

Project Summary

Project Title: Establishment of Geography E-learning Package about Climate Change 《地理電子學習教材套：氣候變化》	Project Number (2015/0291)
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Name of Organization: Ho Koon Nature Education cum Astronomical Centre (Sponsored by Sik Sik Yuen)

(1) **Goal:** Establishment of Geography E-learning Package about Climate Change

Objectives:

- (i) Provide an educational package to enhance the understanding of and clarify common myths about climate change among students, teachers and the general public.
- (ii) Facilitate the teaching and learning with a wide range of informative and interactive resources.
- (iii) Raise public awareness on climate change and its impacts on Hong Kong.

(2) **Targets:** All geography and environmental education teachers, all senior and junior geography students and curriculum developers.

Expected number of beneficiaries: 800 geography teachers, 500 environmental education teachers, 45,000 secondary students, **46,300 individuals in total**. Since the web-based resources are open to the public, number of beneficiaries increases with the increasing hits or downloads.

(3) **Implementation Plan:**

(i) Duration: Jan 1, 2017 to Jun 30, 2018

(ii) Process / Schedule:

- (Jan 2017) 1. Employing project manager and project officer
- (Feb 2017 – Jul 2017) 2. Collecting and Processing Climate Data
- 3. Building the framework of the educational package
- 4. Stage 1 of Content Design – Drafting
- 5. Employing developers for website and mobile application
- (Aug 2017 – Jan 2018) 6. Stage 2 of Content Design – Developing
- 7. Developing details of the mobile application in consultation with the developers
- 8. Stage 3 of Content Design – Reviewing
- 9. Developing details of the website in consultation with the developers
- (Feb 2018 – Jun 2018) 10. Pilot tests with supporting schools
- 11. Stage 4 of Content Design – Finalizing
- 12. Publishing the educational package
- 13. Workshop/seminar for teachers and students
- 14. Project evaluation

(iii) Collaboration with other parties / partners: The Hong Kong Observatory (Advisor); Ho Fung College (Sponsored by the Sik Sik Yuen), Ho Lap College (Sponsored by the Sik Sik Yuen), Ho Dao College (Sponsored by the Sik Sik Yuen), Pui Ching Middle School, Caritas Fanling Chan Chun Ha Secondary School and Lok Sin Tong Yu Kan Hing Secondary School (Supporting Schools).

(4) **Products:**

(i) Deliverables/ outcomes:

- a. Teaching kit comprising a teacher's guide, CD and website for the module of "Global Warming – Is it fact or fiction?" in Senior Geography Curriculum
- b. Mobile application including climate change information, quiz game and data collection
- c. Board game facilitating students' self-learning of climate change
- d. Seminar/ Workshop for geography teachers and students

(ii) Dissemination of deliverables / outcomes: Teaching kit, mobile application & seminar/workshop

(iii) Commercialization potential of deliverables / outcomes: Reproduction for commercial purposes is not recommended in order to avoid copyright disputes.

(5) **Budget:** (a) staff cost: \$747,684; (b) equipment: \$19,100 ; (c) services:\$180,500;

(d) general expenses: \$106,438; and (e) contingency: \$8,578. Total: \$1,062,300

(6) **Evaluation:**

(i) Performance indicators: Opinion collected from supporting schools during pilot tests, hit rate of the website, download rate of the mobile application, seminar/workshop's participation rate and questionnaire.

(ii) Outcome measurements: Keep logging and analyzing the hit rate of the website and download rate of the mobile application. Opinion survey will be conducted to collect feedbacks from users of the package.

