

# 1. Introduction to China's environmental education project<sup>1</sup>

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## INTRODUCTION

China's monumental environmental crises are no longer news, as for two decades they have stimulated headlines in the world press, scores of scientific studies and reports, attention of global governmental and non-governmental organizations (NGOs), and delicate diplomatic negotiations with global powers. Much less reported on are the attempts within the Chinese state system to learn from the mistakes of the past and to socialize the current and future generation of Chinese into environmental awareness, knowledge, and appropriate behavior towards the environment.

The objective of this chapter is to introduce the environmental education project in China. We begin by briefly describing the framework of environmental education as developed in European and North American states since the 1960s. We then present the serious environmental challenges that make the project of environmental education so critical to China. We ask the extent to which environmental education is incorporated into the formal K-12 plus university education system and the role of regime socialization. The chapter concludes with an introduction to the nine chapters forming the core of the volume.

## 1. ENVIRONMENTAL EDUCATION AS A FIELD OF STUDY

Although the term 'environmental education' (EE) had been used in the United Kingdom in the mid-1960s, the first definition of the concept was the product of the 'International Working Meeting on Environmental Education in the School Curriculum' held in Nevada, USA in 1970. The co-sponsors of the event were UNESCO and the International Union for the Conservation of Nature (IUCN). The definition, still in use in 2014 (but amended as education for sustainable development (ESD) and

climate change education (CCE) were added in the evolution of the field), was adopted by the meeting participants:

Environmental education is the process of recognizing values and clarifying concepts in 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 behavior about issues concerning environmental quality.<sup>2</sup>

A US national response to this working meeting was the National Environmental Education Act of 1970, which led to the creation of an Office of Environmental Education in the US Department of Health, Education and Welfare, and the funding of a small grant program. This Act was funded only from 1971 to 1975. Although it was not reauthorized in 1981, it was a stimulus for state and local government environmental education programs and those of private sector organizations, including development of curricula, teacher guides, textual materials and plans.

In the 1970s, a number of conferences were held on environmental education, which raised the profile of this new subject. The United Nations Conference on the Human Environment (called the Stockholm conference) held in 1972 led to the establishment of the United Nations Environment Program (UNEP); it also endorsed the need for environmental education, and the new UNEP in association with UNESCO founded an international environmental education program in 1975.<sup>3</sup> Of greater significance was UNESCO's call for the first inter-governmental conference on environmental education, held in Tbilisi, Georgia, USSR, in 1977. The Tbilisi recommendations noted that environmental education was a lifelong process, inter-disciplinary, holistic, focused on inter-relationships and interconnectedness between human and natural systems, and directed toward construction of an environmental ethic.<sup>4</sup>

The Tbilisi goals of environmental education reflected what has become the mainstream orientation toward the objectives of environmental education:

1. to foster clear awareness of, and concern about, economic, social, political and ecological interdependence in urban and rural areas;
2. to provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment; and
3. to create new patterns of behavior of individuals, groups and society as a whole, towards the environment.<sup>5</sup>

Later international conferences both consolidated and enlarged the mission of environmental education. The publication of the Brundtland Report, *Our Common Future*, in 1987 made the sustainable development concept a key point in environmental education. The 1992 UN Conference on Environment and Development at Rio set out *Agenda 21*, a global program outlining what nations should do to attain sustainable development. At each of these conferences and the 2002 Johannesburg summit, environmental education was emphasized.

The focus of these early activities was on formal education, and liberal, post-industrial societies were quick to embed environmental education in national curricula. One of the leaders in this respect was the United Kingdom. By the late 1980s, environmental education had become an officially recognized cross-curricular theme of the National Curriculum for Schools in England.<sup>6</sup> Curricular goals (found in the nation's model curriculum) emphasized scientific knowledge of environmental issues as well as appropriate values and attitudes and also skills.

