10; Pei, 2002: p245-260)

c) But we should also notice that the traditional culture cannot be just" take and use"—when introducing into EE, many aspects of the traditional philosophy need to be renovated to match the new circumstances, especially certain suspicious part also need to be identified and revised.

The Figure 5-1 (See Appendix 4: Figure 5-1) is a CLD shows the relationship of some the influencing factors(mentioned in 4.5) in shaping the major challenges and opportunities of the GS programme in China.

¹⁹ UNESCO(b). [On-line]. Available: <http://www.unesco.org/education/tlsf/>.

5.2 Suggestions

The above analysis demonstrated that the implementation of GS programme is still at an initial stage, which can be seen as a green seed has been planted in the Chinese basic education system. In this part, suggestions are being proposed in order to enhance the programme growing up into a green tree. Hereby I use a question-answer method to illustrate some suggestions.

5.2.1 Where to go?

Just as UNESCO Director-General Koïchiro Matsuura stressed during the Johannesburg in 2002, “Sustainable development needs informed, organized citizens capable of making the right choices to deal with the complex situations increasingly confronting societies today”²⁰. The overall goal for education for sustainable development is to empower people of all ages to assume responsibility for creating a sustainable future (UNESCO(a), 2002: p5)

The goal of GS programme: guided by the ESD and based on the school education, the learners should have knowledge, values and skills to be active, democratic and responsible citizen and to participate in decisions at the individual as well as different levels within the society, and to contribute to creating a sustainable society. (Zhang, 2002: p20-22; Huang, 2001: p10-12)

5.2.2 Who do what?

I try to put a proposal on a framework of the GS programme to illustrate the overall design for the implementation for the GS programme. Assumption for this design is based on the academic Marxism, the Unity of “theory to practice” as guide to action, means that practice is guided by the theory and theory is constantly replenished by experiences. (Theory \leftrightarrow Practice)

The implementation framework (see Appendix 3: Figure 5-2) looks like a green tree, which is rooted in the local conditions of China, supported by the EE/ESD theory and prospered with the GS practice. What’s more, the growing of the tree depends on the interrelationship between the GS theory and practice.

For the theory, the university as well as research institute will be more responsible for the clarification of the concept and method studies of the education for sustainable development (ESD); organizing training workshops for headmasters and teachers and other interested group (e.g. NGO).

For the practice, it should be an integration of three correlated components:

- 1) For the GS programme management, the government (especially MOE and SEPA) at different levels should review national education policies and reorient basic educational systems, and provide guiding documents on GS, promote investments in education; (Wei, 2002: p29-30)

²⁰ UNESCO(c). [On-line]. Available: http://portal.unesco.org/en/_php@URL_ID=5473_URL_DO=DO_TOPIC&URL_SECTION=201.html.

- 2) For the GS implementing, the GS including the headmaster, teachers and students should increase environmental awareness through curricular and non-curricular activities, and encourage students and teachers to take appropriate decisions on environmental management, actively participate community activities;
- 3) For the programme monitoring, the public including NGO, media and community members should take an active role to supervising the government as well as GS's work, enhancing the sustainability capacity of schools and community by adopting environmental-friendly management system;

For the relationship between theory and practice, all the stakeholders mentioned above can contribute to this process: for example, the research institute can identify and share innovative practices and generalize them to enrich the EE theories, while the teacher of GS can be very decisive by integrating the EE theory into the class teaching.

5.2.3 How to do?

- 1) Partnership: as initiated in the Earth Charter, based on reciprocity, partnership is key to the success of an innovative educational program. Just as the Johannesburg Conference has stressed that the challenge of Education for sustainable development is a difficult and complex one, requiring new partnerships - among governments, academic and scientific communities, teachers, students, NGOs, local communities and the media. All are essential to the birth of a culture of sustainability.
- 2) International cooperation: just as mentioned in the opportunities for GS (4.4.2.2), international cooperation would play a even larger role, e.g. participating UNESCO's initiatives on "Teaching and learning for a sustainable future: a multimedia teacher education programme"²¹ and cooperating with eco-schools in Europe.
- 3) "Common but differentiated priority": We should carry out characterised environmental education in the light of (a) the different needs of secondary schools and primary schools; (b) different developing level in the East, Middle and West China; c) different environmental priorities—in order to make environmental education more flexible to student's as well as teachers' needs.

