

For discussion on
14 October 2010

Paper No. 08/10

COUNCIL FOR SUSTAINABLE DEVELOPMENT EDUCATION & PUBLICITY SUB-COMMITTEE

Education for Sustainable Development in Hong Kong Schools

PURPOSE

This paper briefs Members on the current work of the Education Bureau (EDB) on promoting education for sustainable development (ESD) in the schools (including kindergartens, primary and secondary schools) of Hong Kong, and the possible collaboration between the Council for Sustainable Development (the Council) and EDB.

BACKGROUND

2. The EDB is committed to instilling in students a life-long and forward-looking concern for the environment, preparing them for making well-informed, justified and practical decisions and taking actions leading to the creation of a sustainable environment.
3. Promoting the concept of sustainable development through the school curriculum has been one of the key tasks of the EDB in recent years. All along, the EDB has adopted diversified measures to promote the concept in schools (both within the formal curricula of school subjects and through the organising of various educational programmes). These measures aim at facilitating the development of students into “global citizens” who can contribute to the sustainable development of both local and global societies.
4. In 1999, with a view to facilitating the implementation of environmental education in schools, the *Guidelines on Environmental Education in Schools* was published by the Curriculum Development Council. In 2005, the United Nations declared this year as the start of the

“United Nations Decade of Education for Sustainable Development”, “sustainable development”, defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”, has become our guiding concept for school environmental education.

5. In recent years, schools are encouraged to develop ESD plans focusing on three major aspects, namely “awareness”, “action” and “attitudes”. Through enhancing the awareness of students on environmental issues and cultivating their positive attitudes towards conservation work, students will be more willing to take actions in solving various environmental problems.

6. In addition to the publication of the aforementioned curriculum guidelines for the relevant subjects, the EDB has issued circulars to schools urging for energy saving and waste reduction.

CURRENT WORK ON EDUCATION FOR SUSTAINABLE DEVELOPMENT

7. Over the years, elements of sustainable development have been infused into the curricula of various subjects in different levels of schools, from kindergarten to secondary. Besides, different types of programmes related to the promotion of sustainable development have been organised by the EDB. Generally speaking, these programmes help our students better understand the interactions between human activities and the natural environment, the environmental problems they face locally and globally, and seek ways to alleviate these problems in their daily lives.

8. Schools are encouraged to adopt a cross-curricular, whole-school and action-oriented approach in the promotion of ESD with focus on environmental citizenship and sustainable development. As advocated in the Curriculum Reform, *value learning* is an integral part of education for sustainable development in schools. The priority values, namely Perseverance, Respect for Others, Caring, Responsibility and Commitment, are incorporated into the school-based ESD programmes to help students become responsible citizens contributing to the

conservation of both the local and global environment.

9. Schools are encouraged to promote ESD within the key learning areas (KLA) and through other school-based ESD programmes and activities which serve as a complement for providing students with “other learning experiences (OLE)” to learn in and for the environment.

ESD in Key Learning Areas

10. Appropriate elements of sustainable development have been included in the curricula of different KLA and subjects, namely General Studies at the primary level; Geography, Science and Technology Education at secondary level; and Liberal Studies at senior secondary level. Some common topics / themes include:

- Climate change and global warming
- Developing a healthy lifestyle
- Energy saving and alternative energy resources
- Fair trade and consumerism
- Food and hunger
- Green school campus
- Pollution
- Poverty and unemployment
- Resource depletion and over-exploitation
- The rich and the poor
- Town planning and urban development strategies
- Urbanisation and housing problems
- Waste reduction and recycling

(For details, please refer to *Appendix 1*.)

11. Education for sustainable development through the KLA is best to be implemented through cross-curricular collaboration in schools. Subject panels of different KLA are encouraged to work with one another to develop cross-curricular learning and teaching plans on promoting the concept of sustainable development in schools. *Appendices 2 and 3* contain two extracts from a primary school ESD programme and the curriculum framework of a cross-subject collaboration developed by EDB and secondary school teachers on climate change. These two examples demonstrate how ESD is implemented through a cross-curricular,

whole-school and action-oriented approach.

