Environmental Ethics

 2. Use and exploitation of the natural environment

2.1. Intended Learning Outcomes

By the end of the lessons, the students will be able to:

1. Understand the general situations of use and exploitation of the natural environment locally and globally
2. Examine some arguments for or against using and exploiting the nature
3. Develop their own standpoints on using and exploiting the nature based on the theories of ethics

*\*Prerequisite knowledge: Normative Ethics, the nature of morality, moral principles, moral reasoning, theory of conduct, theory of value & virtue (Refer to* [*‘NSS Ethics and Religious Studies Curriculum Support Materials - Compulsory Part: Ethics - Module 1: Normative Ethics’*](http://www.edb.gov.hk/en/curriculum-development/kla/pshe/references-and-resources/ethics-and-religious-studies/support-materials-compulsory-part-module-1-normative-ethics.html)*)*

2.2. Introduction

Throughout the history of mankind, human has been using natural resources to produce various materials for survival (needs such as food, clothing, shelter, etc.), comfortability and excelsior (wants such as luxurious dwelling places, transportation, fashion, amusement, etc.). These materials or natural resources can be non-renewable (e.g. fossil fuels) or renewable (e.g. solar/tidal energy) being consumed with different amount and levels. It arouses keen arguments on the followings:

Should human beings exploit the natural environment? To what extend should the natural resources be used for the human development? Using how much of them are considered acceptable and appropriate? Who and how to define the boundary between positive use and negative exploitation? What are the impacts on the ecosystem and how to evaluate these impacts? Do human beings have dominance over the nature? Do we have any moral obligations in preserving the nature or other species?

Along the line of these thoughts, in these lessons, the students will have a glance at the current general situations of use and exploitation of the nature, and also examine the arguments for or against it, as well as applying theories of ethics to evaluate their pros and cons, so as to develop their standpoints on the issue.

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| References:* http://www.timeout.com.hk/big-smog/features/75330/smugglers-paradise-a-look-at-the-citys-incense-trees-nearing-extinction.html
* http://bse.wisc.edu/Future-Undergraduate-Degree-Natural\_Resources\_&\_Environmental\_Engineering.htm
* http://hk.apple.nextmedia.com/news/art/20130127/18148107
* http://neijman.deviantart.com/art/Green-Earth-126055809
* http://plato.stanford.edu/entries/ethics-environmental/
* http://www.academia.edu/1476524/Environmental\_Ethics\_Between\_Anthropocentrism\_and\_Ecocentrism
* http://www.accesstoinsight.org/lib/authors/desilva/attitude.html
* http://www.bbc.com/zhongwen/trad/china/2015/12/151221\_china\_shenzhen\_landslide
* http://www.brilliantearth.com/blood-diamond-environmental-impact/
* http://www.cavern.gov.hk/home.htm
* http://www.chinadailyasia.com/hknews/2015-11/11/content\_15342461.html
* http://www.clear-vision.org/Schools/Students/Ages-17-18/natural-world/environment.aspx
* http://www.dailymail.co.uk/news/peoplesdaily/article-3370350/China-s-giant-landslide-feared-killed-76-people-caused-enormous-pile-mud-construction-waste-dumped-hills-Chinese-authority-reveals.html
* http://www.designinghongkong.com/v4/fqa-%E5%B8%B8%E8%A6%8B%E5%95%8F%E9%A1%8C%EF%BC%9Acountry-parks%E9%83%8A%E9%87%8E%E5%85%AC%E5%9C%92/
* http://www.dw.com/en/sierra-leone-diamond-miners-toil-to-get-rich/a-16628965
* http://www.iso.cuhk.edu.hk/english/publications/sustainable-campus/article.aspx?articleid=61097
* http://www.leaderu.com/orgs/probe/docs/ecology.html
* http://www.manilatimes.net/reclamation-pros-cons/115249/
* http://www.offshore-technology.com/features/feature-platforms-artificial-island-which-works-best/
* http://www.reuters.com/article/us-china-landslide-idUSKBN0U30CS20151221
* http://www.scmp.com/comment/insight-opinion/article/1672933/dont-sacrifice-hong-kongs-country-parks-housing-quick-fix?page=all
* http://www.scmp.com/comment/insight-opinion/article/1842803/country-park-outskirts-can-be-developed-alleviate-hong-kongs?page=all
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* http://www.scmp.com/news/hong-kong/politics/article/1877662/hong-kong-chief-executive-leung-chun-ying-suggests-use?page=all
* http://www.sustainable-environment.org.uk/Earth/Ecocentrism\_and\_Technocentrism.php
* http://www.theguardian.com/environment/2016/jan/27/japan-begins-work-on-worlds-largest-floating-solar-farm
* http://www.threerunwaysystem.com/en/Commitment/Environmental\_impact\_assessment.aspx
* <http://www.ukessays.com/essays/philosophy/the-exploitation-of-natural-environment-philosophy-essay.php>
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* 1. Teaching and learning process

Suggested teaching period: 4 lessons.

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| 1. Introduction: General situations of use and exploitation of the natural environment in Hong Kong and other places

1.1. Before the lesson, students are told to research for cases on positive use and negative exploitation of the natural environment in Hong Kong or beyond from the Internet. Let them present their findings during the lesson.1.2. Ask students to form 7 groups, and distribute a ‘scope text’ for study and presentation. Tell students to complete **Worksheet 1: Kaleidoscope of use and exploitation of the natural environment**. Facilitate a class discussion afterwards.1. Arguments for or against using and exploiting the nature
	1. Introduce the 3 distinct ideologies - (a) anthropocentrism; (b) ecocentrism; (c) technocentrism - concerning using and exploiting the nature to the students. Ask student to complete ‘Worksheet 2: Ideologies towards using and exploiting the nature’.

