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The Final Report of Advanced Environmental Education Project

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FAIRYLAKE BONTANICAL GARDEN

Introduction of the Advanced Environmental Education Project

This report is a summary of the Advance Environmental Education (EE) Training Course. In these three months of training in UK, we visited different EE organizations, including botanic gardens, museums, national parks, universities, nature reserves and non-government organizations. We interviewed professors in environmental education related subjects, local educators, project managers, policy makers etc. From this project, we received a basic understanding of EE in UK and learnt some of the methodology to start EE projects. The understanding of the current situation of EE in UK also leads to some discussions about the reason behind the phenomena and some future developments for EE in China for the projects localization in the last part of this report. We hope this report could be treated as a reference to understand what happen for the EE in the UK nowadays and provide advices for the further development of EE in China.

Acknowledgement

I would wish to express my great appreciation to Shenzhen Fairylake Botanical Garden and China Union of Botanic Garden (CUBG) to provide me such excellent opportunity to this advanced training project. Thanks for the suggestions and guidance from Dr. Chen Jin, the Head Director of Xishuangbanna Tropical Botanic Garden and Dr. Zhang Shouzhou, the Vice Director of Shenzhen Fairylake Botanical Garden. It is also grateful to my project director, Dr. Shaun Russel, for his hard work and the arrangement of the whole project. I also would like to propose sincere thanks to Yang Xi and Jane Smith, for their help in the preparation of the whole project schedule. Thanks will also be sent to my leader and colleges, Wang Qing, Wang Tao, Duan Xuejiao, for their support of my work. There are equally sincere thanks to my project colleges Chen Lin, Liang Shuangzhi and Hu Sifan, for their smart suggestions and brilliant discussions we made during the training. Final thanks are to the supports from to my parents, friends and all the organizations we've visited and the interviewees for their generous sharing of ideas and experience of the environmental education in the UK.

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1.A Brief history of EE

Environmental Education (EE) is an integrated course about teaching the whole society how to live within the surrounding environment and how to use the resource from the environment. The origin of the environmental education was tracking back to the philosophy of Jean-Jacques Rousseau. In His book Emile, or on Education, demonstrating the early foundation of the Environmental Education by emphasizing the importance of nature education as Louis Agassiz, who emphasized that “Study nature, not books.”

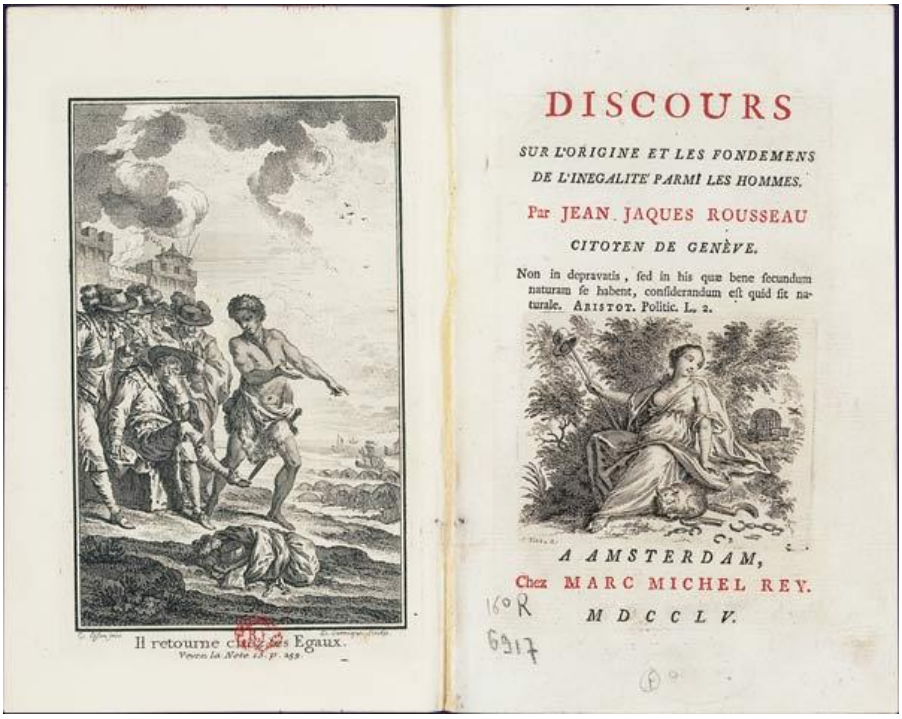

Fig 1. The first book talked about the nature study

Later on, Anna Botsford Comstock, the head of the Department of Nature Study at Cornell University, wrote the first Handbook of Nature study. Afterwards, conservation education emerged between the 1920 and 1930, which focused more on the rigid scientific training.

Rooted in Nature Study and Conservation Education, the modern environment education was a result of the awareness of the public healthy and healthy related environment issues by several disaster events like the radiation or the chemical pollution mentioned in Silent Spring, the famous book of Rachel Carson. As the result of this movement, the public understood the environment problem is a complex social problem that all the society rather than only politics and expertise could solve the problems. In this time, environmental education helped the public to understand the complicated situation and joined to find the solutions.