12. Besides being a core concept in the school curriculum, sustainable development has also been a common theme in the public examinations. *Appendix 4* includes a few HKCEE Geography questions which aim at assessing students' knowledge and understanding of sustainable development under different aspects.

13. In short, ESD has been included in the school curriculum, taught in classrooms and assessed in tests/examinations.

ESD in Life-wide Learning Experiences

14. As regards ESD in students' life-wide learning, seminars, projects and exhibitions on environmental issues are the most popular activities. Other programmes like tree planting, cleaning beaches and field studies on environmental pollution are also common in many schools. These activities can either be organised by the school for all students or by various student groups such as the ecology club, environmental protection society, etc.

15. The EDB has also been cooperating with various government departments and non-government organisations in organising various types of ESD activities for students. The major ones include the "Student Environmental Protection Ambassador Scheme (SEPAS) and "The Hong Kong Green School Award (HKGSA)". These activities are jointly organised with the Environmental Protection Department (EPD) and Environmental Conservation Committee (ECC). The SEPAS is open to all primary and secondary schools. As in 2007/08 school year, there were about 18,000 student environmental protection ambassadors from primary and secondary schools of Hong Kong. For the HKGSA, about 280 primary schools, 180 secondary schools and 200 kindergartens participated in the Scheme.

16. Moreover, the EDB has initiated the My Pledge Day on "My Pledge to Act -- Live Hygiene Live Health" for all Hong Kong kindergartens, primary and secondary schools since 2003. "Sustainable development" has been included as an important value for "Healthy Living".

17. Funding support is also provided by the EDB for the operation of guided school visits to the Mai Po Education Centre. The project is commissioned to the World Wide Fund Hong Kong and about 400 school visits for primary and secondary schools are subvented in every school year. Sustainable development is also one of the priority themes in the Quality Education Fund (QEF) administered by the EDB.

Professional training and resource support for school teachers

18. School teachers are the key personnel in the successful implementation of education for sustainable development in schools. In this regard, various professional development programmes (PDP) have been organised by the EDB to enhance teachers' awareness and knowledge in this area. Regular ones include the "Seminar on 'Heading Towards the Green School'" cum green school visit jointly organised with the EPD and the ECC. Other seminar topics include renewable energy, climate change and roof-greening. For the 2008/09 school year, 8 PDP programmes in the form of seminars, workshops and field trips on SDE were organised for over 600 school teachers.

19. Moreover, various learning and teaching resources, including CD-ROMs and websites, have been developed to support teachers in promoting ESD. The latest website developed by the EDB is "Web-based Learning Package on Environmental Education: Education for Sustainable Development in Schools in Hong Kong" (<http://www.edb.gov.hk/cd/mce>). On this website, resources and school exemplars on energy saving, air pollution and climate change are available for teachers' reference.

THE WAY FORWARD

20. With considerable efforts and inputs by the EDB and schools on implementing ESD in the past few years, we are confident to claim that students have been fully aware of the importance of conserving our environment and have mastered the basic knowledge and concepts of sustainable development. The focus of work for the years ahead should be on initiating changes in students' behaviour, reinforcing their rightful

mindset, and enhancing their rational choice of future lifestyles.

21. To achieve the aforementioned goal, a series of teacher education programmes will be organised to provide teachers with the knowledge and skills in designing learning and teaching activities that could facilitate students to internalise what they have learnt in education for sustainable development and to put the theories into practice. Collaboration with other government departments and non-government organisations in providing student programmes and resources will be continued to supplement the implementation of ESD in schools. The EDB has also planned to strengthen the networking among teachers so as to facilitate information, experience and resource sharing. Initial considerations have also been given to study the feasibility of expanding the network to cover neighbouring cities and countries outside Hong Kong.

Possible Collaborations between the Council for Sustainable Development and EDB

22. Development and production of teaching/learning resources could be a possible area of collaboration between the Council and EDB. A number of the SD Fund projects, such as “Sustainable Urban Regeneration: Building an integrative community”, are very useful resources for both teachers and students. It is worthwhile if the Council could supply the relevant resources for EDB to work out how they could be re-packaged and further polished for use in schools. In addition, the Council and EDB might also facilitate dialogue between teacher professional learning communities and SD educators in businesses and NGOs on the provision of talks or other activities for students on ESD, as well as to study the possibility of providing SD teaching/learning materials for Hong Kong schools.