5.2.4 When to achieve?

As for GS programme in China, it is still at the initial development stage. But with the deepening of the education reform as well as the rapid growth of social and economic development, the GS is expecting to continue its momentum in order to fulfil the goal for education for sustainability. Therefore, I prospect three stages—namely light-green, medium green and deep green—for the future development of GS programme.

²¹ UNESCO. [On-line]. Available: <http://www.unesco.org/education/tlsf/>.

I also choose certain influencing factors as indicators to illustrate the difference among three stages of the GS development (see Table 5-1). The major reason for focusing on these factors are because they are all from the major challenges for the GS programmes. Therefore, that to how much extent the challenges could be handled will determine how far the GS programme could go.

Table 5-1: Proposed development stages on the implementation of GS programme

GS programme	Light-green	Medium-green	Deep-green
Guiding and monitoring of the GS programme	Government organization together with research institutes in charge of both guiding and monitoring	Government organization, together with research institutes, NGOs and media	Government organization Together with research institutes in charge of guiding, while NGOs and media responsible for monitoring
Decision-making in the GS management	Little and passive involvement of students and teachers	School headmasters together with students and teachers	Active involvement by students and teachers
GS influence on community	Little influence	Growing influence	Voluntary action / Large influence

Note: Here only if the GS enjoys all the characteristics of light-green can this school is listed in light-green stage and same for deep-green school. If the GS shares the cross-boundary characteristics of both light-green and medium-green, or even deep-green, then this school is regarded as the medium-green.

5.2.5 Why not?

Why is quiet clear—it has already been addressed all throughout the numerous international EE conferences—the rooted cause is since the increasing environmental degradation due to the rapid development of human society; EE is aim at enhancing the awareness and ability to understand and solve the environmental problems. (Wickenberg, 2000: p13);

So why not put the words into action now? What is hindering?

These are the suggestions I proposed based on the previous analysis and I do hope it would be useful for the implementation of GS programme in the next stage.

5.3 Conclusions and future research questions

5.3.1 Conclusions

1. EE is not a new invention but its concept and meaning has undergone dynamic changes over the last 30 years, compatible with the changes of people’s perception of the ever-increasing environmental problems. The localization of the EE/ESD depends on an integrated approach, concern about local priorities and conditions and so on.

2. China’s EE awakening started in 1972 after participating the Stockholm Conference. Ever since then, the EE as a concept has been introduced to China steadily from the international agreements into national policy and documents. But so far there has been no official document on introducing ESD in the policies and the meaning of EE is still focused on education for environment protection.

3. The implementation of the GS programme in China is at the initial stage—facing multiple challenges (such as the EE at the periphery of the formal school education; lack of theory research on ESD) as well as opportunities (such as new education reform; international cooperation; traditional Chinese culture). As shown in the Figure 1-1, the GS is at the meeting point of the both the top-down policy streams and the bottom up stream by the media and environment NGOs. At present, the up-down approach is at the main stream, while the influence of the bottom-up approach is quiet weak. But overall, the GS programme can be regarded as a green seed has been planted in the Chinese education system and next step is how to grow it into a green big tree.

5.3.2 Future research questions

From this thesis paper, I have in general terms illustrated the challenges and opportunities of the implementation of the GS programme in China as well as suggestions on how to improve it in the future. Due to limited time I have spent in the fieldwork, there is still a lot of room for further research. Areas for future research include:

1. For the case study, further surveys and interviews on teachers, students as well as parents views towards GS and EE at large can be conducted with SEPA and MOE in order to triangulate or cross-check the findings in this thesis.
2. Comparative study between the GS programme in China and other EE/ESD programme at the basic education level in other countries or areas, such as the Eco-school programme in Europe.
3. It is important to catch up with the current international trend in the field of EE research, such as the future research topics on students' perception of the nature and their influence on the adults (Rickinson, 2001: p207-310; Walker & Loughland, 2003: p227-240); conflicts between EE and ESD; the philosophy of education (Bowers, 2002: p 21-34; Bonnett, 2002: p 9-20); reviewing research in EE (Hart, 2003: p241-256).
4. It is also interesting for me to study on how to revitalizing the traditional culture into the EE/ESD practice in the GS programme in the future.
5. What's more, further research can be developed based on the Sociology of Law, therefore it is needed and important to study the ongoing and continuous building-up of local supporting structures in and around the GS programme in China.

In summary, the implementation of EE should be think globally but act locally, which means at present each individual nation on the one hand should respect the internationally acknowledged EE theory and on the other hand need to explore its own way to carry on EE with the consideration of its own national priorities and conditions. What's more, the implementation of GS programme is a process, rather than a result, which means that the sustainable development of GS programme need to be continuously localized and improved until it finally takes root and influences the sustainable development in the local society. Therefore, how to take the global thinking into local action really takes time and needs a long way to go.