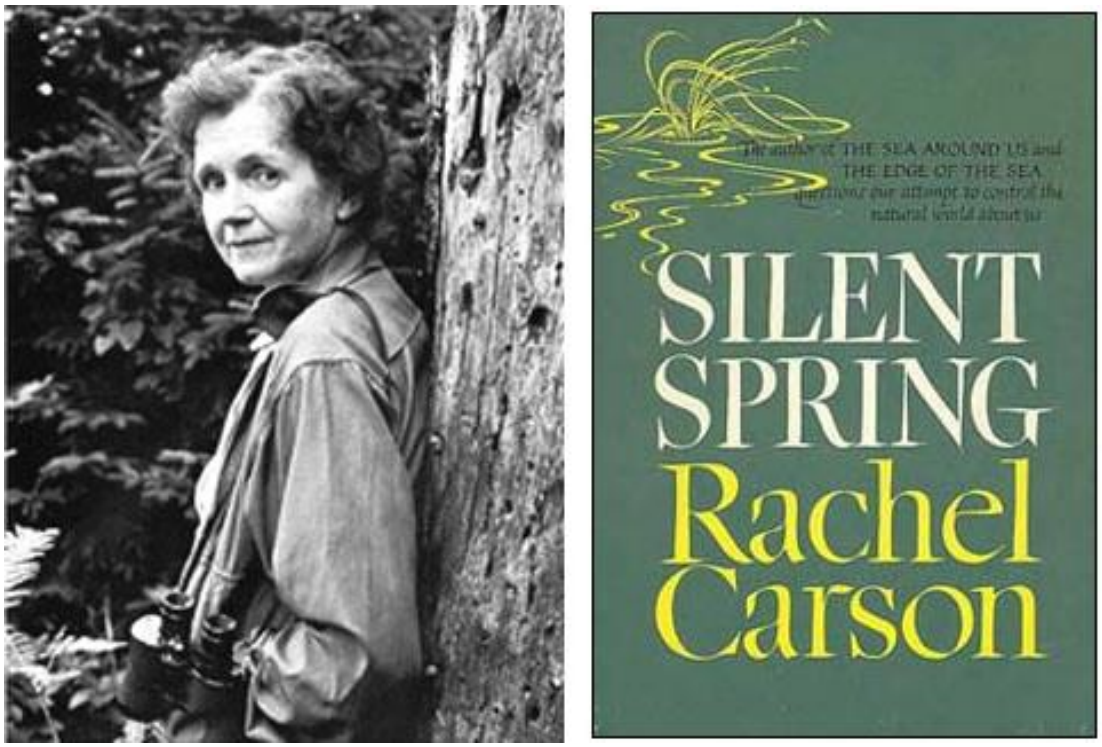

Fig 2. Rachel Carson and her famous book, *Silent Spring*

Environment Education first was published in 1969. At the same year, the definition of Environmental Education was come up by William B. Stapp. In the 1970s, environmental education brought its upsurge by the National Environmental Education Act signed by President Nixon. In 1972, the UN Conference on the Human

Environment in Stockholm set up the mission of how to motivate and guide people to conserve the living environment. The Belgrade Charter later on in 1975 updated the idea by adding the goals and tools to EE. The Tibilisi Declaration, regarded as the milestone of environmental education, was published in 1977. Afterwards, EE was regarded as a separate part of the conservation projects with a high attention from both the government and the public.

2. The EE development and current situation in UK

The initial stage of EE in the UK has followed the route of world EE. In the 1980s, there came the watershed of world EE and UK EE. As the World EE developed vigorously, the EE in the UK turned to another direction. It was considered that the spring of EE in the UK would come in the following years after the Tibilisi Declaration. In fact, programs like the forest school, FSC and the Earth Education. However, some movements, especially movements and campaign lead by teenagers and students as a consequence of EE made the government quite sensitive towards the EE topic and turned to a negative attitude. The influence of these results was that EE was no longer included as part of the national curriculum in the late 1980s. As EE activity was neglected by the government, the charities and NGOs related to the conservation issues became the core characters in the EE area. Due to the history of nature study and species collection, some EE projects are running by traditional conservation associations like RSPB with a newer and broader conservation vision for the whole nature instead of only bird species.

From 1990s, environmental problems like global warming, ocean pollution and declines in species diversity etc. becomes server problems

to the whole human society exceeding the influence of human health and economy in a global level. In order to understand and solve the problem, the environmental educator endeavored to deliver the message about the environmental problems and teach critical-thinking and problem solving skills to different generations.

When it comes to the new era, the environmental conservation is no longer simply about the resource utilization or species protection. Sustainability, a more general and comprehensive concept, with social, economic and environmental benefits, is used to solve the complicated environmental problem. It is linked with diverse stakeholders in industry and market, production and consumption chain. The changing living style is also part of this concept. Manchester University is a pioneer to this topic and set up a sustainability center, helping to combine this knowledge into different subjects. The Eden Project is a good example of applied projects in sustainable design, construction and tourism management.

There used to be a definite policy about the sustainable school in the UK. As the politic power took turn, this policy went off the stage but the existing projects were still running depending on the vision and understanding of the individual school with the funding from the school or local support.

By the shortage of funding and influence, more public attendance is required for the EE projects. Pictures and Videos of beautiful landscape and cute species are like “advertisement” to attract the public attraction since the public would like to receive more positive views rather than negative reality about the environment. The difference from the past also includes the shift from a view of preservation to

conservation, which emphasized a wise utilization of the natural resource instead of purely protection.

The EE activity types in the UK

The EE are divided into the formal education, the informal education and the non-formal education. In reality, the running EE in different organization is not a specific subject but a mixture of diverse subjects and knowledge depending on the main mission of the organizations. It is also widely found that not all the three types of EE mentioned above are carried on by the local resource like the staff number or the place area.