2.2. Ask students to form 6 groups. Each group sends a representative out to draw a role card and performs one of the following roles: (a) Judeo-Christian; (b) liberal Christian; (c) Buddhist; (d) Pope – Catholic; (e) environmental engineer; (f) government officer. Students may prepare their presentation by referring to the role cards in the class, or by searching for additional information after class. Then, teacher (or a designated student) facilitates the forum. During the forum, students may jot notes and do a peer evaluation using ‘Worksheet 3: Forum on using and exploiting the nature’.1. Debate on exploiting land from country parks in Hong Kong
	1. Flipped learning: Before the lesson, ask students to watch the online video on ‘Pearl Report: Save Our Country Parks’ at <https://www.youtube.com/watch?v=dyNeHMxV_Jk>’ (23 minutes). Or to watch other videos on ‘exploiting land from Hong Kong’s country parks in Chinese, for example ‘星期六主場 香港天文台前台長林超英’ at <https://www.youtube.com/watch?v=rCkM3oir22A>. (first 11 minutes).

In addition, students are required to search for some more information regarding the pros and cons arguments of the issue.* 1. During the lesson, ask the students to form groups of3-6 students, share their views on the video and present what they have gathered on this topic. To facilitate their sharing, they can complete ‘Worksheet 4: Pros and Cons of exploiting land from country parks in Hong Kong’. Then, ask the groups to present their ideas.
	2. Debate: divide the class into 2 groups for the debate on ‘Country parks in Hong Kong should be developed to alleviate the housing problem.’ Ask them to prepare for their arguments at home. To facilitate their preparation and consolidation, Worksheet 4 can be used.
	3. In the debate, students may evaluate the performance of both themselves and their peer using the evaluation tables in Worksheet 4.

4. Conclusion and students’ self-evaluation4.1. Review the key learning points of the topic on ‘Use and exploitation of the natural environment’ with the students.4.2. Ask students to consolidate their knowledge and evaluate their learning outcomes by completing ‘Worksheet 5: Summary & self-evaluation’. |

**Kaleidoscope of use and exploitation of the natural environment**

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| **Scope 1: Smuggling of incense trees in Hong Kong**Abundant *Aquilaria sinensis* (agarwood) trees everywhere in the countryside of Hong Kong were lopped down by smugglers for the lucrative oud oil twice as valuable as gold. The oil’s value has increased 109 percent since 2005, with one gramme currently worth over $45,000 on the Mainland market. The vicious cycle of its high value and perpetual illegal logging is leading the tree, which was once widely distributed across Hong Kong, to near extinction in the SAR. With buyers in mainland China willing to pay an exorbitant premium for the wood, but at what cost for Hong Kong’s natural habitat?The law sanctions that any person who fells, cuts or otherwise destroys these trees is liable to a maximum fine of $100,000 and 10 years’ imprisonment, and any person who ships the agarwood out of Hong Kong without a valid CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) permit is subject to a $500,000 fine and a year’s imprisonment. This threat of heavy prosecution should, in theory, deter from the illegal smuggling, but in reality there are very few reported cases of felling.Sources: * http://www.timeout.com.hk/big-smog/features/75330/smugglers-paradise-a-look-at-the-citys-incense-trees-nearing-extinction.html
* <http://hk.apple.nextmedia.com/news/art/20130127/18148107>
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| **Scope 2: Cavern Development in Hong Kong**Hong Kong’s steep hilly terrain limits the growth of the urban areas. In response to the society’s needs for land to support our social and economic development, the Government is actively exploring the use of rock caverns as one of the innovative measures to expand Hong Kong’s land resources.The Cavern Study aims to formulate a holistic, long-term strategy and approach to the planning and execution of rock cavern development to become a sustainable means of enhancing land supply.Some examples of rock cavern development in Hong Kong:

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| MTR stations - Tai Koo, Sai Wan Ho, Sai Ying Pun, University, Lei Tung, Ho Man Tin Stations (& Admiralty Station Extension) | Stanley Sewage Treatment Plant |
| Island West Refuse Transfer Station | Kau Shat Wan Explosives Depot |
| Western Salt water Service Reservoirs |  |

Source: <http://www.cavern.gov.hk/home.htm> |
| **Scope 3: Flushing seawater in Hong Kong**Since the late 1950's, the Water Supplies Department has supplied seawater, primarily for flushing, in government and government-aided high density development schemes, but subsequently for flushing supplies throughout the urban areas and the new towns. Nearly 80% of the population is now supplied with seawater for flushing.The extensive use of seawater has helped to reduce the demand on fresh water for flushing. During 2014, an average of 742,530 cubic metres per day of seawater was supplied for flushing purposes, conserving an equivalent amount of potable water.Seawater is not treated to the same standard as fresh water but its standard still has to comply with the guidelines laid down by the department to prevent objectionable characteristics. The seawater is firstly screened by strainers to remove sizeable particles. It is then disinfected with chlorine or hypochlorite before being pumped to service reservoirs and for distribution to consumersSource: <http://www.wsd.gov.hk/en/water_resources/water_treatment_and_distribution_process/seawater_for_flushing/> |