In the United States, renewed concerns for environmental quality led to legislation requiring the US Environmental Protection Agency (EPA) to begin implementation of a new National Environmental Education Act in 1990. EPA established an Office of Environmental Education, and it is the federal focus for furtherance of environmental education, primarily through granting funds to state and local activities advancing environmental education. Perhaps of greater importance in the evolution of environmental education in the US was formation in 1971 of the National Association for Environmental Education, representing academics and practitioners from the entire North American continent, and it has consistently sought development of rigorous professional standards for the field.<sup>7</sup>

Thus, well before the close of the twentieth century, based on a series of international meetings and the efforts of NGOs (IUCN, WWF), the UN and its educational organ UNESCO, and educators, the concept and practice of environmental education had moved into the mainstream. Indeed, Palmer notes that environmental education is 'perhaps unique in the history of world education in terms of its speed of progress as a term.'<sup>8</sup> As we note below, the process of developing programs of environmental education in China was slower, and to date, informal, non-governmental forces have been more important than the formal school system.

A number of environmental educators now prefer to use ESD and CCE instead of EE, for several reasons. The first reason is the association of EE with the study of nature and the natural sciences. A second reason is that the ESD focuses more directly on the social construction of nature

and the environment. As Huckle notes, it ‘unites the natural and social sciences and environment and development education in a new philosophical framework underpinned by critical theory and pedagogy and linked to community and citizenship education.’<sup>9</sup>

A third reason is that both ESD and CCE address major contemporary concepts and problems of environmental studies, which figure in all divisions of human knowledge. They reflect a near consensus of scientists and social scientists on the most critical issues of the twenty-first century. Finally, ESD and CCE involve a certain type of democratic values and process of critical thought,<sup>10</sup> and they implicate both broad participation and discourse with ethical and political ramifications.

## 2. CHINA’S ENVIRONMENTAL CHALLENGES

Many observers believe China’s environment is in crisis.<sup>11</sup> Population increases reduce arable land and water sufficiency; indirectly, population stress increases deforestation and desertification as well as overfishing. New environmental stress such as climate warming has an impact on plant diseases, pests and invasive species too. We treat just five large environmental challenges: land degradation and pollution, air pollution, degradation of China’s waters, ocean pollution and biodiversity loss.

### 2.1 Land Challenges

1. *Land degradation*: by degradation of the land, we mean reducing or eliminating its ability to generate plant life and sustain humans and animals. The immediate causes of such despoliation are erosion, changes to the nutrient balance of soils, and pollution of the land with toxic substances. Several reports point to the serious nature of these changes. The Ministry of Water Resources stated that 37 percent of China’s total territory suffered from land degradation. This despoliation included soil erosion, deforestation, salinity, reduced fertility and sand storms.<sup>12</sup>
2. *Erosion*: the erosion of soils is a general problem of ecological destruction in China. The density of organic substances in the soil declined from 12 percent in the 1940s to less than 2 percent; about 85 percent of the soils lacked sufficient nutrients. Causes of soil erosion included excessive farming, overuse of fertilizers and excessive logging. Soil erosion, in turn, has brought about more frequent drought, floods and sandstorms.

3. *Deforestation*: population growth and the timber industry are the major factors causing a substantial reduction in forests. About half of China's forests have been destroyed since 1949. Today, forests cover 14 percent of the land area but few virgin forests remain. Government policies of afforestation, reforestation, and converting cropland to grassland and forests have ameliorated some of the deleterious effects of deforestation, but because they replace natural forests, they have 'altered the variety, quality, and the pattern of delivery of plant and wildlife habitats that had been provided previously.'<sup>13</sup>
4. *Desertification*: sand and desert cover about 27 percent of China's land area. The expanse of deserts has increased dramatically in the contemporary period. Desertification has dried up rivers and lakes (leading to salinization of the soil, which then cannot be used for growing crops), shriveled plants and vegetative cover, and led to dropping levels of ground water, posing a direct threat to more than 100 million people. Desertification in parts of China is attributable to deforestation as well as to poor protection and overutilization of water resources.<sup>14</sup>
5. *Land pollution*: three types of pollution afflict agricultural lands in China: industrial plant waste, mining operations, and use of chemical fertilizers and pesticides. Chemical and other industrial facilities pollute land with toxic contaminants, diminishing or exterminating plant growth. In addition, mercury in the air enters the soil and poses threats to human health. Pollution caused by rural industries is far more severe than that caused by urban industries. Second, China has a large number of small-scale mining operations, particularly coal mines, for China is reliant on coal for nearly 70 percent of its energy needs. Mine waste dumps including sulfides as well as other toxic chemicals have had adverse impacts on the soil microbial communities in adjacent areas.<sup>15</sup> A third cause of land pollution is from excessive use of chemical fertilizers and pesticides by farmers, which degrades soils.