23. Another area of collaboration would be the organising of teacher professional development programmes on themes related to sustainable development through the joint and collaborative efforts of the Council and EDB. In this regard, EDB would work closely with the Council with respect to the nomination of guest speakers as well as the administrative and logistic arrangements for the programmes.

24. Last but not least, the Council for Sustainable Development could also consider serving as a bridge between the SD Fund project host organisations and the EDB and schools for further discussion on the possibility of providing ESD activities for secondary school students and teachers. EDB could help with the dissemination of such activities through circular memoranda and the Liberal Studies web-based resource platform.

ADVICE SOUGHT

25. Members are invited to note the progress of implementing ESD in Hong Kong schools, comment on the proposed way forward for the work of EDB, and advise on the possible collaboration between the Council and EDB as set out in paragraphs 20-24.

Education Bureau
October 2010

Topics related to Sustainable Development
in Hong Kong School Curriculum

SUBJECT	TOPICS
<i>Primary Level</i>	
General Studies	Strand 2 People and Environment <ul style="list-style-type: none"> • Weather changes and how they affect our daily life • Care of the environment and ways of conserving resources • Ways of minimising generation of waste in daily life • The impact of human activities on the balance of Nature and our responsibilities in environmental conservation • The Earth as a source of resources • Renewable and non-renewable resources available on Earth • Simple solutions in solving energy problems • Planning and managing resources to develop solutions in daily life situations • Some local and national environmental issues • A lifestyle which promotes sustainable development
<i>S1-S3 Level</i>	
Geography	<ul style="list-style-type: none"> • Weather and climate—do they matter? • How clean is our atmosphere? • Struggle for power resources
Science	<ul style="list-style-type: none"> • What is Science • Interdependence amongst living things • Energy sources and we • Balance of carbon dioxide and oxygen in Nature • Radiation and conduction of heat
<i>S4-S5 Level</i>	
Biology	<ul style="list-style-type: none"> • Ecology • Human impacts on the environment • Human responsibility for environmental conservation • Sustainable development
Chemistry	<ul style="list-style-type: none"> • The planet Earth • Fossil fuels • Consequences of using fossil fuels

SUBJECT	TOPICS
Computer and Information Technology	Social Implications—issues related to health, environment or a change in life-style, environmental issues, turnover rate of computer equipment
Geography	<ul style="list-style-type: none"> • Climatic Anomalies • Sustainable City • The Choice of Power
Home Economics	<ul style="list-style-type: none"> • Sustainable living • Use of energy saving light bulbs and electrical appliances (including cooking equipment / facilities), avoid the use of aerosols (spray)
Physics	<ul style="list-style-type: none"> • Temperature and heat • Heat/Energy transfer process
Science and Technology	<ul style="list-style-type: none"> • Nature and development of science and technology • Environmental Science
<i>S6-S7 Level</i>	
Geography	<ul style="list-style-type: none"> • Climatic system • The impact of urbanisation and industrialisation on the quality of the environment
Liberal Studies	Environmental Studies What are the implications for the future as humans continue to disrupt the world environment?
<i>S4-S6 Level (formerly known as New Senior Secondary)</i>	
Business, Accounting and Financial Studies	Business Ethics and Social Responsibilities <ul style="list-style-type: none"> • Explain why and how a business should be ethically responsible to various stakeholders. • Describe how business ethics and social responsibilities affect business decisions
Design and Applied Technology	<ul style="list-style-type: none"> • Energy and energy resources • Environmental responsibility
Geography	<ul style="list-style-type: none"> • Disappearing Green Canopy (impact of TRF deforestation) • Global Warming—Is it fact or fiction? • Weather and Climate • Building a Sustainable City—Are environmental conservation and urban development mutually exclusive?