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| **Scope 4: Quarrying led to giant mudslide in Shenzhen** In December 2015, giant mudslide took away countless lives in Shenzhen. At least 85 people were missing on the following day. The massive flow of mud and construction waste spewed out of an overfull dump in a boomtown and buried 33 buildings in its latest industrial disaster. It was found not being a natural disaster, but a man-made catastrophe. In 2005, the scene was a valley excavated by quarrying. Followed by the suspension of the quarry in 2013, the bare valley began re-greening, but massive ponding was conspicuous. In 2014, abandoned quarry valley was transformed into slag soil landfill. In 2015, the mudslide smashed into multi-storey buildings at the Hengtaiyu industrial park in the Guangming New District, toppling them within seconds. The mudslide, covering an area of more than 380,000 square meters (94 acres), was 10 meters (33 feet) deep in parts.Sources: * <http://www.bbc.com/zhongwen/trad/china/2015/12/151221_china_shenzhen_landslide>
* <http://www.dailymail.co.uk/news/peoplesdaily/article-3370350/China-s-giant-landslide-feared-killed-76-people-caused-enormous-pile-mud-construction-waste-dumped-hills-Chinese-authority-reveals.html>
* <http://www.reuters.com/article/us-china-landslide-idUSKBN0U30CS20151221>
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| **Scope 5: Japan begins work on 'world's largest' floating solar farm**The Japanese electronics multinational Kyocera has begun work on what it says will be the world’s biggest floating solar farm.The power plant is being built on a reservoir in Japan’s Chiba prefecture and is anticipated to supply enough electricity for nearly 5,000 households when it is completed in early 2018.Space-starved Japan has already seen several floating solar farms built as part of the country’s drive to exploit more renewable energy in the wake of the 2011 Fukushima disaster. The shutdown of nuclear plants [has seen Japan increasingly reliant on fossil fuel imports that have hit its emissions-cutting ambitions](http://www.theguardian.com/environment/ng-interactive/2015/oct/16/which-countries-are-doing-the-most-to-stop-dangerous-global-warming). The Yamakura dam power plant will see more than 50,000 solar photovoltaic panels cover a 180,000 m sq area, but compared to other land-based plants it is relatively small. At 13.7MW when finished, it would not make the top 100 of the world’s largest solar photovoltaic farms.Source: <http://www.theguardian.com/environment/2016/jan/27/japan-begins-work-on-worlds-largest-floating-solar-farm> |

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| **Scope 6: Blood diamond in Africa**Due to inadequate planning and regulation, diamond mining has wreaked environmental havoc throughout Africa and other parts of the world.Ecological DevastationA century of reckless diamond mining has taken a heavy toll on Angola’s environment. Irresponsible diamond mining has caused soil erosion, led to deforestation, and forced local populations to relocate. Angola’s diamond industry has been particularly careless in protecting rivers and streams from exploitation. Diamond miners have re-routed rivers and constructed dams to expose riverbeds for mining, with disastrous effects on fish and wildlife.In extreme cases, diamond mining can cause entire ecosystems to collapse. Diamond miners in the Kono district of eastern Sierra Leone have left behind thousands of abandoned mining pits. Wildlife has vanished, topsoil has eroded, and land once suitable for farming is now a desolate moonscape. The mining pits have created a public health disaster as well. When the pits fill with stagnant rainwater, they become infested with mosquitoes, spreading malaria and other water-borne diseases.Sources:* <http://www.brilliantearth.com/blood-diamond-environmental-impact/>
* <http://www.dw.com/en/sierra-leone-diamond-miners-toil-to-get-rich/a-16628965>
* <https://talesofeverydaylifeinlebanonandbeyond.wordpress.com/2013/10/09/genia-boustanys-a-freetown-of-mine/>
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| **Scope 7: Artificial islands around the world**An artificial island or man-made island are created by expanding existing islets, construction on existing reefs, or amalgamating several natural islets into a bigger island. Largest artificial islands are located around the world with various utilizations including agriculture and housing (Flevopolder, Netherlands), amusement (Yas Island, Abu Dhabi, UAE), airport (Hong Kong International Airport; Kansai & Chūbu Centrair International Airports, Japan), and housing (Palm Jumeirah, Dubai, UAE; Rokko Island & Port Island, Japan), etc. Artificial island/ land reclamation can relief urban land shortage. For instance, Singapore reclaimed over 6,000 hectares to enlarge the island from the original 65,000 hectares to 71,000 hectares to create more urban lands. Two-thirds of The Netherlands has been reclaimed to answer the city’s flood problem. Dubai added 2,000 square kilometers for water front urban development. In fact, land reclamation development projects today have been done to address the impending urban expansion of cities all around the world, or to increase the city’s economic, commercial, and financial activity.* Nevertheless, constructing artificial islands would cause damage to the marine ecology (e.g. the loss of reefs and fish), including disturbances in the reproductive cycles of the species of fish. Research showed that the newly-born fish were not able to survive in conditions along the reclaimed shores to constant construction and environmental alterations (e.g. shifting of sand, moving boulders and the effects of the vibrators used to compact the sand and soil). In addition, most of the environmental damage was caused by the sediments stirred up by the construction; it suffocated and injured the surrounding marine fauna and decreased the amount of sunlight filtering down to the sea vegetation. Such environmental disturbances have turned the heads of many environmental activists.