## 2.2 Air Pollution

One third of China's land mass is affected by acid rain; in some regions of the nation, all rain is acidic. China is the world's largest sulfur dioxide polluter,<sup>16</sup> with coking plants and coal-burning power stations responsible for the emissions.

Air pollution is a major cause of lung cancer, as harmful particulates enter the lungs and cannot be discharged. The World Bank reports that deaths resulting from water-related pollutants and bad air reach 750 000 a year.<sup>17</sup>

### **2.3 Water Pollution**

There are problems of water sufficiency in China, particularly as water is unevenly distributed across land; but the major problem is water pollution. Some 16 of the world's 20 most polluted rivers are in China. There are three major sources of water pollution: industrial contaminants spewed into rivers and lakes; chemical pesticide and insecticide run-off from crop fields; and human waste and garbage disposed into waterways.<sup>18</sup>

In recent years, many lakes in China have experienced major algae outbreaks. Natural lakes are estimated to be disappearing at the rate of 20 a year because of eutrophication. Finally, pollution has increasingly affected groundwater supplies. One recent report found that 90 percent of the groundwater of China's cities is polluted to some extent, which poses large problems because nearly three-quarters of the population of China relies on groundwater for drinking.<sup>19</sup> Also, in recent years reports on 'cancer villages', where residents describe high rates of deaths from cancer, have increased.

Government officials, particularly in the Ministry of Environmental Protection and the Ministry of Water Resources, as well as provincial and local environmental protection bureaux, have addressed these problems by tightening regulations and increasing inspections.<sup>20</sup> Yet the problems persist and have not lessened in frequency and severity.

### **2.4 Ocean Pollution**

China's coastline extends 18 400 kilometers and abuts four seas; it generates over 10 percent of GDP, yet increased degradation threatens development of a regional economy. Threats to China's oceans include overfishing, destructive fishing methods, pollution and the reclamation of coastal lands.

Overfishing in marine fisheries has resulted in a serious decline in catch rates in recent years. Use of dynamite and poison fishing has damaged coral reefs and mangrove forests, and this increases the risk of typhoon damage to China's coasts. Pollution from industries, agriculture, domestic sewage, oil and gas explorations and fish farming all have degraded the ocean environment, as has extensive run-off of silt from

rivers and seabed dredging. As one NGO representative remarked: 'All the coastal cities of China dump their wastes in the sea.'<sup>21</sup> Finally, red tides are increasing in frequency and range.

## 2.5 Biodiversity Loss

Pressures of increased population and economic development activities, combined with the severe environmental challenges discussed above, have led to a greater threat to biodiversity in China than elsewhere. Compared to the global rate in species loss of 10 percent, the estimate for China is larger, about 15–20 percent.<sup>22</sup>

The *China Species Red List* indicates that 40 percent of mammals, 7 percent of birds, 28 percent of reptiles, 40 percent of amphibians and 3 percent of fish are at risk, and a greater percentage of endemic than non-endemic species appear in the threatened column.<sup>23</sup> A recent Chinese Academy of Sciences report notes:

As a developing agricultural country with a huge population, China depends more on biodiversity than others do. However, China's biodiversity is most severely threatened because of enormous pressures of population and rapid growth of the economy, which exerts heavy impacts on biological resources. It is estimated that 40 percent of ecosystems in terms of area are degraded severely, 15–20 percent of species being highly threatened, and genetic diversity suffers greatly from heavy erosion.<sup>24</sup>

The issue of loss of biological diversity – in species and their habitats – is thus of great importance too.

Altogether these five environmental challenges make a compelling case for the national project on environmental education we address in this volume.

## 3. FORMAL ENVIRONMENTAL EDUCATION IN CHINA'S K-12 SCHOOL AND UNIVERSITY SYSTEM

In China, it was high officials and organizations that responded to environmental challenges with a national project on environmental education. Premier Zhou Enlai crystallized action at the central government level. In 1973, after the UN Stockholm Human Environment Conference, Zhou established a government committee to treat environmental issues in China. Although Zhou died in 1976, the committee he established was the basis of the State Environmental Protection Agency commencing

activity at the end of the 1970s and in the early 1980s. By 1983 the government had issued the National Policy of Environmental Protection.

