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**TITLE: HOW DOES TRADE ADJUSTMENT INFLUENCE NATIONAL INVENTORY OF OPEN ECONOMIES? ACCOUNTING EMBODIED CARBON BASED ON MULTI-REGION INPUT-OUTPUT MODEL**

**AUTHORS: ZHOU, XIN ; KOJIMA, SATOSHI**

**EMAIL: zhou@iges.or.jp**

**COUNTRY: JAPAN**

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**ABSTRACT:**

Current national GHG accounting which does not consider emissions embodied in trade may cause issues such as carbon leakage from Annex I to non-Annex I countries through trade of carbon-intensive goods. Among other measures to address this issue such as border carbon adjustment, this paper presents an alternative approach by trade adjustment to national CO<sub>2</sub> accounting with application to ten regions (Indonesia, Malaysia, the Philippines, Singapore, Thailand, China, Taiwan, the Republic of Korea, Japan and USA) for 2000 based on two responsibility allocation schemes: i) consumer responsibility and ii) shared producer and consumer responsibility. Multi-region input-output model is applied to calculate embodied emissions. Based on consumer responsibility, embodied carbon of ten regions accounted for 3% of their total emissions, with significant amount in USA (163 Mt-CO<sub>2</sub>) and Japan (82 Mt-CO<sub>2</sub>). Trade adjustments make significant changes to current national inventories, ranging from (-262Mt, 212Mt) and (-63Mt, 56Mt) of CO<sub>2</sub> particular for China and USA based on two responsibility allocation schemes. In terms of trade balance of embodied carbon, USA, Japan and Singapore had deficit while developing countries especially China had trade balance.