Sources:* <https://en.wikipedia.org/wiki/Artificial_island>
* http://www.manilatimes.net/reclamation-pros-cons/115249/
* http://www.offshore-technology.com/features/feature-platforms-artificial-island-which-works-best/
* <https://www.quora.com/What-are-the-pros-and-cons-of-man-made-islands-built-on-sea-and-how-does-it-harm-the-environment>
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| **Worksheet 1: Kaleidoscope of use and exploitation of the natural environment****1. Complete the following tasks while listening to the presentations by the fellow classmates.**

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| **Scope** | **Spider chart (0=lowest ; 5=highest)** | **Do you agree with this mean of use/exploitation of the nature? Why?****Check and discuss with your group members before presentation.** |
| 1. Smuggling of incense trees in Hong Kong
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| 1. Cavern Development in Hong Kong
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| 1. Flushing seawater in Hong Kong
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| 1. Quarrying led to giant mudslide in Shenzhen
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| 1. Japan begins work on 'world's largest' floating solar farm
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| 1. Blood diamond in Africa
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| 1. Artificial islands around the world
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1. ***Challenging level (optional):***  **What ethical principle(s) or other criteria would you uphold to determine if the means of use/exploitation of the nature in the above cases are acceptable or not? Explain your answer.**
2. ***Challenging level (optional):* What ethical principle(s) or other criteria would you uphold to determine if the means of use/exploitation of the nature in the above cases are acceptable or not? Explain your answer.**

***(For teachers’ reference)***

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| **Ethical principle/criteria** | **Explanation** |
| Kantian/ deontological ethics | All natural resources have ends in themselves and intrinsic values. It is humans’ duty to protect them, but not to manipulate them for our selfish purposes. |
| Utilitarianism | Proper use of natural resources can maximize net pleasure of human beings.Improper/over exploitation of natural resources can lead to great pain of human beings in current or next generations. |
| Hedonism | If the act of exploiting the natural can “bring the greatest happiness to the majority”, it is moral. |
| Virtue ethics | ‘Conserving’ and ‘respect’ for the nature is virtuous. |
| Rights | Human has the right to exploit the natural resources for our uses. |
| Legality | If people exploit the natural under lawful circumstances as regarded by the local jurisdiction, it is acceptable. |
| Impact on the ecosystem | The ecosystem is a system with self-recovery function. If we use the natural resources moderately or in a renewable way, it should be fine. However, if we exploit them excessively, it would cause irreversible negative impacts on the ecosystem. |
| (Or any other reasonable answers) |

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| **Worksheet2: Ideologies towards using and exploiting the nature***Study the information and then complete the tasks below.*

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| **A. Anthropocentrism**Anthropocentrism, also known as homocentricism or human supremacism. It believes that [human beings](https://en.wikipedia.org/wiki/Human) are the central or most significant species on the planet (in the sense that they are considered to have a moral status or value higher than that of all other organisms), or the assessment of reality through an exclusively human perspective.People who hold anthropocentric view acknowledge themselves as being the only most significant entities in the universe while disregarding animals and plants unless they provide life necessities such as nutrition, clothing, shelter and medical benefits; consequently, human exploitation and abuse of the natural environment has been observed at a global scale. Another viewpoint concerning ‘Natural Order and Evolution’ supports human dominion over nature. It focuses on the evolutionary level and the natural order of things that places human beings at the top of everything. Human are blessed with their brain power that are considered to be the highest achievement of nature and should be granted full dominance over everything else in the natural world.As taken from an anthropocentric view, people cut down trees to build houses, or provide jobs for low-income class; trees’ innate value in this situation is ignored, therefore, destructive global outcomes emerge.Defenders of anthropocentrism concerned with the ecological crisis contend that the maintenance of a healthy, sustainable environment is necessary for human well-being as opposed to for its own sake. The problem with a "shallow" viewpoint is not that it is human-centred but that according to William Grey: "What's wrong with shallow views is not their concern about the well-being of humans, but that they do not really consider enough in what that well-being consists. Sources:* <https://en.wikipedia.org/wiki/Anthropocentrism>
* <http://www.academia.edu/1476524/Environmental_Ethics_Between_Anthropocentrism_and_Ecocentrism>
* http://www.ukessays.com/essays/philosophy/the-exploitation-of-natural-environment-philosophy-essay.php
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| **B. Ecocentrism**Ecocentrism recognizes intrinsic value in all living things on earth regardless of their usefulness to humans. It also encourages people to respect and care for animals and plants for their own sake. Questions arise for why people fail to respect nonhuman species and mistreat nature just to enhance their living standards luxuriously. Ecocentrism and anthropocentrism are recognized as one of the common ecological moral dilemmas. Ecocentrists blame anthropocentrists for creating severe environmental crisis ranging from global warming, ozone depletion and water scarcity to the loss of biological diversity. Deforestation, for example, contributes to global warming where the trees-logging means less absorption of carbon dioxide, thus leading to more greenhouse gases trapped in the atmosphere. A domino effect of such would lead to severe climate changes resulting in the extinction of various species due to habitat-sabotage.**Deep ecology: Human-nature harmony**Ecocentrists, including "deep green" ecologists, see themselves as being subject to nature, rather than in control of it. They argue that the natural world should be respected for its processes and products, and that low impact technology and self-reliance is more desirable than technological control of nature. The deep ecologist respects this intrinsic value, taking care, for example, when walking on the mountainside not to cause unnecessary damage to the plants.Deep ecologists’ platform claims that justification is made upon people only when their intervention in the natural wildlife is vital to human needs, i.e. for survival, not for luxury. Sources:* <http://www.academia.edu/1476524/Environmental_Ethics_Between_Anthropocentrism_and_Ecocentrism>
* <http://www.sustainable-environment.org.uk/Earth/Ecocentrism_and_Technocentrism.php>
* <http://plato.stanford.edu/entries/ethics-environmental/>
* http://neijman.deviantart.com/art/Green-Earth-126055809
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| **C. Technocentrism**Technocentrists have absolute faith in technology and industry and firmly believe that humans have control over nature. Although technocentrists may accept that environmental problems do exist, they do not see them as problems to be solved by a reduction in industry. Rather, environmental problems are seen as problems to be solved using science. Indeed, technocentrists see that the way forward for developed and developing countries and the solutions to our environmental problems today lie in scientific and technological advancement.**Shallow ecology: minimizing pollution and resource depletion by scientific methods**Technocentrism and ecocentrism are two opposing [perspectives](http://www.sustainable-environment.org.uk/Earth/Environmental_Perspectives.php) concerning attitudes towards human technology and its ability to affect, control and even protect the environment. The “shallow ecology movement” is the fight against pollution and resource depletion, the central objective of which is the health and affluence of people in the developed countries, which is unlike the “deep ecology movement” that endorses “biospheric egalitarianism”- the view that all living things are alike in having value in their own right, independent of their usefulness to others. Sources:* <http://www.sustainable-environment.org.uk/Earth/Ecocentrism_and_Technocentrism.php>
* http://plato.stanford.edu/entries/ethics-environmental/
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1. Compare the 3 distinguished ideologies towards using and exploiting the nature.

