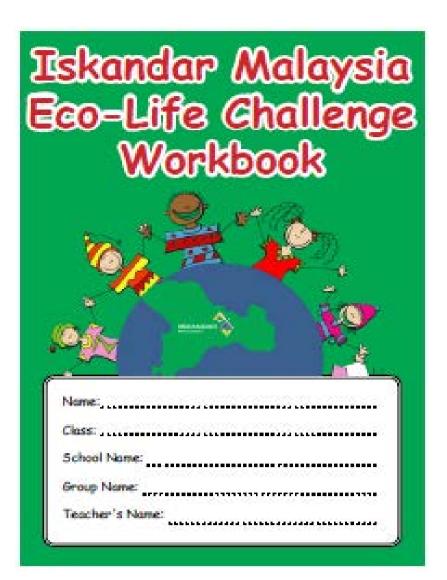
Development of low carbon educational programs towards low carbon society for future generation in Asia

Maiko Suda¹, Fatin Aliah Phang², Wong Wai Yoke² ¹National Institute for Environmental Studies, ²Universiti Teknologi Malaysia

'Iskandar Malaysia Eco-Life Challenge' program, applied by educational program for prevention of global warming 'Children's Eco-Life Challenge' in Kyoto





Pupil who is studying Eco-Life Challenge at SJK(C) Pulai, October, 2013 (Suda, 2013)

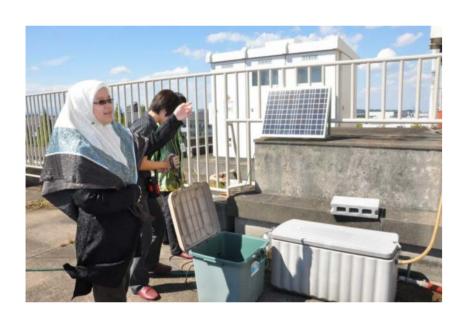
'Iskandar Malaysia Eco-Life Challenge' Workbook (UTM, et al 2013)

In 2012, Iskandar Malaysia Eco-Life Challenge program was kicked off as a research activity on
'Development of Low Carbon Scenarios in Asian Region', supported by JST/JICA (SATREPS). This program
was developed by UTM, JPNJ, IRDA, KIKO Network and NIES. At the same time, situation of environmental
education in Malaysia such as schools' activities on 3R and low carbon in Iskandar Malaysia, view point to
apply good practice on low carbon society in Japan to Iskandar Malaysia, issues for LCS BP low carbon
educational program was reported. In September 2012, the delegation from Malaysia observed reflection
session of Children's Eco-Life Challenge in Kyoto Suzaku Daihachi primary school and exchanged the
experiences and visions with experts. After that, the discussion about workbook, training kits, framework
and Malaysian contexts have been continued among experts from both countries. UTM, JPNJ, IRDA, KIKO
Network and NIES have produced the work book and considered to collaborate with Unesco school as an
element of ESD since May 2013. Currently, the program is improving for all 189 primary schools in Iskandar
Malaysia.

- E	veryone needs to try! M	ari mencu	ıba!	
(1	How to do "Eco-Life Check" B Before you start this Eco-Life column () using the numbers or Sebelum memulakan buku kerj petak () menggunakan nombo After you have completed this mark in column () using the nu Setelah tamat buku kerja ini, t petak () menggunakan nombo	workbook, m the right. a, tandakan r di sebelah Eco-Life wor nbers on the andakan dale	dalam kbook, right.	akan Eco-Life 4: I always do it Sentiasa buat 3: I can mostly do it all the time Hampir sentiasa buat 2: I can do half of the time Kadang-kala buat 1: I could not do it Tidak buat 0: Not applicable/ not related Tidak berkartan
	Eco Life	D Before Sebelum 15~31/10	@ After Selepas 15~31/10	Advice Nasihat
1	Shut down TV when you do not watch it. Menutup TV apabila tidak menontonnya			You are wasting electricity when you are sleeping or reading books while turning on the TV. Anda membasir electrik apabila membarkan TV dibuka semasa tidur atau membasa buku.
2	Turn off lights in a room where no one uses the room. Menutup lampu apabila meninggalkan bilik			If you change your light into LED, you save 90% maximum of electricity per light bulb. Lampu LED mampu menjimat sehingga 90% penggunaan elektrik.
3	Do not use too much of air conditioner. Tidak membiasakan diri menggunakan hawa dingin.			You better use fan instead of air con- ditioner. Adalah lebih baik menggunakan kipas daripada hawa dingin.
4	Be careful in setting the tem- perature of air conditioner. Memberi perhatian kepada suhu hawa dingin.			You must set the air conditioner no lower than 24°C. Adalah lebih baik menetapkan suhu hawa dingin tidak rendah dari 24°C.
5	Close refrigerator soon after you use it. Do not open it when not nec- essary. Tidak membuka pintu peti sejuk sesuka hati.			Use flask bottle to keep water cool. You do not need to open refrigerator. Gunakan botol tahan sejuk untuk simpan air sejuk daripada sentiesa buka peti ais.
6	Iron many clothes at one time. Gosok banyak baju sekaligus.			Heating the iron takes a lot of energyl Memanaskan seterika menggunakan tenaga yang banyak!