Project Details

1. Goal and Objectives

1.1 Goal: Establishment of geography e-learning package about climate change

1.2 Objectives:

- (i) Provide an educational package to enhance the understanding of and clarify common myths about climate change among students, teachers and the general public.
- (ii) Facilitate the teaching and learning with a wide range of informative and interactive resources
- (iii) Raise public awareness on climate change and its impacts on Hong Kong

2. Needs Assessment**2.1 Educational Policy**

Having regard to the Geography Curriculum and Assessment Guide (Secondary 4-6), students are expected to **“recognize environmental problems and take appropriate actions to promote sustainable development”**. Geography Curriculum Guide (Secondary 1-3) states that students should be able to **“develop a knowledge and understanding of the major issues of global concern, and how these issues can be managed and/or resolved in a sustainable way”**. The junior and senior geography curricula include the modules of “Changing Climate, Changing Environment” and “Global Warming- Is it fact of fiction?” respectively. To cope with the curriculum development, the captioned package is specially designed for the educational needs of teachers and students on the concerned topic.

2.2 Limited E-learning Resources

In 2007, the Consultation Document on the Third Strategy on Information Technology in Education suggested, **“teachers expect the focus on assisting teachers to source, locate and acquire curriculum-based digital resources.”** and **“teachers, especially secondary school teachers, may be too busy to select and integrate digital resources into their lesson plans”**. The existing e-learning resources about climate change are scattered and by no means meeting the local teachers’ and students’ needs.

The proposed educational package is curriculum-based, and contains ready-for-use digital resources. It also features a mobile application enhancing students’ experience in learning climate change. With the user-friendly design and platform, students are provided with motivation and opportunities to study worldwide and local climatic characteristics, the related graphics and meteorological data collection suggested in the geography curriculum.

3. Applicant’s Capability**3.1 About the applicant**

Ho Koon Nature Education cum Astronomical Centre (HKNEAC) (Sponsored by Sik Sik Yuen) is an aided school specialized in nature education, providing field study courses and developing nature education resources since 1995.

3.2 Experience on producing education resource:

- a. “Diagnosing Freshwater Stream” teaching resources kit with VCD to all secondary schools (2001)
- b. “Establishing Butterfly Garden in Schools” book to all secondary and primary schools (2002)
- c. “Freshwater Stream Organisms” identification guide to all biology teachers (2003)
- d. “Various plant characteristics” poster to all secondary and primary schools (2004)
- e. “School and Urban Plants of Hong Kong” book to all secondary and primary schools (2005)
- f. “Field Study Handbook - Wildlife Pictorial Guide” to all biology teachers (2006)
- g. “School of Wild Plants” website (iflora.info) (2007)

- h. "Field Study Handbook - Wildlife Pictorial Guide and Field Sites" to all biology teachers (2008)
- i. "Investigatory Field Study" learning resources website (ifieldstudy.net)(2009)
- j. "Biology Field Study Implementation and School-based Assessment Handbook - Freshwater stream" to all biology teachers (2009)
- k. "Biology Field Study Implementation and School-based Assessment Handbook - Mangrove" to all biology teachers (2009)
- l. "Guide to the cloud and sky" poster to all secondary schools (2009)
- m. "Biology Field Study Implementation and School-based Assessment Handbook - Tai Po Kau Nature Reserve" to all biology teachers (2010)
- n. "Biology Field Study Implementation and School-based Assessment Handbook - Rocky Shore" to all biology teachers (2010)
- o. "Biology Field Study Implementation and School-based Assessment Handbook - Sand Flat" to all biology teachers (2010)
- p. "Hong Kong Rocks" poster to all secondary schools (2011)
- q. "Hong Kong Coastal Features" poster to all secondary schools (2011)
- r. "Tropical Cyclone" poster to all geography teachers (2012)
- s. "The world's major plant communities" poster to all secondary schools (2012)
- t. "Geography Case Study: Urban Development in Sha Tin" poster to all geography teachers (2013)
- u. "Geography Case Study: Skyline of Kowloon City" poster to all geography teachers (2013)
- v. "Geography Case Study: Urban Characteristics of To Kwa Wan" poster to all geography teachers (2014)
- w. "Geography Case Study: Rural Development in Tai Po" poster to all geography teachers (2014)
- x. "Geography Case Study: Sustainable Development in Ma Wan" poster to all geography teachers (2015)
- y. "Geography Case Study: Transport in Central" poster to all geography teachers (2015)