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|  | **Anthropocentrism** | **Technocentrism** | **Ecocentrism**  |
| **Core values** |  |  |  |
| **Attitude towards exploiting the nature** |  |  |  |
| **Ways to solve environ-mental problems** |  |  |  |
| *Challenging level (optional):* **Your comments / critiques** |  |  |  |

1. Which of the above ideologies towards using and exploiting the nature is more agreeable to you? Elaborate your answer.
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| **Worksheet 2: Ideologies towards using and exploiting the nature*****(For teachers’ reference)***1. Compare the 3 distinguished ideologies towards using and exploiting the nature.

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|  | **Anthropocentrism** | **Technocentrism** | **Ecocentrism**  |
| **Core values** | * **Human supremacy**
* **Comfortability of human**
 | * **Development** – Technological advancement can help exploiting the nature in sustainable ways
* **Control over nature**
 | * **Equality** - All animals (including human) are equal.
* **Equilibrium**
* **Harmony**
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| **Attitude towards exploiting the nature** | Human has the right to exploit the nature. All natural resources are to serve human’s needs and wants. | Human can exploit the nature and minimize its negative impact on the environment using science and technology. | Human should respect and protect the ecosystem. Using natural resources for survival is okay. However, by no means human should exploit the nature for luxury. |
| **Ways to solve environ-mental problems** | Solving environmental problems does not have top priority in the human development agenda. | Solve environmental problems, esp those caused by human activities, by scientific or technological methods. | Prevent causing any environmental problems by genuine respect and care for the ecosystem – deep ecology. |
| ***Challenging level (optional):*** Your comments / critiques |  |  |  |

(or other reasonable answers)1. Which of the above ideologies towards using and exploiting the nature is more agreeable to you? Elaborate your answer.