	Eco-Life	Before Sebelum 15~31/10	(2) After Selepas 15~31/10	Advice Nasihat
7	Do not leave water running when brushing teeth. Tidak membiarkan air mengalir ketika gosok gigi.			12 litre of water (24 of 500ml bottles comes out per minute from tap water. 1.2 liter air (24 botol 500ml) keluar setiap minit dari pili air.
8	Washing school shoes using pail instead of running water. Membasuh kasut dengan baldi, bukan air paip yang mengalir.			Washing shoes with rurning water for iminutes equals to 60 litres of water. Membasuh kasut di bawah air paip yang mengalir selama 5 minit membazir 60 liter air.
9	Bring my own bag (eco bag) for shopping. Membawa beg sendiri apabila membeli-belah.			8 billion of plastic bags are produced and used in Malaysia every year. 8 billion beg plastik dihasilkan setia tahun di Malaysia.
10	Collect plastic bags for other usage. Simpan beg plastik untuk kegunaan lain.			Plastic bags can be reused. Beg plastik boleh digunakan semula.
11	Use notebooks with recycled- mark. Menggunakan buku nota yang bertanda kitar semula.			Paper is made from trees. Trees are chopped off to make paper! Kertas diperbuat daripada pokok. Pokok diterbang untuk buat kertas.
12	Reuse unused side of paper. Menggunakan semula kertas yang kosong di belakang.			There are still space to write or draw on paper which had been used one sidel Masih ada ruang kosong untuk menulis
13	Bring water bottle, instead of buying drinks. Bawa botol air sendiri daripada membeli.			2 vending machines consume same volume of electricity of 1 house. 2 buah mesin air menggunakan elektrik seperti sebuat rumah.
14	Separate waste and recycle them. Asingkan bahan buangan dan kitar semula.			Newspapers are to be recycled. Surat khabar lama boleh dikitar semula.
15	Use bicycle or walk for short distance. Gunakan basilkan atau berjalan jika jarak pendek.			Bicycle and walking does not generate CO ₂ like cars. Basikal dan berjalan tidak menghasilkan CO ₂ seperti kereta.
16	Leave no food. Do not waste food. Tidak membazirkan makanan			Malaysian throws away 15,000 tonnes of uneaten food every day (year 2013). Rakyat Malaysia membuang 15,000 ton makanan setiap hari (tahun 2013).
17	Discuss with your family about environmental issues. Bincang dengan keluarga isu alam sekitar.			Discuss with your family. Perbincangan dengan keluanga adalah penting untuk kesedaran bersama. 5

'Eco-Life Check' in workbook(UTM, et al 2013)





Observation of environmental education in Japan (NIES, 2012)

The target is standard 6 (12 years old) in IM (standard 4 (10 years old) in Kyoto). The facilitator is NPO in Kyoto but school teachers in IM and the program of IM was conducted in science class in 2013.

	Kyoto City	Iskandar Malaysia	
Study method	Challenge Eco-Life in home	Find our in hone and group working (about 5 pupils)	
Language	Japanese	English and Malay	
Number of pages	22	22	
Step	Reduce, Select/Choose, Change	Reduce, Select/Choose, Change	
About global warming	Case study, progress of global warming, causes, reduction of GHG with photos and graphs, etc	1 case study and progress, group working about the other case studies, causes, LCS,	
About Low Carbon Society	Non	Introduction of LCS	
Eco-Life check	13 checks	17 checks	
Number of challenge	4	3	
Hint of CO2 reduction	The bottom of each page from page7-21	Non	
Greeting	To pupils and parents	To pupils and teachers	
Policy	Do you Kyoto Day, 'Arukumachi Kyoto'	40 % reduction of its GHG emission by 2020 based on 2005 emission baseline	
Step1: Reduce			
Topic	Electricity, waste	Electricity, Water, Waste, Vehicle, Eco-cooking, Environmental labe	
【Challenge 1】	To record electricity and gas bills (copies) for same month of two years	To paste electricity and water bills (copies) for two months To record electricity and water usage (for two months) To calculate usage and payment difference	
Vehicles	Non	【Challenge 2】 To record vehicles in home and moves around using a vehicle	
Eco cooking	In Step 2	Checklist for low carbon lifestyle in meal preparation	
Waste	Idea to reduce waste, recycling- mark	Idea to reduce waste, how to separate waste	
Step2: Select/ Choose			
Topic	Drinking package, Environmental labels, season and production area vegi and fruit	Environmental labels	
Eco-cooking	【Challenge 2】 Check of shopping, cooking, washing How to choose seasonal and domestic products Record of eco-cooking, comments and recipe	In Step 1	
Environmental ravel	Eco-mark, Green-mark, R-mark, Find mark and write	Environmental labels, Energy labels, FSC, Find mark and write	
Step3: Change			
Topic	Natural energy, rising and setting of the sun, living hours	Renewable energy, nature	
Eco-Life	Diary	Drawn what's eco-life, how to save energy in home and school, ho to tell eco-life to family	
Energy	【Challenge 3】Find nature energy in Kyoto, natural energy mapping 【Challenge 4】Solar cooker	【Challenge 3】Draw renewable energy in school	
Nature	Non	Plants name, photosynthesis and LCS	
Information	Do you Kyoto? Miyako Ecology Center links to relevant sites	RAMSAR sites in Iskandar Malaysia	