3.3. Experience on handling educational project/programs

- a. Higher-Form Nature Education Teaching Kit - "Interactive Field Studies For Higher Form Geography" and "Ecology Field Study Resource Kit" (1999 - 2001), funded by QEF (\$260,803), completed.
- b. Active Learning of Our World and the Universe (2000 -2003), funded by QEF (\$2,913,200), completed.
- c. A Journey to the Nature (2001), funded by QEF (\$54,800), completed.
- d. Constructing Nature Education Trails in School (2003 - 2005), funded by QEF (\$320,760), completed.
- e. Energy Study Centre (2005), funded by Energy Innovation Fund, funded by CLP (\$245,800), completed.
- f. Enhancing of IT Infrastructure (2005 - 2006), funded by QEF (\$110,300), completed.
- g. "清新能源幼苗培育計劃" (2006), funded by Hong Kong Electric Clean Energy Fund (\$99,800), completed.
- h. Pre-school Education Development Project, funded by Sik Sik Yuen (\$470,000), completed.
- i. AEON Smart Environmental Home Scheme, funded by AEON Education and Environment Fund (\$200,000), completed.
- j. Teacher Development Project on New Senior Secondary Liberal Study Curriculum of "Energy and the Environment" (2008 - 2010), funded by QEF (\$1,591,000), completed.
- k. Development Project on "Astronomy and Space Science" in the Senior Secondary Physics Curriculum (2010 - 2012), funded by QEF (\$2,158,400), completed.
- l. Searching for Nature Stories (Field study investigation competition for biology students, co-organized with CUHK and EDB)(2008, 2009, 2010, 2011, 2012, 2013, 2014 and 2015), funded by Sik Sik Yuen (\$ 30,000 each year), completed.
- m. Sustainable City Design Competition (2009, 2010), funded by Sik Sik Yuen (\$20,000 each year), completed.
- n. Geopark Independent Enquiry Study Competition (2010, 2011), funded by Sik Sik Yuen (\$25,000 each year), completed.
- o. "Enquiry-based Fieldwork in Geography: Student Handbook (Part 2) – Using different field study instruments" to all geography teachers (2014), funded by EDB (\$60,500), completed.

- p. Establishment of Hong Kong Biodiversity Information System (2012 - 2015), funded by QEF (\$1,580,200), ongoing.
- q. Weather Observation Competition (Field study investigation competition for geography students), co-organized with the Hong Kong Observatory (HKO), Hong Kong Meteorological Society (HKMS) and the Community Weather Information Network (Co-WIN) (2014, 2015), funded by Sik Sik Yuen (\$20,000 each year), completed.
- r. Summer Camp 2014 for biology and geography students (2014), funded by Sik Sik Yuen (\$20,000), completed.

4. Targets and Expected Number of Beneficiaries

4.1 Targets:

All geography and environmental education teachers, all senior and junior geography students and curriculum developers.

4.2 Expected number of beneficiaries:

800 geography teachers, 500 environmental education teachers and 45,000 secondary students, **46,300 individuals in total**. Since the web-based resources are open to the public, number of beneficiaries increases with the increasing hits or downloads.

5. Conceptual Framework

Fien (1993)¹ concludes environmental education as an education “about”, “through”, “for” the environment. Based on the three pillars, the educational package aims at enhancing citizens’ knowledge “about” the global problem “through” e-learning and practical experiences in field sites, raising the level of awareness and enabling them to take appropriate action “for” the environment to combat climate change.

The first part of the package is to lay a theoretical foundation of climate change. The second part is to provide convenience and motivation in acquiring knowledge by worldwide, local and even primary resources obtained at field sites. The third part is a recreational component arousing interest of students. Nowadays, people’s everyday life closely integrates with the digital networks and mobile devices, various digital resources in the package enhance the effectiveness of teaching and learning.