(any reasonable answers) |

**Role cards - Forum on using and exploiting the nature**

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| Role 1: Judeo-ChristianDominion over the nature*“God created man in his own image, in the image of God created he him; male and female he created them. And God blessed them, and God said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over fish of the sea, and over fowl of the air, and over every living thing that moveth upon the earth.”* (Genesis 1: 27–28)In the bible verses above, God commands His new creation, human, to have dominion over the earth and to rule and subdue it. To the Judeo-Christians this mandate is seen as a clear license to exploit the earth for humans' own purposes. They believe that humans are created in the image of the transcendent supernatural God, who is radically separated from nature, also by extension radically separates humans themselves from nature. This ideology further opened the way for untrammeled exploitation of nature, as they, e.g. Theologian Thomas Aquinas, believe that everything in the world is “ordered to man’s use”.Sources:<http://www.ukessays.com/essays/philosophy/the-exploitation-of-natural-environment-philosophy-essay.php><http://plato.stanford.edu/entries/ethics-environmental/>http://www.leaderu.com/orgs/probe/docs/ecology.html |
| **Role 2: Liberal Christian** **Stewardship over the nature**God as Creator and man as his image-bearer and steward. God is the Creator of nature, not part of nature. He transcends nature (Gen. 1-2; Job 38-41; Ps. 19, 24, and 104; Rom 1:18-20; Col. 1:16-17). All of nature, including human, is equal in its origin. Nature has value in and of itself because God created it. Nature's value is intrinsic; it will not change because the fact of its creation will not change. All natural resources and animals deserve our respect because God made them to be as they are.As human bears the image of God, it is our responsibility to rule and manage the earth as a steward or a caretaker, not a reckless exploiter. God told Adam and Eve to cultivate and keep the garden (Gen. 2:15), and we may certainly use nature for our benefit, but we may only use it as God intends. An effective steward understands that which he oversees the intricacies of nature. Source: http://www.leaderu.com/orgs/probe/docs/ecology.html  |
| Role 3: BuddhistGentle non-aggressive attitude towards the natureBuddhism tirelessly advocates the virtues of non-greed, non-hatred and non-delusion in all human pursuits. Greed breeds sorrow and unhealthy consequences. Contentment (*santutthi*) is a much praised virtue in Buddhism. The man leading a simple life with few wants easily satisfied is upheld and appreciated as an exemplary character. Miserliness and wastefulness are equally deplored in Buddhism as two degenerate extremes. Buddhism commends frugality as a virtue in its own right. The more profound objections to over-exploitation of natural resources and pollution in Buddhism are related to the attitudes again greed. It is greed or craving (*tanha*) which leads us to take more than we need for simple and straightforward living. The monastic life in Buddhism gives a model for what simple living without too much consumption might look like. If everyone lived as simply as a Buddhist monk or nun, it might be argued, there would be no problems with depletion of resources, and very little pollution produced, because the sources of pollution (manufacturing, transport etc.) would be much more limited.Buddhism advocates a gentle non-aggressive attitude towards nature. According to the *Sigalovada Sutta* a householder should accumulate wealth as a bee collects pollen from a flower. The bee harms neither the fragrance nor the beauty of the flower, but gathers pollen to turn it into sweet honey. Similarly, man is expected to make legitimate use of nature so that he can rise above nature and realize his innate spiritual potential.Sources: <http://www.accesstoinsight.org/lib/authors/desilva/attitude.html>http://www.clear-vision.org/Schools/Students/Ages-17-18/natural-world/environment.aspx |
| Role 4: Pope (Catholic)Exploiting nature 'sin' of our timePope Francis in an address to Italian students has called for people to respect nature and called the destruction of South America’s rainforests, as well as other environmental destruction, “our sin.”“When I look at America, also my own homeland, so many forests, all cut, that have become land… that can no longer give life. This is our sin, exploiting the Earth and not allowing her to give us what she has within her,” the Pope said in an apparently off-the-cuff speech. “This is one of the greatest challenges of our time: to convert ourselves to a type of development that knows how to respect creation.” The rainforest in South America, as in other parts of the world, is in great danger. According to National Geographic, during the past 40 years, 20 percent of the Amazon rainforest has been cut down, more than in the entire previous 450 years since European colonizers arrived in the area. Environmentalists fear that an additional 20 percent may be lost in the next two decades and if this happens, things will start to unravel quickly as the forests’ ecology will no longer be self-supporting. At the moment, the Amazon still produces about half its own rainfall through the moisture the vegetation releases into the atmosphere, but if enough of the trees are chopped down, then coupled with droughts and wildfires, the remaining trees will dry out and die, leaving scrubland. Source: https://www.rt.com/news/170660-pope-exploiting-nature-sin/ |
| **Role 5: Environmental engineer****Balancing civilization and moderate use of the nature by technology** Environmental engineers work with all kinds of natural resources, like water, soil, plants, and air. For example, they could be responsible for the design of livestock or wildlife watering stations in a natural forest or the design of a recycling waste management system on a dairy farm, or exploring natural resources like gas, petroleum, metals etc. for public utilities. Whilst environmental engineers try to develop the environment to server civilization purposes, they apply scientific and engineering principles to evaluate if there are likely to be any adverse impacts to water quality, air quality, [habitat](https://en.wikipedia.org/wiki/Habitat_%28ecology%29) quality, [flora](https://en.wikipedia.org/wiki/Flora_%28plants%29) and [fauna](https://en.wikipedia.org/wiki/Fauna_%28animals%29), agricultural capacity, [traffic](https://en.wikipedia.org/wiki/Traffic) impacts, social impacts, ecological impacts, noise impacts, visual (landscape) impacts, etc. If impacts are expected, they then develop mitigation measures to limit or prevent such impacts. An example of a mitigation measure would be the creation of [wetlands](https://en.wikipedia.org/wiki/Wetland) in a nearby location to mitigate the filling in of wetlands necessary for a road development if it is not possible to reroute the road.Sources: [http://bse.wisc.edu/Future-Undergraduate-Degree-Natural\_Resources\_&\_Environmental\_Engineering.htm](http://bse.wisc.edu/Future-Undergraduate-Degree-Natural_Resources_%26_Environmental_Engineering.htm)<https://en.wikipedia.org/wiki/Environmental_engineering><http://www.leaderu.com/orgs/probe/docs/ecology.html> |
| Role 6: Government officerBalance between economic development and environmental conservationHKSAR government aims at developing Hong Kong and to enhance its international competitiveness. Taking the proposed ‘Three-Runway System’ of the Hong Kong International Airport for instance, the Lands Department issued a [Government Notice](http://www.gld.gov.hk/egazette/pdf/20151919/egn201519193319.pdf) for the reclamation works of HKIA’s expansion into a 3RS in May 2015.A major part of the three-runway system project is the Environmental Impact Assessment (EIA), which includes a series of studies assessing the potential environmental impact of the project across 12 key aspects, namely air quality, noise, ecology, fisheries, health impact assessment, hazards to human life, water quality, sewerage and sewage treatment, waste management, land contamination, landscape and visual, and cultural heritage. The Airport Authority is committed to tackle the potential environmental impacts arising from the 3RS project and proposed more than 250 measures to avoid, minimise, mitigate and/or compensate for them in the EIA report. With extensive mitigation measures, the report concluded that all the potential impacts of the 3RS project could be reduced to an acceptable level. The work is monitored by the Environmental Protection Department with the aim of achieving a balance between economic development and environmental conservation. Source: http://www.threerunwaysystem.com/en/Commitment/Environmental\_impact\_assessment.aspx |

**Alternative learning activity**

Using the above role cards, tell each group of students to design a board-game to promote environmental education to younger students in the next school open day.