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Abbreviations

BP	British Petroleum
CEEC, SEPA	Centre for Environmental Education and Communication, SEPA
CLD	Causal Loop Diagram
EE	environmental education
ESD	education for sustainable development/ sustainability
IGES	Institute for Global Environmental Strategies
IUCN	International Union for the Conservation of Natural Resources
GDP	Gross Domestic Product
MOE	Ministry of Education (China)
NGO	non-governmental organization
SD	sustainable development
SEPA	State Environmental Protection Agency (China)
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	Education, Science and Culture Organization of United Nations
WWF	World Wildlife Foundation

Appendix 1:

Table 3-1 Overviews of Some Current Environmental Education Programmes in China

Project Title	Start time	Organizer	Major objectives	Progress and achievements	Issues and Problems
Hand in Hand Earth Village	1996	Chinese Aid Committee for the Culturally Disadvantaged, National Working Commission for Children, SEPA and the Chinese Teenager's Journal	-To improve children's environmental awareness by a variety of curricular and extra-curricular activities. -To make children to collect and classify recyclable materials in their collection facilities.	By the end of 2001, more than 1,000 pilot schools had been established, 220 of which are located in Beijing. By selling recyclable materials, little villagers saved more than 1,000,000 Yuan RMB and built 5 "Hand in Hand Environmental Protection Primary Schools".	Financial assistance is urgently needed for the continuity of the project. Teachers training on EE are highly demanded. The result shows that the project is better in primary schools than in high schools. The main reason being that primary school
Green Hope Initiative Project	2000	China Youth Development Foundation (CYDF) the Friends of Nature (FON)	-To spread knowledge and experiences on environmental protection and sustainable development in Hope Schools. -To provide opportunities for FON members to learn about EE in rural areas.	FON developed a series of teaching plans on environmental education for the students in rural area and recruited 9 teaching groups In 2001, the teaching groups visited 20 Hope Schools of 7 provinces	Due to diverse backgrounds, volunteers couldn't understand the requirement of the Project fully. The teaching members only stayed in Hope school for a short period and could not really grasp constraints of the EE activities.
Green School Project	2000	State Environmental Protection Administration (SEPA), Ministry of Education (MOE)	-To assist schools to be green and promote environmental actions. -To integrate the principle of sustainable development into their school policy, curricula, day-to-day management, and extracurricular activities.	The total number of GS has increased from 3207 in the year of 2000 to 130,000 from 30 provinces all over China by the end of 2002. And the scope extended from the kinder gardens to the senior middle schools.	Confusion about the concept GS. Lack of facilities to control pollution, save water and energy. Lack of students, teachers and parents' Participation and supervision of the decision-making process. Teachers training and information exchange are highly needed.
Environmental Educators' Initiative	1997	MOE, World Wide Fund for Nature (WWF) and British Petroleum (BP)	-To improve EE capacity of Chinese formal education system. -To help schools develop and use EE resources; -To promote understanding of the cross-curriculum features on EE.	From 1997 to 1999, 3 EE training centres were established, about 500 teachers received EE training; In 2001, eight other universities joined the Project and about 3000 facilitators are expected to receive EE trainings.	Lack of communication and collaboration among different centres; Need of a follow-up training for master teachers Lack of advanced research: Publicity of the Project:
Eco-Curricular Activity	2000	Qiliyan Primary School (Case study)	-To introduce 3-R concepts of to students. -To develop students' skills on communicating, team working and reporting. -To encourage students to think and act environmentally.	Supported by teachers and based on interviews with 221 recyclable-material collectors, the students produced the report on status and measures for solid waste collection and classification. When published by Zhengzhou Daily, the report has drawn the public attention and the local government decided to implement some of the measures suggested in the report.	Students have facing some difficult during interviews. Sometimes the collectors refused to be interviewed.