6. Innovation

About the issue of climate change, various resources have been released by the education sector in Hong Kong. However, there is none of the geography curriculum-based educational package covering a wide range of resources, including a mobile application. The proposed mobile application is a four-in-one scheme encouraging users’ self-learning about climate changes, whilst one of the functions helps collect and analyze the meteorological data for enquiry-based study. We are aware that the Community Weather Information Network (Co-WIN) has produced a free mobile application “iCWeatherOS” that includes function of collecting weather data. The proposed mobile application will have additional functionalities and can handle a wider variety of data.

¹ Fien, J. (1993), *Education for the Environment: critical curriculum theorizing and environmental education*. Victoria: Deakin University.

8. Extent of Teachers' & Principal's Involvement in the Project

8.1 Employment of Project Manager and Project Officer

Considering the project's scale and complexity, a project manager and a project officer should be employed to manage and execute the project.

a. Project Manager

Duties:

- Responsible for the development and implementation of the e-learning package;
- Responsible for the editorial work of all publications;
- Responsible for the administration work, such as making up all reports;
- Responsible for the coordination with all partners and parties, such as the supporting schools;
- Responsible for the arrangement and implementation of the seminar/workshop.

Required Qualifications and Experience:

- A recognized University degree on geography or equivalent;
- A recognized teacher training qualification (i.e. PGDE) preferred;
- A minimum of 1 year teaching experience in the subject of Geography or equivalent preferred;
- With experience in conducting climate change related studies preferred.

b. Project Officer:

Duties:

- Provide technical support in the development of the website and mobile application;
- Manage and supervise the developers of the website and mobile application;
- Assist in the development, coordination and implementation of the e-learning package;
- Assist in the administration work, such as making up all reports;
- Assist in the arrangement and implementation of the seminar/workshop.

Required Qualifications and Experience:

- A recognized University degree on geography or equivalent;
- With experience in developing web-based resources preferred.

8.2 Involvement of School Members

Various school members of HKNEAC will take roles in the project, and assist the project manager and project officer in project development, publication and the seminar/workshop.

Role	Member	Profile
Supervisor		<ul style="list-style-type: none"> • Principal of HKNEAC • Part-time Lecturer (Environmental Education) of Faculty of Education in the Chinese University of Hong Kong • Years of teaching experience
Supervisor		<ul style="list-style-type: none"> • Geography Subject Panel Chairman of HKNEAC • Years of geography teaching experience, leading all the geography educational programmes in HKNEAC
Project Leader		<ul style="list-style-type: none"> • Geography Teacher of HKNEAC • Years of geography teaching experience, coordinated Weather Observation Competition with the HKO, HKMS and the Co-WIN
Project Member		<ul style="list-style-type: none"> • Geography Teacher of HKNEAC • Years of teaching experience
Project Member		<ul style="list-style-type: none"> • Assistant teacher of HKNEAC • Years of teaching experience
Project Technician		<ul style="list-style-type: none"> • IT technician of HKNEAC • Experienced in managing computer system and network

8.3 Involvement of the HKO

Development of the package is professionally supported by the HKO which is the weather and climate authority in Hong Kong. During the project implementation, advisors from the HKO with expertise in climate change will provide their professional advice.

Role	Member	Profile
Advisor		<ul style="list-style-type: none"> Senior Scientific Officer of the HKO Overseeing research and public education activities relating to climate change, and climate forecasting operation and development in the past four years.
		<ul style="list-style-type: none"> Scientific Officer of the HKO Working on climate change research and climate forecasting in the past four years
		<ul style="list-style-type: none"> Chief Experimental Officer of the HKO Promoting public awareness of climate change in the past couple of years, in charge of the climate change speaker team.

8.4 Supporting Schools

Before the package launch, pilot tests would be conducted in supporting schools, which are proposed as:

- a. Ho Fung College (Sponsored by the Sik Sik Yuen),
- b. Ho Lap College (Sponsored by the Sik Sik Yuen),
- c. Ho Dao College (Sponsored by the Sik Sik Yuen),
- d. Pui Ching Middle School,
- e. Caritas Fanling Chan Chun Ha Secondary School,
- f. Lok Sin Tong Yu Kan Hing Secondary School.