SUBJECT	TOPICS
Health Management and Social Care	<p>Topic 1A Ecological perspective</p> <ul style="list-style-type: none"> • Exhaustion of natural resources e.g. water, land, food • Forms of Pollution and their impact on health • Global warming • Genetically Modified food (GM Food) <p>Topic 1D Factors affecting our health / illness experiences and personal and social well-being</p> <ul style="list-style-type: none"> • Ecological factors <ul style="list-style-type: none"> – Human activities: pollution, climate changes (e.g. global warming), generic modification of foodstuff
Information and Communication Technology	Work and Health Issue—realise that technological innovations can bring major benefits to society if they are used properly, but damage society when they are misused.
Integrated Science	<p>Module C6: Balance in Nature</p> <p>Module E1: Energy, weather and air quality</p>
Liberal Studies	<p>Module 2 Hong Kong Today</p> <p style="padding-left: 40px;">Theme 1: Quality of life</p> <p>Module 3 Modern China</p> <p style="padding-left: 40px;">Theme 1: China’s reform and opening-up</p> <p>Module 4 Globalisation</p> <p>Module 6 Energy Technology and Environment</p> <p style="padding-left: 40px;">Theme 1: The influences of energy technology</p> <p style="padding-left: 40px;">Theme 2: The environment and sustainable development</p>
Technology and Living	<p>Factors affecting family ties and lifestyle in Hong Kong in the past four decades</p> <ul style="list-style-type: none"> • Environmental (e.g. pollution, global warming, body / public health)



推行「可持續發展」教育之學校示例

學校：天水圍天主教小學

負責老師：盧安芝主任(統籌)、潘素嫻副校長(顧問)

計劃/課程簡介

計劃/課程名稱	「簡樸青椒迎聖誕・感恩茄子頌主恩」校本綠色活動
議題/課題	校本綠色課程—2008 綠色聖誕 Party
對象	P.1-6
進行時間	*活動前價值建構課程：15-18/12 *活動後反思及經驗分享：5-9/1
參與學科	德育及公民教育
合作夥伴：校內/外	宗培組、資源組、行政組、常識組、課程組、活動組、訓育組
與「可持續發展」教育有關的學習目標	<p>延續上年度簡樸青椒的環保意識，讓學生養成綠色生活習慣，藉著參與綠色聖誕 Party 生活事件，實踐珍惜資源及減少浪費。讓學生明白當傑出地球管理員是天主旨意，懷著感恩的心去感謝主的恩賜和信任，我們該好好管理及愛護(關愛)天主創造的世界。天主祝福人說：「你們要治理大地，管理海中的魚，天空的飛鳥，各種在地上爬行的生物。」(創 1:28)</p> <p>根據聯合國環境與發展世界委員會在 1987 年發表《我們的共同未來》一書，界定「可持續發展」為「既能滿足我們現今的需求，又不損害子孫後代能滿足他們的需求的發展模式。」即不要只顧我們自身的需求，也要顧及別人及日後子孫的需要。在追求經濟富裕和社會進步同時，亦需愛護自然環境。「可持續發展」講求經濟發展、環境保育和社會融和各方面，取得平衡。</p> <p>我們的願景，是期望所有的學生都能成為「傑出的地球管理員」，並能明白到作為全球及本港的一分子，他們可享有的權利和應履行的義務，如何為子孫後代開創美好的將來，就邁向可持續的環境及發展事宜參與決策及採取適當的行動，並為環境作出畢生的承諾和服務。</p>

對焦「可持續發展」教育有關的學習目標(配合生活事件)：

1. 認識避免浪費的原因及其影響
2. 明白減少製造廢物的好處及其重要性
3. 選購食物的健康概念(全方位綠色生活)
4. 認識綠色聖誕 Party 活動準則
 - 準確預備食物份量，避免浪費
 - 學生須自備環保餐具，減少使用即棄餐具
 - 減少製造廢物
 - 保持課室整潔
5. 建構事事感恩的生活態度，並能珍惜/愛惜天父賜給我們的一切(如愛護地球)
6. 認識綠色法例，樂於實踐，並積極推展綠色生活的可持續發展，做個傑出的綠色國民

計劃/課程流程

(一) 籌備

1. 學校改善小組根據學生成長需要之數據分析擬擬校本五年計劃，並訂定校本德育主題「做個傑出的地球管理員」，以德育科為核心，進行跨科及跨關鍵項目全方位課程；
2. 德育組統籌校本綠色課程，並協助 WELS 設計網上英語綠色學習平台課程。