Although government-organized NGOs (called GONGOS) were established in the 1980s in areas such as species preservation, the first domestic NGO, Friends of Nature (FON) was established by Liang Congjie only in 1995. It developed a system of communication among its increasing membership base, and worked with the media to bring information to the grassroots. This was the background to the development of EE in the schools.

Formal environmental education began at the college/university level and then worked its way into the K-12 school system. From 1973 to 1978, four universities began to institute courses in environmental studies, including Beijing University, Beijing Engineering University, Zhongshan University and Tongji University. By 1995, 79 higher education institutions had become involved in 15 different programs for undergraduate students; some 107 centers offered masters' and 38 institutes offered doctoral programs in environmental fields. The focus of these programs was fields of science, engineering, agriculture, medicine and education. It was not until the late 1980s, however, that higher education institutions spread concern for development of environmental awareness to the social sciences, humanities and applied fields.<sup>25</sup>

The first conference on environmental education for K-12 schools was not held until 1979, and it was sponsored by the Chinese Association of Environmental Science. It recommended environmental education programs at both primary and secondary levels. Some trial programs were run, and a 1985 meeting sponsored by the State Environmental Protection Agency and State Education Commission recommended sharing experiences of the trial projects nationwide. In 1991, the State Education Commission determined that environmental education would become an elective course, and that extra-curricular activities would be sponsored for students in secondary schools; two years later, the commission required that contents of environmental education be added to teaching materials in compulsory education (then grades K-9).

A national working group on environmental education met in Su Zhou in 1992, which represents an important juncture in treatment of the subject. The definition of the time reflects the constrained approach to environmental education: 'Environmental science cognition permeating into art, arithmetic, language and games in kindergarten; and into biology, geography, chemistry and physiological hygiene of primary and secondary curricula.'<sup>26</sup> This meeting established four directions for environmental education:

1) Strengthening of the public's environmental consciousness and awareness via social education, 2) Provision of technical and managerial expertise for environmental protection via professional education, 3) Upgrading the quality of environmental protection workers through the training of cadres, and 4) Fostering environmental consciousness within children and adolescents by implementing environmental education in kindergarten, primary and secondary schools.<sup>27</sup>

It was not long after this national working group formed that Beijing Normal University established China's first Environmental Education Center (in 1997). This center was funded by the World Wide Fund for Nature. Its mandate was to conduct research and assist in teacher education, but to the present no required courses have been required for teachers of environmental education subjects.

For the next decade, environmental education at the compulsory education stage meant that different subjects, such as mathematics, social studies and science were infused with environmental content. Nature study (*ziran*) was the core subject at the elementary school level, with a concentration on basic knowledge of plants and animals, food chains, air/water/soil, and biology, physics and chemistry. At the secondary level, the education program was more systematic and comprehensive in that it explicitly sought to imbue students with an environmental awareness, and engaged them in investigating environmental problems.<sup>28</sup>

It was not until the twenty-first century, in 2001, that the Chinese state established a model for environmental education, influenced by the United Kingdom, Australia, New Zealand, the United States, Japan and Taiwan, among other countries. This entailed the development of guidance documents and guidelines by the Ministry of Education for the content and activities of environmental education from grades 1 to 12. These guidelines were activated in 2003, and represent, in the view of Chinese environmental educators, a unified curriculum.<sup>29</sup> The national curriculum allows space for elements provided by provincial and local education bureaux. Within the curriculum, there are a variety of lesson plan emphases including points on programs to preserve and protect the environment. Such points are connected with extra-curricular activities, for example moral education projects appropriate for Young Pioneers.<sup>30</sup>

Formalized education for teachers began in 1997–98 and progressed erratically. After establishment of the BNU center, some 20 other universities developed EE centers. While environmental education courses are popular in continuing education and science departments, to the present most teachers are educated through relevant departments.

In general, as compared to the economically developed countries, China is at the developmental stage of its formal environmental education effort, and government agencies play a critical role, as we see below.