Their feedback will be collected to enhance the package before its launch.

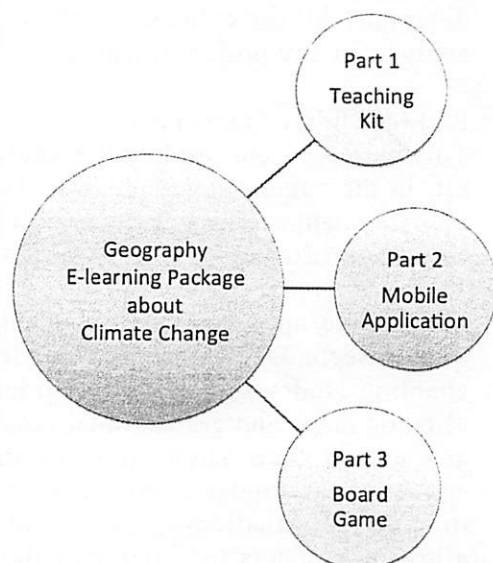
8.5 Resource Centre

After the package launch, HKNEAC will serve as a resource center of the project and help distribute the related information to the local secondary schools.

9. Project Content

9.1 The concept

The package aims at providing educational resources for teaching and learning about climate change that meets the requirements of geography curriculum and incorporates environmental education. The theme is “understand the misunderstanding”, debunking the common myths and presenting the scientific evidence of climate change. To maximize the uses, efficiency, exposure and users’ experience, the educational package includes three major parts which are delivered in various forms of media, such as booklet, website, mobile application and board game. All materials are produced in both English and Chinese.



9.2 Details

The major components of the educational package are as follows.

9.2.1 Teaching Kit: The teaching kit closely integrates with the part of “Global Warming – Is it fact or fiction?” in Geography Curriculum and assessment Guide (Secondary 4-6). In line with the curriculum’s requirements, a teacher’s guide with CD will be developed. Multimedia support such as animations, videos, newspaper cuttings and materials for in-class activities is offered in each lesson plan, as the example in ANNEX 1. There are various activities and extended readings catering for student diversity. The materials are all intended as ready-for-use teaching resources.

9.2.2 Mobile Application: The proposed mobile application is a four-in-one scheme including parts of a) climate change of cities around the world; b) climate change of Hong Kong; c) meteorological data collection and analysis from the users and d) online quiz game. The mobile application promotes self-learning of students, and prompts them to explore the issue in an interactive and interesting way. The public can also acquire the basic understanding of climate change in the free all-in-one application.

Part (a) Climate Change of Cities around the World:

This part is to collate climate data of major cities in the world from authoritative sources. The information and data are simplified and presented by types of illustrations suggested in the geography curriculum. If any extreme weather and climate conditions in the major cities, near real time alert messages or climate tips would be delivered to the users’ smartphones, in the format similar to “Severe Weather Information Center” linked at HKO website.

Part (b) Climate Change of Hong Kong:

This part is to focus on the climate changes in Hong Kong. The educational sector can access the latest meteorological data, graphs and illustrations, which will be simplified to match students’ learning needs.

Part (c) Data Collection and Analysis:

This part is to assist the teachers and students in an enquiry-based fieldwork about managing meteorological data collected from any kind of data logger. It is a tailor-made program assisting data-logging and incorporating the functions of i) user/group management; ii) maps; iii) geotagging; iv) time logging; v) input and export of data; and vi) preview and export of diagrams. All the collected data and diagrams can be exported by registered accounts for further analysis in any project learning.

Part (d) Online Quiz Game:

This part is to consolidate the knowledge learnt from Part (a), Part (b) as well as the teaching kit. In the game, players answer the increasingly difficult multiple choice questions relating to climate change. The questions will be regularly updated and maintained in an online database. Digital certificates will be rewarded to the high score players.