Table 1. The different EE activity in UK

Type of EE projects	Target People	Activates
Formal Education	School student School teacher	School course section Education degree Continuous Education Course Training Course/Workshop
Informal Education	Kids Family Amateurs Both youth and adults	Workshops Short-term courses Extra-curriculum Activities Citizen Science
Non-formal Education	Public Not a specific group of people	Events Tour Family exploration

The formal EE is corresponding to the UK national curriculum. In UK, the formal school system consists of five stages as followed. The formal EE is followed by these stage divisions.

Table 2. The formal education system in UK (except for Scotland)

Stage name	Age	Education type
Early age	3-5	Nursery School
Stage 1	5-7	Primary Education
Stage 2	7-11	Primary Education
Stage 3	11-14	Secondary Education
Stage 4	14-16	Secondary Education
Stage 5	>16	A-level or other Future Education

Table 3. The formal education system in Scotland

Stage name	Age	Education type
Nursery	3-5	Nursery School
P1-P7	5-12	Primary Education
S1-S6	12-18	Secondary Education
Higher Education	>18	College or University

Formal EE is usually a supplement to the formal school education. These educational programs are designed by the student characteristics and taught by teachers with formal education. The contents of most courses are what the curriculum required but difficult to be taught in the formal school indoor environment. The length of every single educational session is 45 minutes, at the same time of one school class.

Unlike the situation in China, some EE courses are part of the further education courses and the participants will receive credits for certificates and qualification like the RBGE fieldwork skills in the tropics and OCR AS Level Biology: Biodiversity and Classification at Wakehurst.

Informal education has more freedom in the content and time. It is not required and most of the people join the course due to their own interests.

Some of the courses are an entry for people who make changes in their career. Other courses provide for the young generation about the background and job opportunity of environmental related program before they start higher education for their own future. The time of the informal EE projects can last from several hours to several days. The content can be knowledge but also full of fun and enjoyment. The educators will lead activities like tours, camping, courses and short summer programs.

Non formal education is more public involved and full of entrainment activities by amazing cross-sides cooperation. Live music, art exhibition, art workshop, outdoor training, camping can be involved into this kind of education. The role of the educator is sometimes occupied by parents or grandparents under the guide book provided by the education departments of different organizations.

Citizen Science is the public participation in data collection by the guidance from professionals. However, this is no longer a common EE activity as it requires a higher level of scientific knowledge and skills. Thus we don't categorize Citizen Science into one of these three types.

The EE related organizations and education system

There are different organizations running EE projects. In general, charities related to environment conservation are more eager to carry on EE activities as a tool to attract members and demonstrate their conservation motivation to the public. There are also government agencies, like Wildlife Resource. Their work is more related to the policy and publication.

The Botanic Garden (BG) is an extremely important organization in the

EE program system as one of their most important missions, is the plant species collection and conservation. However, scientific research, gardening, landscape management and art are also considered as the principal works for BGs, leading a broader system of education compared with the education programs in conservation charities.

National parks like Brecon & Beacons, Snowdonia and the Lake District also have EE related programs. These programs are conservative content mixed with anthropology and geology knowledge.

National and International Non-government organizations (NGOs) or charities are mainly the key communities towards EE projects and programs at all levels in the UK. The structures of these charities are different. For the Wildlife Trust, the local office will be responsible for fund raising and education projects. But charities like RSPB has a local office and lead by a national headquarter office with uniformed course and materials.

Universities play as the roles of the observatories or researchers. Outreach projects and PhD candidates are the main bridge between the research and the applied activities for a better public understanding and learning. Universities related to EE in UK are Bangor University, Bath University, Bristol University, Imperil College, UCL and Manchester University.

There are social business companies like Wildelement and Cofond, which have connections with big charities but in a quite special role in the EE system in UK. They provide commercial services for other companies, NGOs, community and the public to maintain the cost-income balance.

Fig 3&4. The forest school project organized by Wildelements as a charged project

The museum also demonstrates the surrounding environment to the

public by the visual system like pictures and samples in carefully designed topics. However, compared with the real nature, whether in BGs or other nature reserves, only the information in the pictures is considered a limited influence of the environment conservation due to a lacking of real experience linked to the nature.

There is widely cooperation between different organizations and most of the cooperated projects receive more positive impact as everyone in the events contribute their own effort to make it a win-win situation. The staff in Wildelements used the place in Treborth Botanic Garden to hold big events and enjoyable activities. In Manchester Museum, the exhibition of Climate Change is impressive by the mimic information about the climate change research team. For the Bee Festival in the Botanic Garden of Bristol University, some lectures and activities are also developed by Bristol University and local charities.