When the board game is made, evaluate and feedback on students’ skills in capturing the views of these 6 stakeholders into short sentences, which may become “chance and destiny” cards.

Another focus for providing feedback to students is the definition of winning the game as shown in the overall design. Let them lead the introduction on the rule of the game and ask them to explain and defend for the values and hypothesis behind their product in front of other groups. There are plenty of rooms for creativity and discussion when designing the content or layout of grids on the chess board.

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| **Worksheet 3: Forum on using and exploiting the nature**Listen attentively to the viewpoints/concerns of the spokesmen in the forum. Jot down their views, and analyze their stands in the table below.

|  |  |  |  |
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| **Role** | **Attitude towards exploiting the nature** | **Viewpoints / concerns** | **Challenging level (optional)****Critiques from deontological / utilitarian view points** |
| **Judeo-Christian** | For / Against(Anthropocentrism/Ecocentrism/Technocentrism) |  |  |
| **Liberal Christian** | For / Against (Anthropocentrism/Ecocentrism/Technocentrism) |  |  |
| **Buddhist** | For / Against (Anthropocentrism/Ecocentrism/Technocentrism) |  |  |
| **Pope (Catholic)** | for / against(Anthropocentrism/Ecocentrism/Technocentrism) |  |  |
| **Environmental Engineer** | for / against(Anthropocentrism/Ecocentrism/Technocentrism) |  |  |
| **Government officer** | for / against(Anthropocentrism/Ecocentrism/Technocentrism) |  |  |

Peer evaluation

|  |  |
| --- | --- |
|  | Peer-evaluation (3=good, 2=average, 1=poor) |
| **Judeo-Christian** | **Liberal Christian** | **Buddhist** | **Pope (Catholic)** | **Environmental Engineer** | **Government officer** |
| Clear standpoint | 3 2 1 | 3 2 1 | 3 2 1 | 3 2 1 | 3 2 1 | 3 2 1 |
| Convincing viewpoints | 3 2 1 | 3 2 1 | 3 2 1 | 3 2 1 | 3 2 1 | 3 2 1 |
| Substantial examples | 3 2 1 | 3 2 1 | 3 2 1 | 3 2 1 | 3 2 1 | 3 2 1 |
| Logical presentation | 3 2 1 | 3 2 1 | 3 2 1 | 3 2 1 | 3 2 1 | 3 2 1 |
| Accurate use of ethical theory | 3 2 1 | 3 2 1 | 3 2 1 | 3 2 1 | 3 2 1 | 3 2 1 |

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| **Worksheet 4: Pros and Cons of exploiting land from country parks in Hong Kong**Based on the information you have gathered, compile the table below by writing the bullet points.

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| --- | --- |
| **Pros** | **Cons** |
|  |  |

*Challenging level (optional):* Do you agree with exploiting land from country parks in Hong Kong? Give an account on your answers by using the theories of ethics, ie. Deontology, Utilitarianism, Ultraism, theory of Value and Virtue, and the knowledge you have learnt in this unit of environmental ethics. |

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| Worksheet 4: Debate –Country parks in Hong Kong should be developed to alleviate the housing problem

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| --- | --- |
| For | Against |
|  |  |

Self-evaluation

|  |  |
| --- | --- |
|  | Self-evaluation5=outstanding , 1=very poor |
| Am I able to make substantial arguments? | 5 4 3 2 1 |
| Am I able to give concrete examples to support my arguments? | 5 4 3 2 1 |
| Am I able to employ individual ethical theory accurately with appropriate evidence? | 5 4 3 2 1 |
| Am I able to present my view/arguments in a logical and systematical way? | 5 4 3 2 1 |
| Am I able to respond to the arguments made by the counterpart? | 5 4 3 2 1 |

Peer evaluation

|  |  |
| --- | --- |
|  | Peer-evaluation5=outstanding , 1=very poor |
| Is the counterpart able to make substantial arguments? | 5 4 3 2 1 |
| Is the counterpart able to give concrete examples to support their arguments? | 5 4 3 2 1 |
| Is the counterpart able to employ individual ethical theory accurately with appropriate evidence? | 5 4 3 2 1 |
| Is the counterpart able to present their view/arguments in a logical and systematical way? | 5 4 3 2 1 |
| Is the counterpart able to respond to the arguments made by our side? | 5 4 3 2 1 |

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| Worksheet 4: Debate –Country parks in Hong Kong should be developed to alleviate the housing problem*(For teachers’ reference)*

|  |  |
| --- | --- |
| For | Against |
| Utilitarianism* To increase land supply for providing adequate housing for all - with 40 % of Hong Kong's 1,105.6 sq km, or 44,300 hectares, being preserved as country parks, there are more than 270,000 families are on the waiting list for rental public housing, plus 85,000 households are living in mostly illegally subdivided units - totally about one million people. (Lau Ping Cheung - member of the Economic Development Commission)
* Less property rights problems to be cleared, so that faster pace of housing development in the short term can cope with the burning residential aspiration of the majority nowadays. Such tracts of land are attractive to the administration as, in the main, they are government-owned so there will be little or no cost of land resumption. This would make it cheaper than developing brown fields (land previously used for industrial or some commercial purposes, possibly been contaminated with hazardous waste) in the NT as long as the sites are close to infrastructure.
* More ‘affordable’ housing can be built in country parks for the large population of working class. A team of professional surveyors led by Kaizer Lau Ping-cheung had earlier identified 170 hectares on the northeastern tip of Tai Lam Country Park as an obvious choice of sacrifice, due to its proximity to new town development in Kam Tin. Lau had said it would be a cheap way to add 30,000 homes in five years.

