iap SCIENCE RESEARCH HEALTH
the interacademy partnership
Dato' Ir. (Dr.) Lee Yee Cheong FASc.
Chair, IAP SEP Global Council

Academy of Sciences Malaysia
Menara Matrade
West Wing, 20th Floor
Matrade Building
Jalan Khidmat Usaha
Off Jalan Duta
50480 Kuala Lumpur

AKADEMI SAINS MALAYSIA
Tel: +603-6203 0633
Fax: +603-6203 0634
E-mail: dlyeec@gmail.com

Fusion of Civilizations Curriculum Design for Schools Along One Belt One Road (OBOR) Countries

Kuala Lumpur Workshop 7-12 December 2017

Background Paper

1.0 Introduction

This background paper is based on the following two documents of mine (attached):

1. Fusion of Civilizations Curriculum Design for Schools Along One Belt One Road (OBOR) Countries, 1 October 2017

2. "One Belt One Road: Children as Agents for Peace and Harmony Through Inquiry Based Science Education (IBSE)" by Academician Dato Ir. (Dr) Lee Yee Cheong, Malaysia, International Forum on Science Education, 3-4 July 2017, Beijing, China

From the above two documents, I summarize what we would attempt to do in our Workshop in Kuala Lumpur in December 2017:

"Interfaith dialogues, cultural exchanges, political arm twisting, and military arms destruction etc have not resulted in peace in the world. The reason is obvious. We have all been conditioned by our prejudices, ethnic, cultural, religious and/or political. We instinctively consider ourselves and our institutions superior to others.

However, education for peace and harmony may well succeed with the young. Children are not only born inquisitive but also benign. In this internet and digital age, children are much more adept in acquiring and sharing information knowledge through social media. In turn, they can spread the message of peace and harmony to their parents and their communities. Indeed, they can be really agents of societal change for peace and harmony.

The IAP SEP "Fusion of One Belt One Road Civilizations Curriculum Design for Peace and Harmony" project is inspired by two La Main a la pate (LAMAP) thematic programs, namely "Discoveries in Muslim Countries" based on the

ground-breaking discoveries in the Golden Age of Islam; and "Discoveries in European Countries" that resulted from the European Renaissance with knowledge and technology transfer from Islam. Through the ancient Silk Road, Islamic discoveries interacted eastwards with the civilisations in India and China.

The "Fusion of OBOR Civilizations Curriculum Design" project is given modern relevance by China's "One Belt One Road" (B&R) Initiative that aims to uplift the human condition of the developing world by physical, cyber and cultural connectivity."

We have had two dialogues in Khartoum February 2017 and Beijing 2017 between S&T historians and school educators. We have narrowed down to 3 priority topics as particularly relevant to the Belt and Road Initiative: "Land, Water and Astronomy". Advances in Astronomy enabled travel along both Land and Sea Silk Roads.

2.0 Purpose of Workshop in Kuala Lumpur December 2017

We need now for school educationists and curriculum developers to get down to brass tacks and work together to find connectivity of discoveries in each civilization along the B&R and how such discoveries influence the cultures and civilizations for the betterment of human condition along the Belt and Road countries and regions.

As one of the authors of LAMAP "Discoveries in Muslim Countries",

http://istic-unesco.org/images/publication/Discoveries_Islamic_Countries_EN.pdf

Cecile De Hosson said in Beijing July 2017, they in LAMAP did not consider connectivity in the curriculum design of seven thematic topics:

- Al-Farisi's model of the rainbow,
- Ibn al-Nafis's discovery of the pulmonary blood cycle,
- Al-Jazari's water pump,
- Al-Haytham's light and vison,
- Al-Khwarizme's astrolabe,
- Al-Kashi's decorative symmetry and
- Al-Khazini's balance of wisdom.

I can see connectivity in the parallel invention of the water pump for irrigation throughout the ancient land silk road. We can explore Islamic architecture from the great mosques, Taj Mahal etc to its pervasive influence on modern architecture. Surely there is connectivity in Al-Khwarizme's discovery of the

astrolabe and its use in land and oceanic navigation throughout B&R. In the current digital age, Al-Khwarizme or Algoritmi (Latin name) should be highlighted as the father of computer science. We should be able to link him to the Indian invention of the decimal system and the decimal point. I urge you to find the connectivity through B&R countries of the other great Islamic discoveries listed above.

LAMAP "Discoveries in Muslim Countries" has been designed on Inquiry Based Science Education (IBSE) pedagogy and can be the model for our work ahead.

On water, I see great connectivity of the Karez underground water distribution and irrigation system through its spread from Persia to China. China built canals for thousands of years interconnecting her great rivers. Did the Chinese technology spread to other B&R countries? We should be able to connect the places visited by Chinese Muslim Admiral Zheng He in his seven epic voyages in the 15th Century. Malacca in Malaysia must have stories to tell. His voyages brought about great cultural, spiritual, flora and fauna connectivity between China and the countries he visited in South-East Asia, the Indian Ocean, the Arabic Sea and East Africa. There must also have been major advances in ship building technology, navigation and cartography due to his voyages. The Arabs were great seafarers that pioneered the spice trade from Indonesia to the Middle East and onwards to Europe. What were the differences between Zheng He's ships and the Arab ships?

Speaking of flora and fauna, what food and beverage were exchanged amongst the peoples along the B&R. Besides spices and tea, what food stuff including staple food are native and what were introduced through B&R? What about silk worm from China giving rise to silk and the Silk Road? What about opium introduced by the British into China from India and Afganistan?

On devices and commodities, we should explore the great inventions of Chinae were paper and the printing press. Why is the compass called "Point South Needle" in China? Do we consider gun powder and its impact on B&R civilizations? We should explore the story of porcelain and why it was called china.

Whilst we tend to emphasize scientific and technological discoveries and inventions that had the greatest influence in uplifting the human condition along the B&R, we must not forget the great travellers along the B&R that helped to spread the fusion of B&R civilizations like like Zhang Qian of the Han Dynasty, Xuan Zang of the Tang Dynasty from East to West. From west to east, we can

look at Alexander the Great and Marco Polo; and from Central Asia, the great polymath Al Biruni, to name about the few.

All said and done, I would suggest we start in Kuala Lumpur by examining the current school curriculum and text books in all our countries to see whether Silk Road is ever mentioned. If mentioned, whether it mentions connectivity to neighbouring cultures and civilizations and that we all have benefited from our neighbours. We can then start to build the connectivity.

Finally, as the school curriculum design of the Fusion of B&R civilizations is IBSE based, we should think also what practical experiments should accompany any thematic subject. Whilst primary school curriculum can use everyday material the LAMAP way, secondary or high school curriculum would need to be assisted by kits. Commercial kits are expensive. I hope that National Thai Science Museum and China National Science and Technology Centre can join our Working in Kuala Lumpur or in workshops in 2018 in order to assist in the design and construction of relevant kits.

28 November 2017 Kuala Lumpur