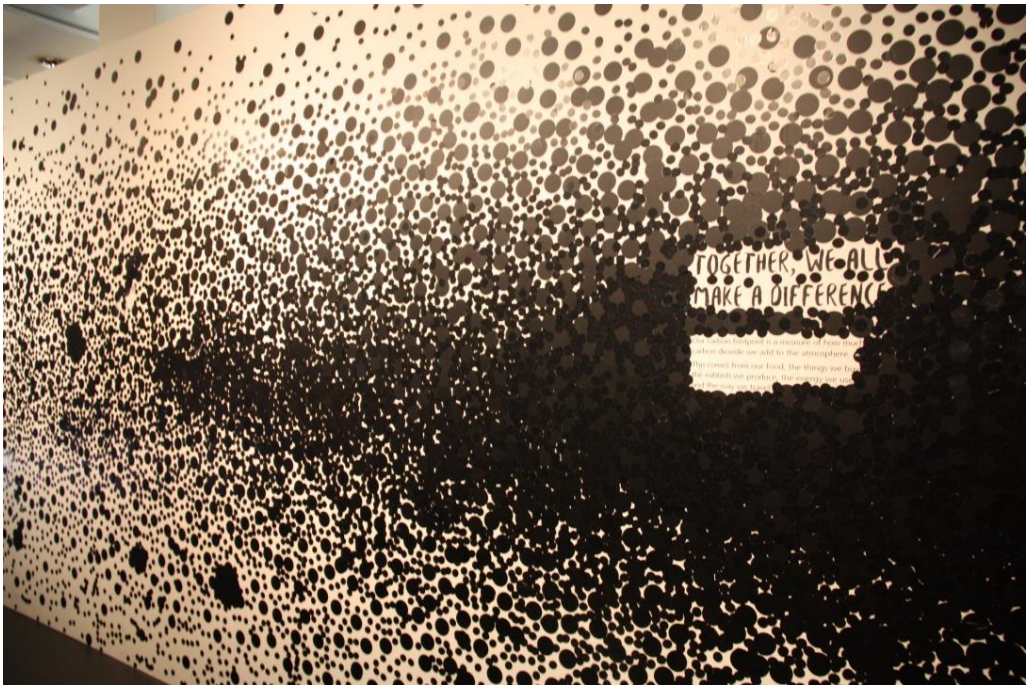

Fig 5. The exhibition of Climate Change in Manchester Museum as a result of the cooperation of Manchester University and Manchester Museum

Funding

As the influence of global economic crisis, the funding for environmental conservation and education becomes much less especially the funds from the government. Some big national organizations like the botanic garden and museum have the mixed financial funds from the government, big foundations and the public, except for the Royal Botanic Garden of Edinburgh, which is fully funded by the government. Other organizations especially charities are risen money from the public by encouraging them to join as members or attract donations by all kinds of activities including tour, big events, exhibitions etc. This is the main reason leading to a less potent impact of conservation on the public.

Educators

Educators could be certificated teachers, paid staff or volunteers with some scientific backgrounds. The educator could be fully paid or paid by hours depending on the funding situation and activity requirements from the organization that runs the EE programs.

Feedbacks

The feedbacks differ by the type of EE. In formal EE courses, the school teachers are asked for a detailed feedback by emails after the courses but the return rate is quite low. In this situation, the discussion with other educators or a self-feedback paper helps the educators to adjust the content of their EE programs. Most of the participants in the informal EE are asked to give brief feedbacks in an oral way or by email. However, this kind of feedback is simple and mostly the results from a knowledge level or how smooth is the activities going is checked.

Universities are normally involved in the research projects and topics of

the researches could be the EE or simply about the environment related issue such as air pollution, water, landscape etc. For the environment related projects, PhDs are mainly the people to bring outreach projects. Most of the researches have final result analyses of the feedback from the public.

In OPAL projects, the feedback is data but the social impacts were considered as significant products since this project received the funds from the Big Lottery. However, only the numbers of activity and participation are recorded. Further survey and analysis of the social impacts will be developed as the following step for the OPAL team.

Chester Zoo is the only organization we visit that has the social impact and education goal achievements analysis in a long term period (6 months). They hired a socialist with two assistants to take charge of the analyzing.

Volunteer system

Volunteers can be essential in all kinds of EE organizations and activities. They played different roles e.g. the educators, tour guides, administrators, media, big events organizers etc.

Fig 6&7. Education Volunteers in the education activities

The volunteer management system is quite diverse across different originations. In smaller organizations the volunteer plays a more flexible role but in a big organization, the roles are more fixed. In Wildelements, the social business company, volunteer roles are decided in the morning of the activity. We also find the volunteer system in Treborth is looser and the volunteers have more freedom to choose what to do. In big organizations like RSPB and the Royal Botanic Garden of Kew, the volunteer roles are more fixed with some certainty descriptions at a very beginning. We thought the reason may be due to the large organization would have a robust system to manage but also because that there are more potential participants for them. However, the Chester Zoo is a very interesting example among these organizations.

In big organizations like RSPB, Royal Botanic Garden of Kew there is a paid staff responsible for the volunteer management. For smaller groups, this work will be undertaken by the general manager or a volunteer working for the administrator.

It was revealed that different volunteer roles should be designed before recruitment and the training will be specifically due to the voluntary role and the previous background of the volunteer. For instance, as a role of the educator the volunteer need to have a better ability in leading the activity and interpretation. Some background of education psychology will definitely be a plus to the education volunteer. Under this situation, a proper training system considered the individual background will be suitable for people with diverse background but in reality we consider more of a management system in order to manage a large number of volunteers in a convenient way. Thus, what should be the balance between a management system and the desire of individual

volunteer is somewhere to be tested and discussed later on.
Volunteers work for different departments across the entire organization. Thus, requirements from individual department should be discussed before the recruitments. A comprehensive consideration in a very early stage about what can be offered to the volunteer of the organization and how much should be the resource would also help the situation.

Interpretation system

Interpretation system is always applied for a specific site, like a nature reserve or a national park. By carefully designed it can help dramatically to deliver the content of EE in a passive way for the visitors. Compared with costly EE activities a good interpretation system is far less expensive for a long term period.

A satisfactory interpretation system assists to attract the public and deliver the message in an active way. Also, audience will remember this information in an earlier approach. Using visual system and interacted games assistance to involve the visitors in their playing time. Setting a theme with a route to explore the site by printed guide is a general method for the families or team fun under the non-formal education section.