(二) 實行

1. 德育組統籌校本綠色課程，每級設德育組長 2 人，組統橫向之全方位課程，並與各科進行有機的課程整合；
2. 德育組與宗培組、訓育組、課外活動組及活動組共擬校本綠色活動/課程，為學生提供真實的學童經歷。如「2008 綠色聖誕 Party」；
3. 校本德育課每周 2 教節，由班主任任教，學生輔導主任及駐校教育心理學家支援，除協助課程推展，亦舉辦配合課題之家長工作坊，促進家校合作，讓學生愉快成長；
4. 學生於學習過程中，把學習經歷、內容、感受及反思紀錄於學習歷程檔內，以瞭解個人的學習進展及需要。

(三) 跟進

1. 每課節後均進行教學反思，並討論合適的跟進/課程調適；
2. 學生於每個生活事件活動後，均進行學習/生活反思，促進學生的正確價值及生活態度。

計劃/課程架構

*附件一：校本綠色課程架構圖(貢獻)

校本價值教育課程發展藍圖

專題/範疇	人與自己	人與他人	人與環境	人與天主
1.關愛教育 *重點：愛地球，愛萬物	*「關愛香 蕉」及 「護蛋」生活 體驗活動(德 育)	*2008 公益服 務日 *社區關愛福 傳活動 *「一人一利 是」活動 (宗培)	*地球日活動 (德育+活動+ 資源組)	*關愛聖詠音 樂會 (德育+宗培)
2.感恩教育 *重點：事事 感恩， 學會惜福，主 動助人	*「我的感恩 周記」 活動/分享 (德育)	*德育雙周感 恩活動 (德 育) *向感恩的人 說謝謝活動	*教師閱讀分 享 *「無冷氣 日」感恩活動 (德育+活動+ 資源組+常識)	*全校謝主 1 分鐘活動(德育 雙周) *感恩聖經故 事分享 (德育+宗培)
3.環保教育 *重點： 珍惜資源， 少浪費	*環保妙法 *簡樸生活 (德育+常識)	*舊校服及舊 書回收 *綠色環保旅 行 *321 齊熄燈 活動 (德育+活動+ 資源組+常識)	*綠色聖誕 Party *綠色法例 *綠色奧運/亞 運 *種植活動 *環保周 (綠色可持續 發展) *學校廢物源 頭分類及回收 試驗計劃 (德育+活動+ 資源組+常識)	*跟保祿做個 Friend(重點： 堅定信念能衝 破推動綠色生 活時會遇到的 障礙 (德育+宗培)
4.國民教育 *重點：-認識 祖國文化及發 展 -做個愛護環 境的中國人	*參與升旗禮 *詠唱國歌 (德育+常識)	*2008 北京奧 運 *「天天」大 掃除 (德育+訓育 組)	*中國太空人 (神七升空) *茶藝 (德育+活動 組)	*「天天愛中 華」 活動 (德育+課程 組))
5.健康教育 法律教育 *重點：-選擇 健康食物 -綠色飲食	*食物的營養 (紅黃綠燈食 物) *食物標籤 (德育+常識)	*水果日 *生活法庭 「食物安 全」 (德育+常識+ 活動組)	*生活法庭 「全面禁 煙，保護環 境，促進健 康」 (德育+常識)	*珍惜天主賜 予的食物 (德育+宗培)
協作科組的貢 獻：	1.行政組： - 時間表安排連堂德育課方，便進行聯課及體驗活動， 提升學習成效 - 訂定校本德育主題及重點(德育主題「做個傑出的地			

<p>球管理員」)，讓各科組統籌清晰學生學習重點，設計配合主題的綠色可持續發展課程/活動，並與各組協作，為學生提供全方位的真實學習經歷</p> <p>- 定期進行成效檢討及數據搜集與分析，回饋學與教，並建議可行之跟進方案</p> <p>2.四大關鍵項目： 德育、閱讀、專題研習及資訊科技互動學習作有機整合，並溶入綠色價值課程/活動中，全方位促進學生的共通能力，促進綠色教育的推行</p> <p>3.課程組： 各學習領域依據綠色課程 5 年發展計劃設計個別科目及協作課程，讓綠色學習更生活化及全面，學生的綠色生活態度亦由此植根</p> <p>4.學生支援組(包括宗培組及訓育組)： 提供社群/社區綠色學習經歷，牢固地建構學生的可持續發展的價值觀</p>

