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TITLE: A GEOSPATIAL ANALYSIS OF MATERIAL FLOWS AND CARBON FOOTPRINTS OF THE UK'S CONSUMPTION ON CHINA

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ABSTRACT:

The speed of economic globalization and integration has accelerated over the last two decades to an extent where the supply chains of most products have been fragmented all over the world. However, the big picture remains that OECD countries are the main consumers of world produce, a range of developing countries are becoming the main providers of the resource intensive products at the cost of a wide range of impacts on their environment. Based on the criteria of the Ecological Footprint, it is estimated that the total consumption in the UK is more than three times larger than the present regenerating capacity of the planet Earth, meaning that the UK consumption is far beyond environmental limits of the globe. The dominating portion of resources intensive products are mainly produced and imported from developing countries, such as China at the cost of China facing a major ecological challenge. Some of China's biocapacity is being used to meet its own needs; some is being used to support the consumption elsewhere. Hence, it is absolutely necessary to understand these global linkages before addressing sustainability challenge that China is facing. In an increasingly interconnected world, no nation or region acting alone can meet this challenge. This piece of research aims to analyse material flows and embedded carbon emissions of China's export production for the UK. On the basis of the research aims, 3 major research steps are designed as: Development of a production and trade model on a comprehensive and rigorous basis including trade statistics in an international scale with emphasis on UK ↔ China. This MRIO model is an extension of SEI developed UK MRIO model. Construction of a production and trade model in a domestic scale within 8 Chinese economic regions taking into account the significant regional disparities in geographical and social-economic conditions. Carry out a spatial structural path analysis to assess the environmental impacts on climate change and local ecosystem species as a result of UK imports from different Chinese regions using indicators such as material flow, carbon and water footprints.