Fig 8. The interactive game system in the National Museum of Scotland to attract the public to learn

Fig 9. An interesting interpretation way to show the knowledge and the researcher in National Museum of Wales

In Botanic Garden, the interpretation and scientific knowledge could be merged into the design and construction from a very beginning stage of the garden. In the National Botanic Garden of Wales and the Botanic Garden of Bristol University, the planting of plants followed with the Gene identification result, which, combined with the latest research and horticulture into a very interesting way to display.

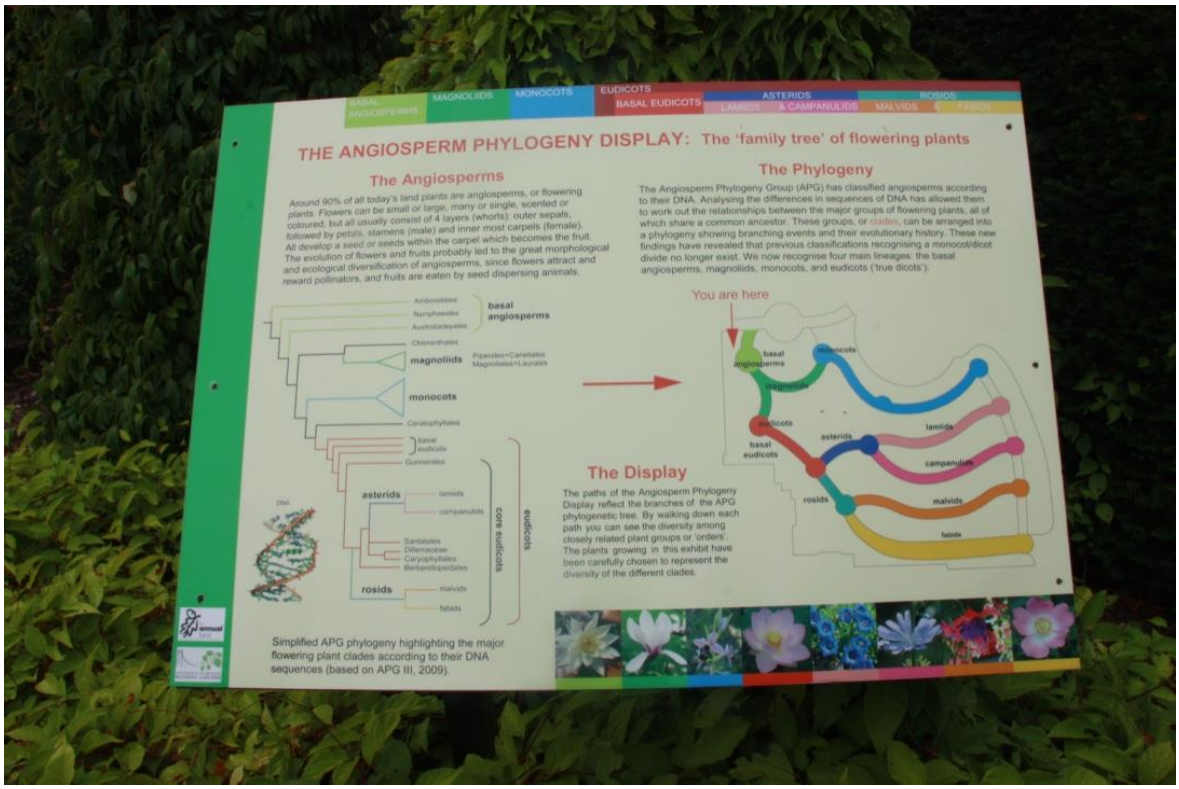

Fig 10 & 11. The design and view of the Phylogeny Garden in the Botanic Garden of Bristol University