各協作學科在計劃/課程中的貢獻及關係<圖 2>：

圖 1

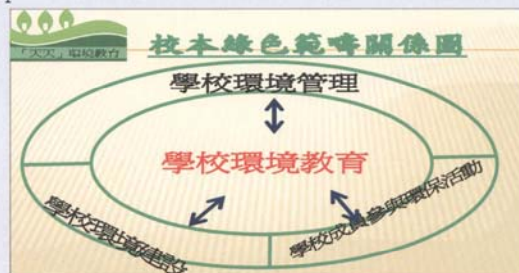


圖 2

Introduction

This resource pack is a supplement to the “Educational Package on Climate Change” produced by the Hong Kong Observatory. The aim of this resource pack is to facilitate teachers to make use of the information available in the package for the learning and teaching of the topic “climate change” that has been included in the curriculum content of a number of subjects, namely Geography, Liberal Studies and Science.

The cross-curricular nature of the topic “climate change” provides a good opportunity for the related subject panels in schools to collaborate in curriculum planning to facilitate students to adopt multiple perspectives in studying a global issue. The collaboration also enables students to connect knowledge and concepts across different disciplines and expand their perspectives beyond single disciplines.

This resource pack includes three interrelated unit plans for teachers’ reference. Science teachers will take up the teaching of the first unit which aims at studying whether global warming, a key phenomenon of climate change, is a scientific fact or a myth. This unit focuses on the development of skills, such as data interpretation and graph reading, evidence evaluation, development of scientific argument and analysis of complex real world situation.

After studying the issue from a quantitative perspective, students will then be led by their geography teachers to study the consequences of climate change and to formulate possible solutions for its negative impact. This relatively knowledge-based second unit will end up by involving students to reflect and evaluate how they can help to alleviate the climate change issue through a change in their life-style.

The last part of the second unit opens up rooms for students to look deeper into the value aspect of the climate change issue, which will be the focus of the third unit. Based on what students have learnt in the previous two units, Liberal Studies teachers will guide them to conduct in-depth discussion and analysis on the contrasting viewpoints and attitudes of different stakeholders towards climate change. Students will also learn how a commonly acceptable solution can be formulated through compromise and mutual understanding.

The above design is only one of the many ways for school-based cross-subject collaboration. Teachers should feel free to modify and adopt the unit plans in this resource pack to achieve the best result of subject collaboration in their own schools.

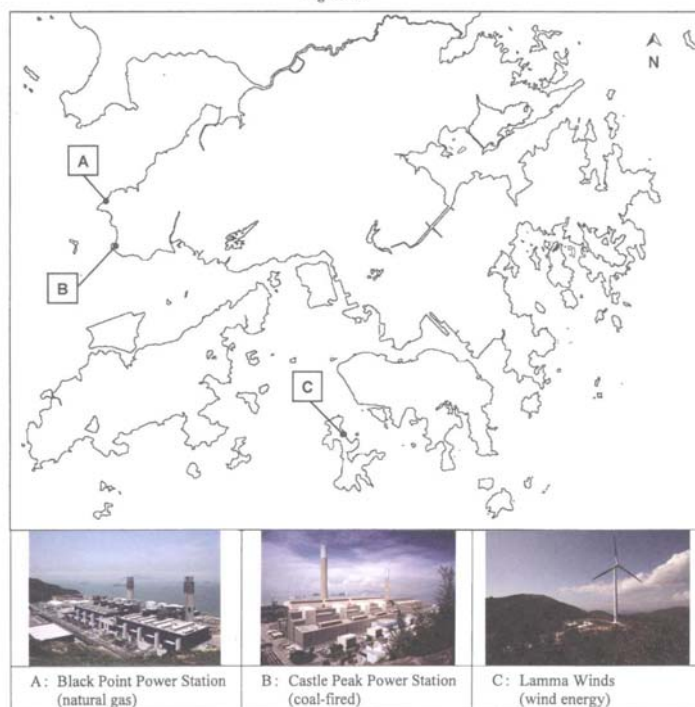
Extract from HKCEE Geography Paper 1 (2009)

6. Table 6a shows the electricity consumption per capita in Hong Kong from 2001 to 2006. Figure 6b shows the locations of some power generating facilities in Hong Kong.