#### 4. REGIME SOCIALIZATION IN ENVIRONMENTAL EDUCATION

Education in the K-12 and university system in China is a core function of the state; little private school education is available. NGOs in China operate with the permission of the state, as do the media. The GONGOS are direct creatures of the state, and the largest environmental newspapers and news magazines are affiliated with state ministries. Television in China is a public monopoly. In addition to these state efforts, China also influences environmental education informally through Centers for Environmental Education and Communication (CEEC) within the national Ministry of Environmental Protection (and provincial and local environmental protection bureaux). The ministry established the CEEC in 1996, with three departments: publicity, education, and audio-visual publications. Under the publicity department is lodged the China Environment and Sustainable Development Reference and Research Center.<sup>31</sup>

In the period 1997–2001, CEEC engaged in these activities:

- national school students' environmental protection competition;
- Green Ribbon of the Earth – the GLOBE project in China;
- making media greener;
- outdoor advertisements on environmental protection;
- Mobil-China Environmental Education Fund, devoted to promoting environmental protection in China;
- the Business Environment Learning Leadership program, training qualified senior managers for sustainable development;
- green offices – a recycling plan for government offices;
- national in-service training for administrators of environmental protection bureaux;
- the Green Schools program;
- the tripartite (China–Japan–Korea) Environmental Education Network (TEEN);
- documentary for internal reference, 'Environmental protection: An arduous and long-term task';
- documentary for internal reference: 'Warnings of ecological problems in China';
- television lectures for remote environmental training;

- training for national auditors of the IEO 114000 environmental management system.<sup>32</sup>

CEEC officers take headcounts of participation in these activities. Notably, by mid-2009, some 30 000 elementary and secondary schools had attained the designation 'Green School'. However, substantive evaluation of the programs and activities has not yet been done.

## 5. SCOPE OF THE VOLUME

The argument of this volume unfolds in nine substantive chapters. Chapter 2, 'Confucianism as an environmental ethic', treats the framework questions of environmental ethics – for example, who populates the moral universe? Then it presents the way Western environmental philosophers categorize relationships between humans and the environment. Second, the chapter introduces selected Confucians and what they have to say about human relationships to non-human animals, ecosystems, the earth as a system, and the cosmos. Third, we consider the role that ecology has played in Chinese philosophy. In the fourth and final section we ask how relevant Confucianism is to policy-making on environmental issues.

Chapters 3 to 5 introduce the formal system of environmental education in China. Chapter 3 focuses on the evolution of primary and middle school environmental education, looking most intensely at the mandatory (first to ninth grade) system. Considered here are the development of national curriculum standards issued by the Ministry of Education, the issues of sustainable development developed as part of the United Nation's *Agenda 21* and placement of topics into different subjects of the curriculum. Survey research results based on responses of teachers, principals and local education administrators inform us of the features and problems of EE, education for sustainable development (ESD) and climate change education (CCE). The chapter includes reports of best practices identified by teachers, and it concludes with results of environmental education projects supported by partners (for example, business firms), including some of the problems encountered in the partnerships.

In Chapter 4 we discuss 'The environment in post-secondary education and the "green university" in China'. The chapter begins by unraveling the meaning of the green university concept: its core ideas, curriculum and its relevance to campus construction and culture. Two cases of green universities, Qinghua and Beijing, are presented together with the implications for them of green education, technology, planning, and use of

energy. A conceptual model for green university development is introduced as well. This chapter concludes with analysis of challenges and opportunities for green university education and with recommendations on ways in which ESD at the college/university level can be strengthened.

Chapter 5 examines the ways in which China's teachers are exposed to and trained in EE, ESD and CCE. The chapter begins with an analysis of the different levels of teacher education in China and then discusses in-service training and problems related to its finance. The chapter highlights the first and most comprehensive Environmental Education Center (EEC), established at Beijing Normal University in 1997, and chronicles its activities from 1997 to the present (2014). The chapter also discusses the 20 other environmental education centers throughout China. Next, we consider both formal and informal means of pre-service training of teachers, with a special focus first on Environmental Educators' Initiatives (EEI), the voluntary Green Schools Project, and UNESCO EPD and ESD projects. The chapter concludes with a description of in-service training through graduate coursework programs.

Chapters 6 and 7 examine non-formal means of EE, ESD and CCE. In Chapter 6 we focus on 'The media and environmental education' beginning with discussion of the impact that state-ownership and then commercialization and privatization have had on media influences. The longest section explores the traditional print media, starting with government newspapers and news magazines on the environment, and in addition treating quasi-official media and even 'advocacy journalism'. Then the chapter turns to electronic media, reviewing environmental films and concludes with discussion of the Internet and social media.