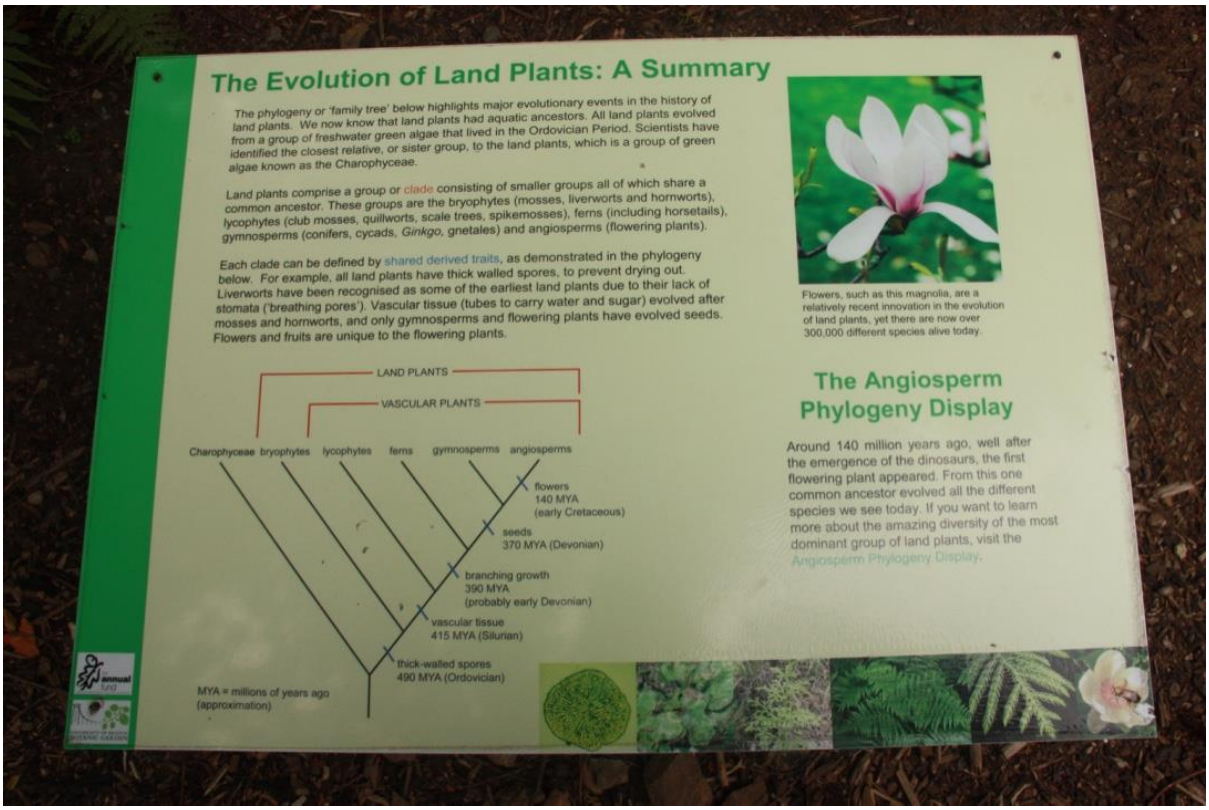

Fig 12 & 13. The design and view of the Evolution Garden in the Botanic Garden of Bristol University

3.Discussion

In the above sections, we talked about the world history of EE and EE in the UK from these years in terms of the activities, organizations, funds, educators, feedback, volunteer system and interpretation system. In this section, we would like to have a brief discussion about the cause of the development stage of EE in the UK.

As to EE development in the whole UK, the global economic crisis caused a reduction in funding for conservation and EE projects in UK, which might be the most direct reason for the decline of EE in UK. We argue that some other reasons also contribute to the collapse of EE development. On one hand, the effect of EE is therefore difficult to evaluate. If the goal of EE is not clearly defined in a beginning stage, once the courses start the effect and influence are hard to measure. It is possible to use some survey methodologies to measure the attitude and behavior change as the results. But a positive effect of EE required programs running for decades for this long-term impact. These costly projects with unclear consequences make the government stop to spend money on these programs. On the other hand, the environmental problems are controversial to both the public and the government as the environment problems are always complex and evidences for the environmental problems are always not easy enough for the public to understand. Moreover, when the movement and champions happened in the real world after the discussion of EE, the authority became conservative and the attitudes turned negative. In UK, the most recent decline of environmental education occurred when the national curriculum was changed again due to the education policy from 2000 as the new government was selected.

So how about the charities, NGOs and public? Do they help the development? The answer is definitely yes. However, the effect is rather limited without the policy and funds support from the government and also the guidance and scientific background from the academia.

It is quite interesting to find that although in US and UK the obstacles like the low priority and fewer funds are more or less the same. The reaction to these obstacles is not the same. From our visit to UK, in general, EE is no longer as popular as that in China and US. Moreover, none of policies and guidelines in the UK national level of EE is published. And the center of EE in UK, the SEED of Bath University, becomes less convincing after the retirement of Professor William Scott and the movement of Professor Justin Dillon. Nevertheless, the National Environmental Education Act was signed and published in US in the early 1990s. Another proof is the development and active degree of the EE association also indicates the different situation of EE in UK and US.

The reason is inferred to be associated to the culture difference. In UK, as told by Prof William Scott, that British people think the environmental problem is a huge topic and a social problem. A general understanding of the public should be raised first and the powerful people instead of an individual can change the situation. The same situation in US will become a declaration that individual could make sense to even a social problem, as showed by the general "American Dream" sprit. In a large scale of this individual action help to turn the situation around, which in turn encourage the individual behavior. This cycle makes the foundation of the prosperous development of EE in US.

Overall, the attitude of the government and the policy are key points to

the development of EE in UK in the future. And some wisdom solutions are applicable to the changing policy. In Royal Botanic Garden of Edinburgh, the educator there applied a resilient thinking for the education courses. There would be multiple learning objects covered lots of different subjects in one education session to correspond a quickly changing content of the curriculum. Pooled funds from other interests and environmental education together are also a smart way to adapt the lacking of funds and staff.

4. What we have done for Fairylake?

As a botanic garden, the EE of Fairylake Botanical Garden can be improved in the following five aspects, as the result of the study in UK, namely the education course system, the course design, the formation education activity, the volunteer system and the publications for formal, informal and non-formal environment education.

Based on the system from other organizations, we now expand the course system with three dimensions, the science courses, the environmental education courses and the botanic art course.

For the formal education, we followed the ethos “in and out”. We not only set up the courses for formal education and school reservations but also would like to launch the cooperation projects with schools by giving lectures as part of the school courses.

We updated the content of former courses and concerned about methodology to provide more fun for the kids in the informal environmental education. There will be more courses related to plants and the ongoing scientific researches in our botanic garden in order to the not only increase the knowledge but also the strengthen abilities like teamwork building, scientific thinking and critical thinking for the younger generation.

We are also considered to set up a new system of more specific roles of volunteers with training courses corresponding to the roles. The regulation of volunteer will publish later on to manage the increasing number of volunteer.

More fun and interesting publication will be printed for a better environment for formal, informal and non-formal environmental education. And we will encourage more cooperation with local and national organizations by working together to write education books and attending events as part of our education work.

Interpretation system will be merged into the infrastructure updated projects in our garden.