Comparison of 'Eco-Life Challenge' workbook 2013 between Kyoto-city and Iskandar Malaysia (NIES 2013)

'Iskandar Malaysia Eco-Life Challenge project: Final Presentation Competition'

IRDA launched 10 pilot projects to lead from 2013. 'Iskandar Malaysia Eco-Life Challenge' is one of the projects and started a pilot project in 23 primary schools in Iskandar Malaysia from September 2013. On 13 November, 'Competition of Iskandar Malaysia Eco-Life Challenge' was held at Iskandar Information Center and 19 schools participated. The schools had group presentations themed 'How can we make low carbon society in Iskandar Malaysia'. With the judges, the No.1 to No.3 was announced.



Winner: SJK(C) Chee Tong 13 November 2013 (UTM, 2013)



more carbon emission?

Putting too much food in the refrigerator.

Using air conditioner frequently.





GREEN

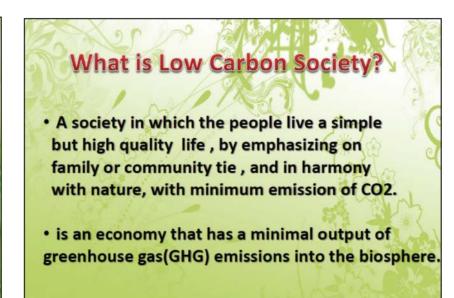
Group members:

2. Bernise Leong Qian Hui

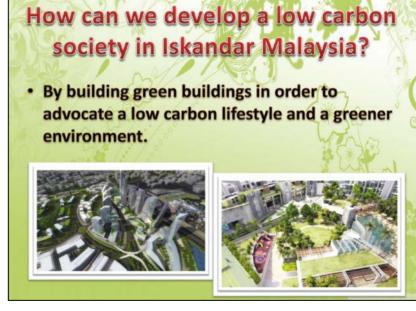
1. Joanne Lim

3. Ling Sing Ng

4. Koh Mei Xin 5. Ewe Ken Gy







Heal the world

Make it a better place

For you and for me and

the entire human race

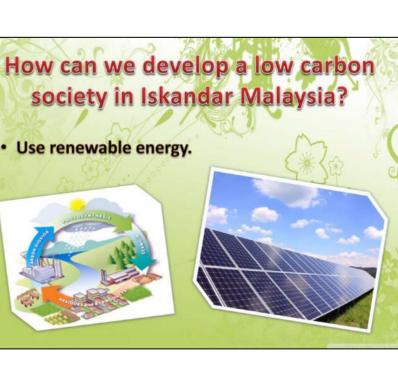
There are people dying

If you care enough for the living

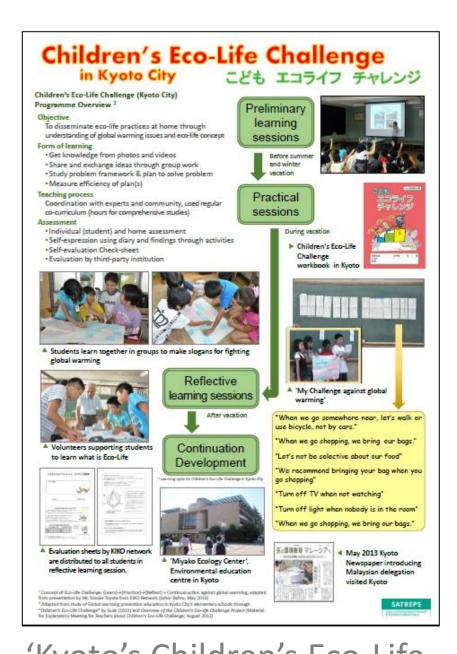
Make a better place for

You and for me.









'Kyoto's Children's Eco-Life Challenge was introduced at the venue (Wong, 2013)