The mobile application is designed with reference to the learning activities suggested by the Senior Secondary Geography curriculum. Parts (a) and (b) serve as a self-directed data bank, enabling students to learn the global warming from worldwide examples, local climatic data, climatic maps and graphs in an organized and well-presented framework. Students can construct and extend their knowledge for themselves according to their unique learning paths. After acquiring the fundamental concepts, part (c) provides students with opportunities to apply those to real-life situations. It is a tool facilitating the geographical enquiry outside classroom, allowing students to experience data collection and interpretation of climatic factors. Students can carry out their investigation as individuals or in groups. Finally, part (d) incorporates all key terms and geographical concepts introduced in the package, promoting independent learning via an interactive game. In short, the mobile application puts learning global warming from

teacher-centred classes to student-centred enquiry, prompting students to be independent learners.

9.2.3 **Board Game:** Inspired by Pictionary, this is to make the learning fun by a guessing word game distributed to each school, and consolidate the knowledge included in the package. Students can self-learn the key facts, diagrams and glossary of climate change via a multiplayer board game, making the learning interesting and effective through peer interaction. Students, even for those not studying geography as an elective subject in the senior secondary curriculum, can gain easy access to the information about climate change. These new resources not only arouse students' interest on the topic of global warming, but also build student motivation to learn the contemporary topic outside lesson time.

9.3 Features

9.3.1 Development of the package is professionally supported by the HKO which is the weather and climate authority in Hong Kong.

9.3.2 The mobile application is open and free for all users. Not only teachers and students, the public will also be kept informed of the latest news about climate changes all over the world through the systematic and illustrative design. In addition, the users with an .edu.hk email address are able to save and export the data collected by the mobile application (part (c) of 9.2.2) for any further study.

9.3.3 Teacher workshop/seminar will be organized for promotion and training teachers on skills of integrating the mobile application into classrooms and field studies.

10. Expected Deliverables and Outcomes

10.1 Deliverables

10.1.1 A teaching kit comprising a teacher's guide, CD and website for the module of "Global Warming – Is it fact or fiction?" in Senior Geography Curriculum.

10.1.2 A mobile application including information, quiz game and functions facilitating the climate observation in the local, regional and global context.

10.1.3 A board game facilitating the students' self-learning of climate change distributed to each secondary school.

10.1.4 A seminar/workshop for promotion and training teachers on skills for integrating the education package into teaching.

10.2 Outcomes

10.2.1 The educational package can enhance students' and teachers' understanding of climate change.

10.2.2 The educational package can facilitate the teaching in class, promote self directed learning and e-learning at school.

10.2.3 The educational package can raise local awareness about climate change and its impacts.

11. Budget

11.1 Cost Breakdown

Item Categories	Items	Budget	Sub-total
A. Staff cost	Project manager salary + MPF : 18 months x (29,560 + 1,478)	558,684	747,684
	Project officer salary + MPF : 18 months x (10,000 + 500)	189,000	
B. Equipment	Desktop computer x 2	11,000	19,100
	Computer software for organizing and editing data	1,700	
	(for developing and testing mobile application)	6,400	
C. Service	Programming and design for the website	35,000	180,500
	Programming and design for the mobile application ²	120,000	
	Domain name registration fee for 3 years (http://climatechange.package.edu.hk)	500	
	Copyright fees ²	20,000	
	Administration cost of seminar/workshop	5,000	
D. General expenses	Printing cost (Teaching Kit + Board Game)	60,000	106,438
	Postal cost: 479 schools x \$55	26,345	
	Stationery and reference books	5,093	
	Audit fee	15,000	
E. Contingency	3% of the budget except staff cost	8,578	8,578
Total			1,062,300

Remarks:

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- ² The project plans to search for photos, graphs and other references from free download websites or seek one-off payment of the copyright fees in order to increase the sustainability of the project. However, some references with copyright fees, such as photos, graphs etc. from the third parties are necessary in the education package. Copyright fees are included for obtaining all relevant consent and clearance from the third party Intellectual Property Rights Owner(s).