Possible ways to minimize environmental impacts * The negative impacts of building on green land every can be minimized by better planning and technological advancement.
* To restrict the scale of redeveloping country parks as "a small fraction" (e.g. 1-5 %, as proposed by some property developers) for housing purpose.
* To pick those parts of the 400 square kilometres of country park land deemed to be of low ecological and sightseeing value for building flats.

(Or other reasonable arguments)Sources:<http://www.scmp.com/news/hong-kong/article/1657217/consider-building-flats-country-parks-development-secretary-says?page=all><http://www.scmp.com/news/hong-kong/politics/article/1877662/hong-kong-chief-executive-leung-chun-ying-suggests-use?page=all><http://www.scmp.com/comment/insight-opinion/article/1842803/country-park-outskirts-can-be-developed-alleviate-hong-kongs?page=all><http://www.designinghongkong.com/v4/fqa-%E5%B8%B8%E8%A6%8B%E5%95%8F%E9%A1%8C%EF%BC%9Acountry-parks%E9%83%8A%E9%87%8E%E5%85%AC%E5%9C%92/><http://www.chinadailyasia.com/hknews/2015-11/11/content_15342461.html> | Deontology * Country parks are designated by law for the purposes of nature conservation, countryside recreation and outdoor education, not for housing. According to statutory outline zoning plans, the intention of this land-use zoning "is primarily for the conservation of the existing natural environment amid the built-up areas/at the urban fringe, to safeguard it from encroachment by urban-type development, and to provide additional outlets for passive recreational activities. There is a general presumption against development within this zone".
* Country parks are covered by the Country Parks Ordinance. The Country and Marine Parks Authority is mandated to "encourage their use and development for purposes of recreation and tourism", "protect the vegetation and wildlife", and "preserve and maintain building sites of historic and cultural significance". There is a "presumption against any new development".

Theory of Value and Virtue* All animals, plants and rocks etc. in the country parks have intrinsic values. Building flats there would destroy and impact habitats and reduce the area available for biodiversity.
* Protecting and respecting the nature is virtuous.

AltruismWe should conduct life in sustainable ways that will not compromise the ability of future generations to meet their own needs. Our successors should not have to pay for bad decisions we make today. This is a matter of trans-generational justice. If we destroy nature in the name of 'development' without thorough deliberations, we will stand to regret our move. (Prof. Lam Chiu Ying - Former Observatory head)AlternativesThe 2014 policy address identified 257 hectares of agricultural land in North and Yuen Long districts that are used mainly for industrial purposes or temporary storage, or which are deserted. This land should be pushed forward for early development. Some people also suggest replacing some golf courts with residential use.(Or other reasonable arguments)Sources:<http://www.scmp.com/comment/insight-opinion/article/1672933/dont-sacrifice-hong-kongs-country-parks-housing-quick-fix?page=all><http://www.iso.cuhk.edu.hk/english/publications/sustainable-campus/article.aspx?articleid=61097> |

Self-evaluation

|  |  |
| --- | --- |
|  | Self-evaluation5=outstanding , 1=very poor |
| Am I able to make substantial arguments? | 5 4 3 2 1 |
| Am I able to give concrete examples to support my arguments? | 5 4 3 2 1 |
| Am I able to employ individual ethical theory accurately with appropriate evidence? | 5 4 3 2 1 |
| Am I able to present my view/arguments in a logical and systematical way? | 5 4 3 2 1 |
| Am I able to respond to the arguments made by the counterpart? | 5 4 3 2 1 |

Peer evaluation

|  |  |
| --- | --- |
|  | Peer-evaluation5=outstanding , 1=very poor |
| Is the counterpart able to make substantial arguments? | 5 4 3 2 1 |
| Is the counterpart able to give concrete examples to support their arguments? | 5 4 3 2 1 |
| Is the counterpart able to employ individual ethical theory accurately with appropriate evidence? | 5 4 3 2 1 |
| Is the counterpart able to present their view/arguments in a logical and systematical way? | 5 4 3 2 1 |
| Is the counterpart able to respond to the arguments made by our side? | 5 4 3 2 1 |

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| Worksheet 5: Summary & Self-evaluation – Use and exploitation of the natural environmentWrite down the **key learning points** of this module.

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| --- |
| 1. **General situations of use and exploitation of the natural environment in Hong Kong and other places**
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| 1. |
| 2. |
| 3. |
| 4. |
| 5.  |

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| 1. Arguments for or against using and exploiting the nature
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| 1. |
| 2. |
| 3. |
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| 1. **Debate on exploiting land from country parks in Hong Kong**
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| 1. |
| 2. |
| 3. |
| 4. |
| 5. |

**Evaluate how well you have learnt (please put a ‘🗸’)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Very good | Good | Fair | Poor |
| 1. General situations of use and exploitation of the natural environment in Hong Kong and other places
 |  |  |  |  |
| 1. Arguments for or against using and exploiting the nature
 |  |  |  |  |
| 1. Debate on exploiting land from country parks in Hong Kong
 |  |  |  |  |

**What question(s)/area(s) you want to learn more in this module of ‘Use and exploitation of the natural environment’?** |