THE EDUCATION UNIVERSITY OF HONG KONG

FACULTY OF LIBERAL ARTS AND SOCIAL SCIENCES

Research Output/Impact/Knowledge Transfer Prize
for the Dean's Research Fund 2018-19

Brief Introduction of Awardee's
Research/KT Publication/Study/Output and Future Research/KT Development

Awardee (Dept):	Dr. Man Yu Bon, Assistant Professor (SES)
Publication Title/KT project:	A pilot study on health risk assessment based on body loadings of PCBs of lactating mothers at Taizhou, China, the world's major site for recycling transformers

A. *Briefly introduce your research/KT publication/study/output for which you have received the prize.*

This publication is about PCBs body burden in lactating mothers of Taizhou due to illicit significance of this paper e-waste recycling using primitive techniques. Samples were collected from the human milk, placenta and hair of these lactating mothers participated in the study. The total PCBs were 363 ng/g lipid, 224 ng/g lipid, and 386 ng/g dry wt., respectively, in the collected human milk, placenta and hair samples of these lactating mothers. These levels were three times higher than those collected from the reference site (Lin'an). Compared with the previous reported values in the 3rd WHO coordinated study, Taizhou topped in the list of 32 countries/regions with regards to the sum of toxicity equivalents (TEQs) of the 12 dioxin-like-PCBs (WHO-PCB-TEQ) according to WHOTEF-1998 values of milk samples, which could be attributed to the relatively higher level of PCB-126 derived from electronic waste. In addition, the corresponding estimated daily intake (EDI) of PCBs of Taizhou mothers (12.9 pg WHO-PCB-TEQ/kg bw/day) and infants (438 pg WHO-PCB-TEQ/kg), which were derived from individual congener levels in human milk, were also higher than the tolerable daily intakes recommended by WHO (1-4 pg WHO-TEQ/kg bw/day) by 3 and 110 times, for mothers and infants, respectively.

This is a pilot study and human exposure to PCBs from e-waste processing activities would involve multiple environmental compartments through various pathways. These extremely high body burdens reflected the severe potential health threats imposed on the residents, as well as on their next generation in Taizhou. This study provides comprehensive information about the body burden of susceptible groups of populations (i.e. mothers and infants) in intensive e-waste recycling site, which can be a foundation basis for the further health risk study in regions affected by inappropriate e-waste recycling.

B. How you used/will use your prize and perhaps its usefulness to your research/KT development?

The prize will be used to recruit a research assistant to conduct related research

C. Expected research/KT outcomes/outputs/impacts arising from this prize.

I expect that a SCI paper can be published.