11.2 Asset usage plan after completion of the project

Category (in alphabetical order)	Item Description	No. of Units	Total Cost	Proposed Plan for Deployment (Note)
Computer hardware	Desktop Computer	2	11,000	For continuing update of the website and mobile application
Computer software	Computer software for organizing and editing data	2	1,700	For continuing update of the website and mobile application
	! for developing the mobile application	2	6,400	To support update and maintenance of the mobile application

12. Evaluation Parameters and Methods

12.1 Content of Education Package:

i. Relevance to the Curriculum:

The framework of the education package would be established according to the requirements of geography curriculum. The project leader would make evaluation on its relevance at each stage of content design.

ii. Accuracy of Information and Data:

All information and data included in the package are generated and quoted from authoritative sources. The HKO would assist in quality supervision by holding regular meetings (at least once at each stage of content design) with HKNEAC and the project manager.

iii. Easy-to-use Design:

As the package is accessible to different targeted groups ranging from professional teachers to the general public, the design of package should be easy-to-use. Pilot tests would be conducted in six selected schools, proposed as:

- a. Ho Fung College (Sponsored by the Sik Sik Yuen),
- b. Ho Lap College (Sponsored by the Sik Sik Yuen),
- c. Ho Dao College (Sponsored by the Sik Sik Yuen),
- d. Pui Ching Middle School,
- e. Caritas Fanling Chan Chun Ha Secondary School,
- f. Lok Sin Tong Yu Kan Hing Secondary School.

Their feedback will be collected to enhance the package before its launch.

12.2 Outcome of Educational Package:

i. Website of the educational package:

The website itself includes usage recording function. i.e. hit rate for the website, source of visitors, data flow, time of visiting, etc. are recorded for statistic reports. In the first year after launch, monthly reports would be generated and analyzed. There is also a function in the program to collect user feedback.

ii. Applications for Mobile Devices:

The mobile application is free to download, and its download rate is the primary performance indicator. The download rate could be clearly shown on the server and closely monitored. Another performance indicator is comments from the users. The mobile application would include a function of giving comments and sending to the server for records.

iii. Opinion Survey of the Package:

Opinion survey will be conducted to collect feedback from users of the package. HKNEAC will send emails to the geography teachers at secondary schools one year after the launch, in order to help evaluate all products of the package.

12.3 Seminar/ Workshop:

HKNEAC and the HKO will co-host a workshop/seminar about the package launch, latest update on climate change and the features of educational package. The workshop/seminar will invite all geography teachers and students. The participation rate and questionnaire distributed to the participants act as effective performance indicators.

13. Sustainability of the Outcomes of the Project

The educational package is a combination of printed and web-based resources. After sending the printed materials (teaching kit and board game) to geography teachers at all secondary schools, the web-based resources (website and mobile application) will be open to students, teachers and the public. The mobile application developers will provide 2-year technical support, while HKNEAC in consultation with the HKO will maintain the website and mobile application, and regularly update them with the latest climate data.

14. Dissemination/Promotion

Our project team acknowledges the acceptance of QEF Intellectual Property Rights Policy so as to confirm the copyrights of the deliverables/materials developed are vested with QEF.

In close cooperation with the HKO, HKNEAC plans to organize a seminar/workshop on the educational package launch as well as the latest update on climate change. To reach more targeted beneficiaries, the web-based resources will be linked to the official websites of HKNEAC and the HKO. Besides, HKNEAC will promote and make use of the mobile application in the geography field studies courses such as “City Weather Study” that are available to all geography teachers in Hong Kong. HKNEAC will also act as a resource centre distributing the information related to the package.