Appendix 2

Table 4-1: Statistics on GS development in the East, Middle and West China *

	Province	National GS Award in 2001	National GS Award in 2003	Total number of National GS	Total number of GS at all levels	Total number of schools (GS and non-GS)	Total number of students at school	Per capita GDP (thousand yuan)
<i>East China</i>	Liaoning	3	11	14	205	22028	6,280,546	12.00
	Beijing	4	5	9	200	4470	1,602,091	20.58
	Tianjin	5	6	11	270	4083	1,454,110	18.33
	Hebei	4	10	14	215	37934	13,237,315	8.33
	Shandong	4	5	9	152	42801	15,389,375	10.44
	Jiangsu	4	15	19	811	28262	12,323,134	12.93
	Shanghai	3	6	9	273	2764	1,777,816	30.67
	Zhejiang	4	12	16	629	25419	7,244,060	14.63
	Fujian	4	4	8	116	23050	6,663,222	12.37
	Guangdong	7	16	23	2628	37475	16,635,993	13.68
	Guangxi	3	6	9	86	21582	8,934,219	4.66
	Hainan	3	1	4	0	4568	1,586,842	6.86
<i>Middle China</i>	Heilongjiang	4	13	17	1572	17499	5,477,915	9.34
	Jilin	2	7	9	567	12918	3,994,558	7.55
	Inner Mogolia	3	2	5	530	12174	3,618,231	6.50
	Shanxi	3	10	13	256	43399	6,425,131	5.44
	Henan	4	5	9	671	47966	18,781,584	5.90
	Anhui	4	4	8	257	29106	11,560,734	5.20
	Jiangxi	3	5	8	267	24103	7,276,184	5.20
	Hubei	3	3	6	573	26750	10,685,311	7.80
	Hunan	3	3	6	668	35368	10,869,007	6.04
<i>West China</i>	Shannxi	3	2	5	248	34258	7,696,032	5.04
	Chongqing	5	5	10	244	18409	4,917,458	5.65
	Guizhou	3	2	5	123	18567	7,241,450	2.86
	Ningxia	3	3	6	48	3583	1,072,656	5.30
	Gansu	2	2	4	14	21448	5,051,342	4.17
	Sichuang	3	5	8	314	44476	13,890,020	5.12
	Yunnan	2	6	8	1162	25207	7,236,613	4.84
	Qinghai	2	1	3	5	3828	813,756	5.75
	Xinjiang	3	3	6	79	8901	3,889,122	7.92
	Tibet	2	1	3	0	1015	387,522	5.27
	Total	105	179	284	13,183	683,411	224,013,349	Average 9.21

* the resources are from the SEPA & MOE in 2001&2003; Statistics Bureau in 2002; Zheng in 2002.

Appendix 3

Figure 4-2: GS development in the East, Middle and West China

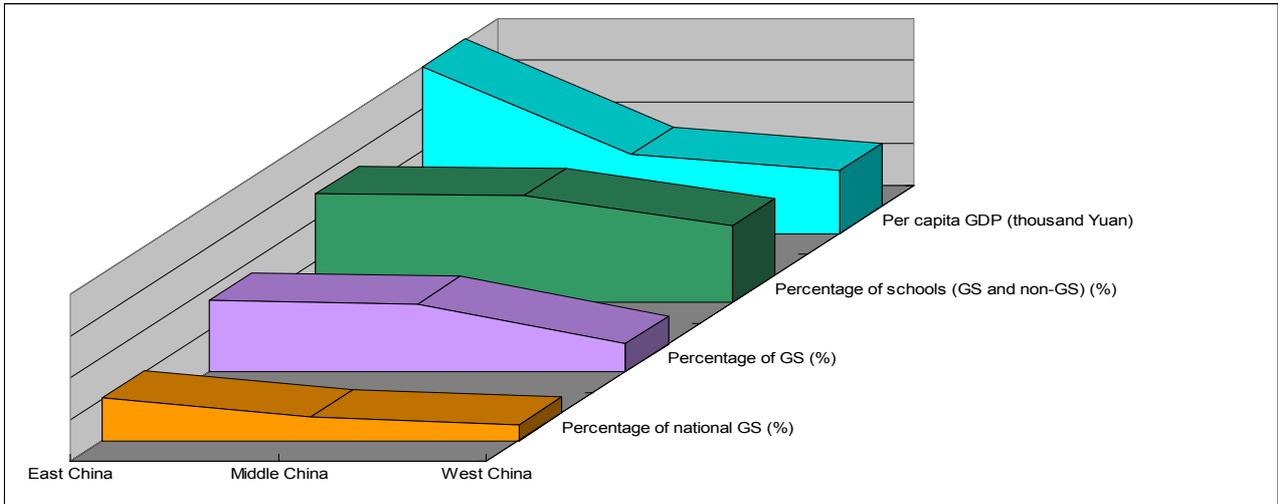


Figure 5-2: Suggestions on the framework of the GS programme