Table 6a

Year	Electricity consumption per capita (GJ)
2001	19.98
2002	20.33
2003	20.57
2004	20.82
2005	21.16
2006	21.18

Figure 6b

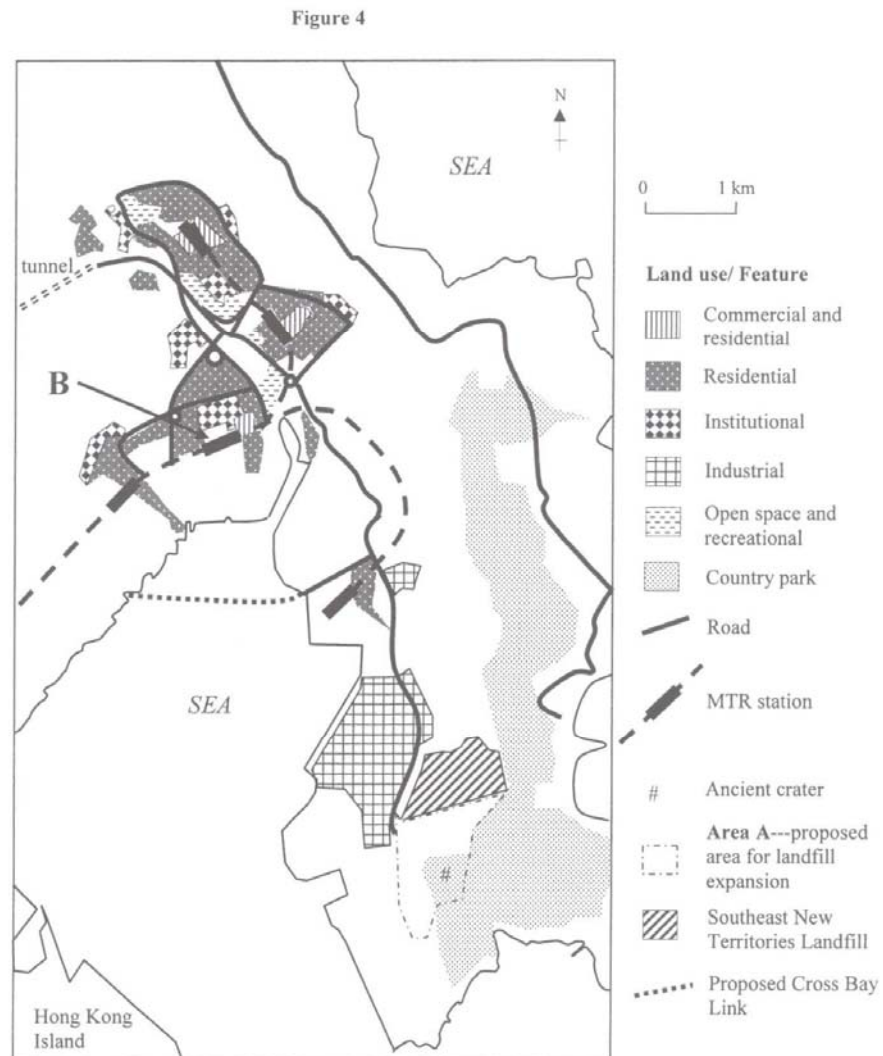


Below are some of the questions asked:

1. What are the advantages of using natural gas for power generation as compared with coal?
2. What are the advantages of developing a wind power station at Location C?
3. Explain why there is no large scale development of wind power generation in Hong Kong.
4. "It is important to promote environmental conservation by developing renewable energy." Give arguments to support this statement.

Extract from HKCEE Geography Paper 1 (2010)

4. Figure 4 is a sketch of the land uses of Tseung Kwan O South.



Below are some of the questions asked:

1. A hotel is being constructed at site B.
 - (a) Why is site B suitable for hotel development?
 - (b) Assess the impact of the construction of the hotel on the sustainable development of Tseung Kwan O area.