15. Report Submission Schedule

My school commits to submit proper reports in strict accordance with the following schedule:

Project Management		Financial Management	
Type of Report and covering period	Report due day	Type of Report and covering period	Report due day
Progress Report 1/1/2017 – 30/6/2017	31/7/2017	Interim Financial Report 1/1/2017 – 30/6/2017	31/7/2017
Progress Report 1/7/2017 – 31/12/2017	31/1/2018	Interim Financial Report 1/7/2017 – 31/12/2017	31/1/2018
Final Report 1/1/2017 - 30/6/2018	30/9/2018	Final Report 1/1/2018 - 30/6/2018	30/9/2018

ANNEX I

Detailed Outline of the Four Chapters in the Teaching Kit (Chinese version)

章節標題：	真的假不了	
適用課節：	7.1 我們的地球正在變暖嗎？	
	一般人迷思	相關學習概念
	1. 北美洲年年都有大風雪，全球怎可能變暖？ 2. 近十多年年地球並沒有升溫，證明全球暖化並不存在。	<ul style="list-style-type: none"> ➤ 天氣與氣候的分別 ➤ 全球暖化的各種證據。
建議教學活動：分組辯論「全球變暖是事實還是虛構？」問題		
建議教學資源：	短片 <ul style="list-style-type: none"> - 講解全球暖化（如：天文台短片- 氣候 ABC） - 講解溫室效應 - 講解溫度、北極海冰、格陵蘭和南極洲冰蓋、海平面不尋常的變化。 	
延伸資料：	氣候否定者扭曲事實的技倆：輸打贏要 個人意見與科學證據	

章節標題：	自食其果	
適用課節：	7.2 全球增溫的成因是甚麼？	
	一般人迷思	相關學習概念
	1. 近期的全球變暖是自然變化。	<ul style="list-style-type: none"> ➤ 影響氣溫形態的自然因素 ➤ 增加溫室氣體的人類活動 ➤ 自然和人類活動所致的氣溫變化
建議教學活動：分組繪畫概念圖，展示自然因素及人類活動對全球增溫的影響		
建議教學資源：	圖表 <ul style="list-style-type: none"> - 顯示各人類活動所產生的溫室氣體 - 大氣中二氧化碳的最新濃度 短片／卡通 <ul style="list-style-type: none"> - 講解地球軌道的變化 - 講解地軸傾斜角度的變化 	
延伸資料：	地球變暖是自然變化的論點，及如何拆解相關的謬誤。	

章節標題:	暖化又如何	
適用課節:	7.3 全球增溫怎樣影響我們?	
	一般人迷思	相關學習概念
	1. 全球溫度的輕微上升影響有限。	<ul style="list-style-type: none"> ➤ 極端天氣越趨頻繁 ➤ 改變物種分布形勢及習性 ➤ 影響農業和糧食供應 ➤ 海平面上升威脅沿海地區
	2. 全球增溫對香港的影響很小。	<ul style="list-style-type: none"> ➤ 全球增溫的負面影響 ➤ 威脅沿海低地 ➤ 極端天氣頻繁
建議教學活動: 分組搜集網上資料, 對受全球增溫影響的地區進行個案研究		
建議教學資源:	<ul style="list-style-type: none"> - 全球增溫對本地植物花期的影響 - 全球所有國家的穀物產量地圖 短片 <ul style="list-style-type: none"> - 天文台短片: <u>暴雨趨勢</u> - 天文台短片: <u>水浸眼眉!</u> 	
延伸資料:	全球增溫對全球及香港的正面影響	

章節標題:	如何應對	
適用課節:	7.4 我們可以怎樣紓緩全球增溫的威脅?	
	一般人迷思	相關學習概念
	1. 個人減排成效有限?	<ul style="list-style-type: none"> ➤ 個人減排是有效的方法 ➤ 各種縮小碳足跡的方法
	2. 減排的實質效應甚低?	<ul style="list-style-type: none"> ➤ 人口政策有效控制全球增溫
建議教學活動: 分組討論個人減排的方法		
建議教學資源:	<ul style="list-style-type: none"> - 個人減排能減少多少溫度 - 未發展國家人均減溫幅度 短片 <ul style="list-style-type: none"> - 天文台短片: <u>暖化·何價?</u> - 天文台短片: <u>熱力迫人 678</u> 	