Case study: The Eden Project

The Eden Project is located outside St Austell on the south coast of mid Cornwall, which was one of the Landmark Millennium Projects started to establish from 1995 and finally opened in 2001.

This is an initiative aimed at connecting the people and the living world, and demonstrating what will be the sustainable living in the future. Sustainability is the key message that the Eden Project wants to deliver the visitors but also the local public. All the issues related to sustainability are considered into the design and daily management in this project.

Sustainable construction

As for the sustainability in the building construction, The Eden Project focused on three key points: the ethically sourced materials, low-energy designs and renewable features from the design, construction until the daily building management. Less construction materials are considered into the planning and building design. The use of low waste manufactory and low carbon impact materials and natural light help to maintain the warmth and lighting by reducing the normal energy using.

Fig 14. The greenhouse “Rainforest Biome” showing the plants

Fig15. The green building, study center “Core” with a special design of natural light and green material.

Fig 16. Inspired by the sunflower and the natural light can get through from the roof

Buying and consumption

There are 1.3 million visitors coming to Eden Project every year. Food consumption is huge and most of them are from the local productions to reduce the carbon footprint or produced in a greener way to encourage people living in a sustainable way. The products selling on-site and online are connected to nature and plant, which help people to remind the environment conservation.

Education

Education of sustainability in Eden is both for the visitor and the employees in diverse form of display, activates and experience. Visitors

obtain the information from the interpretation system, exhibitions public activities and education program. Paid staff and volunteers are training to comprehend the sustainable system in the beginning of their career as well as the daily management. The outreach projects and cooperated projects with local schools in teaching the applied sustainable knowledge and skills help Eden Project to spread the ideas of sustainability.

Fig 16. A good example to encourage visitors to explore the plants flowing today

Fig 17. The plants inside the greenhouse is planted by the geographic distribution

Fig 18. The education philosophy behind the exhibition in the core

Fig 19. The interpretation picture show the history of Eden Project

Fig 20, 21&22. The interpretation and real plants to tell the story behind

Fig 23 &24. The art crafts indicate the plant used as the living resource for human.

Fig 25, 26&27. The Education interpretation of Rubber, can be used for both visitors and school education session

There are also several ongoing project concerned about the local and external community such as the Big Lunch project, a simple idea from the Eden Project to encourage many people have lunch with their neighbors in a simple act of community, friendship and fun and Southbank gardening project to inspire the external society people for a better living.

Fig 28. The community project of Big Lunch to encourage the communication of the neighbors

Case study: RSPB

Royal Society Protection of Birds (RSPB) is a national charity aiming at protecting the UK bird species but also the whole nature in recent years.

Reserve site is an important place for conservation and education in RSPB. It helps to the reserve of the nature and the species. The conservative management of the reserve site shows the positive example for the land owners, especially to the land around a nature reserve, and gives guidance to the land owners.

RSPB has a national head office to guide the regional office and write for the national policy and planning for the reserve sites around this country. Course is designed related to the school system and the course content of the headquarter office of Education. The regional manager is in the middle of staff working on the reserve site and the headquarter office.

Founding for RSPB comes from the members but, they also cooperate with big companies such as for some specific programs related to the mission of the companies. Grants from other foundations for a different purpose will be associated with the EE funds to abate the pressure from a reduced funding.

We visited the RSPB site in Conwy Bay. This is a site from a former wasted land and was restored to a wetland for several years. Now it is a good habitat for birds and other species.

Fig 29. The Conwy Reserve Site of RSPB


Fig 30. Birds and the natural habitat by the restoration from a former wasted land for 3 years.