Chapter 7 explores non-state actors, both environmental non-governmental organizations (NGOs) and business corporations. It begins with an exploration of the concept of 'civil society' in China, and then presents information on a series of environmental NGOs. It separates international NGOs such as WWF, Greenpeace, the Jane Goodall Institute, IFAW and WCS from domestic groups, such as Friends of Nature (China's first domestic NGO) and Global Village of Beijing. The chapter introduces examples of student groups found on college and university campuses and in grassroots organizations. Next we treat the relatively recent concept of corporate social responsibility (CSR) and how it has become manifest (in the view of sympathetic observers) in business-state and business-NGO relationships, its influence on business schools and applications such as international certification and new ventures. The chapter concludes with a half dozen examples of ways in which business corporations have assisted efforts in EE and ESD.

Chapter 8 takes a different tack from the foregoing chapter in that it asks whether EE, CCE and ESD have been uniformly adopted in China or whether the strong forces of decentralization, accompanied by the large variations of regions and peoples across the country, have had an impact on implementation. The chapter begins by exploring sources of variation in policy implementation, and considers differences of educational opportunity. It discusses rural vs. urban differences in teaching staff, finance of basic education, facilities, students and other factors, and then introduces examples from provinces near and mid-distance from Beijing. The longest case study in the chapter is a survey of environmental education awareness, knowledge, attitudes and behavior in Lanzhou city of Gansu province.

Chapter 9 continues this critical analysis by 'measuring changes in environmental consciousness, knowledge and behavior'. The overriding question in this chapter is whether there is a valid metric for the measurement of the efficacy of EE, ESD and CCE efforts. First, can China's examinations and particularly the *zhongkao* and *gaokao*, be used to assess whether environmental education programming has been effective? Second, the chapter reviews observations of more than two dozen specialists and experts on EE in China, and considers what they say regarding environmental awareness of secondary school students, the proficiency of teachers, and the pivotal role played by geography in secondary school EE. Finally, the chapter presents results of a number of surveys that extend beyond students to the general public. The record of surveys begins in 2000, and they represent studies done in single provinces, regions and China nationally.

The final chapter substantively, Chapter 10, extends discussion from China to its neighbors in Taiwan and Hong Kong (often called 'greater China'). Most materials and observations in the chapter are drawn from Taiwan, with a smaller number from Hong Kong. The initial focus is on differences in K-12 environmental education in the different areas and training of teachers. Then, the chapter turns to environmental NGOs and their characteristics (such as their degree in specialization and professionalization and orientation toward grassroots activities). The final section looks at the role that participation, protest and resistance play in Taiwan's EE and ESD programs in contrast to China's less permissive milieu.

The volume concludes in Chapter 11 with a summary of the argument. We draw observations on what appear to be the characteristics of the 'Chinese style' of environmental education, and we submit modest recommendations on ways in which EE, ESD and CCE might be improved.

## 6. CONCLUSIONS

China has made considerable progress in environmental education in the last two decades, yet it still lags several decades behind post-industrial nations. The trajectory of change in China is also different from that in the West. Obviously, external agencies of change, such as international government organizations and NGOs, have played a more important role in the diffusion of the concepts of environmental education than they have in economically developed nation-states. The media are increasingly important change agents, but as noted they do not have the access to environmental events and crises that media do in countries with autonomous civil societies: highly controversial environmental events may not enter the information stream at all.

The formal process of environmental education in China is still at an evolutionary stage. For this reason, perhaps, controversies about schooling in environmental knowledge and behavior have yet to appear. In economically developed states, environmental education has been relentlessly criticized on two grounds: lack of scientific content and accuracy in the formal curriculum and advocacy of behavioral changes thought to be objectionable ideologically.<sup>33</sup> The advantage of late-developing states is that, based on criticism of programs in pioneering states they can internalize these critiques in their development processes. We return to this theme in the concluding chapter of the volume. Now we turn to China's traditional thought system and the inspiration it provides for environmental education.

## NOTES

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7. See John F. Disinger, 'The United States of America', in Palmer, 1998, 225–7.
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9. John Huckle, 'Locating environmental education between modern capitalism and postmodern socialism: A reply to Lucie Sauve', *Canadian Journal of Environmental Education*, 4, 1999, 38.
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