Fig 31. The herbivores help to keep the grassland in a lower mowing level

Fig 32. The interpretation to tell the story of the reserve site restoration

Fig 33. The guided tours lead by RSPB volunteers

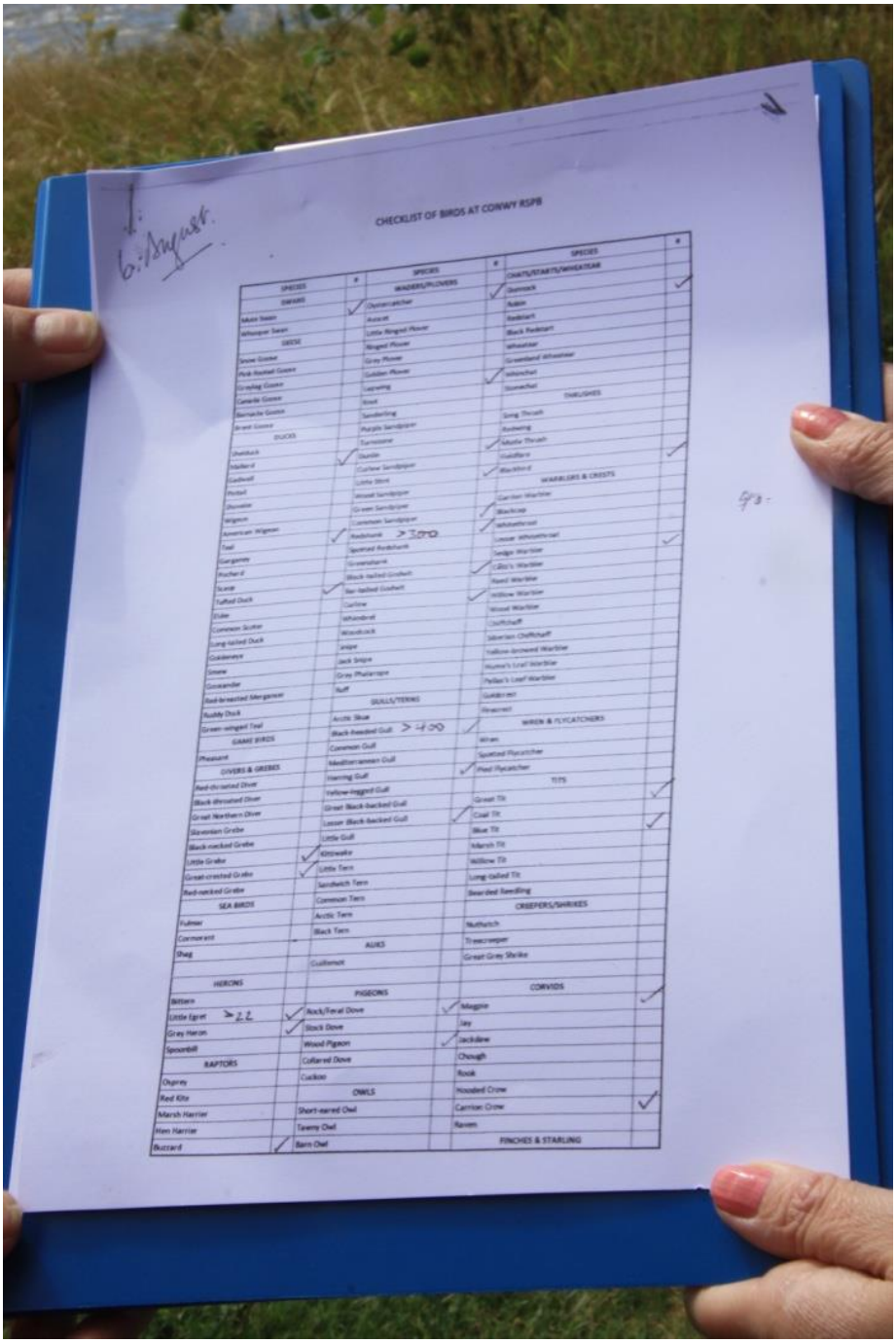

Fig 34. In the tour the birds and other species are recorded by the volunteers

The activities here are split into school activity, family and kids as well as the teacher training.

Schools activities

The school education session in RSPB sites is for Key Stage 1 with the goal of exploration and feeling, Key Stage 2 with the goal of knowledge and skills and Key Stage 3 as well as A-level. Every session there will be 30 kids. As formal education courses cover part of the national curriculum so teachers would like to pay for a small number of fees but other costs like couches will be related to the school budget.

Fig 35. Students from primary school are doing the pond dipping course

Fig 36. The design of a dream garden from one student in the school session

Family and kids

In the Conwy Reserve site, there is survey running by the volunteers to explore the most interested topics and activities for the families.

Regular events of RSPB attract people to join nature experience and EE during the weekends. Other active form for the family and kids includes the picnic, camping and fire, tours and all the activities related to fun and unique.

Fig 37. Treborth Botanic Garden in The Events holds by RSPB

Fig 38. The RSBP site to show the publications and attract members

On RSPB site, publications and clear signs of the interpretation system on the reserve site encourage the family activity for a further explore without the staff and volunteer educators.

Fig 39. The materials for the families to explore the site

Teacher Training Session

As being required for an annual training session of 10 days by the government, teachers can receive training course from the RSPB site in terms of confidence training, topic and activities training etc. The training materials can be downloaded for the website and be applied in the campus activities.

Case study: The education system in Botanic Gardens

The education system in Botanic Garden (BG) normally separated into the formal and informal courses, which were categorized by three types, the school education, the professional training and short courses in most of the big botanic gardens.

Compared with the topics from the environment conservation charities, the courses in botanic gardens are broader. Even the school sessions contain a range of subjects including science, geography, math and art etc. In big botanic gardens, research department undertook part of the work related to the mission of researches and conservation. Higher education like master degree courses is linked to the research projects in the BGs. As part of the culture in the UK, gardening is closely related to the botanic garden. Botanic garden is a center for special exotic plants species and the qualified gardening skill and expertise. Thus, gardening course and art course are also part of the education system of botanic gardens.

People also come to botanic gardens to take Continuing Professional Development (CPD) courses for some further training in teaching for the school teachers or qualification of practical skills related to horticulture, research or art for further career.

Table 5. The education system in some UK BGs

Name of BG	Types of education courses	The topics	The target people
Royal Botanic Garden of Kew	School visit Specialist training Short Courses	Conservation Plant Science Horticulture	Student from primary school to PhD Amateur to professional Teachers
Royal Botanic Garden of Edinburgh	School Course Short Course Professional Course	Arts, photography & wellbeing Science & environment Horticulture	Student from primary school to PhD Amateur to professional Teachers
National Botanic Garden of Wales	Day Course School Education Training for teachers Qualification Course	Art & Craft Horticulture	Students in primary and secondary schools Amateurs Teachers

Special projects, like the edible garden or cottage school, encourage the students to grow by themselves are not belonging to the types mentioned above.

Fig 40. The art workshop in the Treborth Botanic Garden

Fig 41. The art craft from the student

Fig 42. The fern identification course for the fern amateurs

Non-formal education in botanic garden can be tours, walks, exhibition and events related to botany, plants, conservation, art and culture etc.

Fig 43. The flower market in the Bee festival hold by Botanic Garden of Bristol University

Thank you for reading!

Any further question please contact:

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For the memorial of days in the UK!