

## **China Scholarship Council –Maastricht University PhD Programme**

### **Application Form**

#### **1. Information on prospective supervisors and promotor**

##### **1a. First Supervisor:**

- Dr. Özge Tüncel
- Marketing & Supply Chain Management
- Veelakker 36, 5625 WK Eindhoven – Work address
- 0655972881
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##### **1b. Promotor:**

- Prof. Dr. Bart Vos
- Marketing & Supply Chain Management
- Tongersestraat 53, 6211 LM Maastricht
- 043 3883768
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##### **1c. Second Supervisor (from Hunan University in China):**

- Dr. Guangyu Wan
- International Economics and Trade
- Shijiachong. Fenglin Road, Changsha City, Hunan Province, China
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- guangyu\_wan@hnu.edu.cn

#### **2. Research field(s):**

Supply Chain Management, Environmental Sustainability, Carbon Emissions

#### **3. Title of research plan for CSC-UM PhD Programme:**

Reducing the Carbon Footprint of a Focal Firm's Supply Chain

#### **4. Short summary of research plan:**

According to McKinsey, consumer companies' supply chains create much greater environmental costs than their own operations. Supply chain impacts account for more than 80% of greenhouse gas emissions and more than 90% of the impact on air, land, water, biodiversity and geological resources. By working closely with their suppliers, consumer companies can lessen their environmental impact, and position themselves for strong growth.

In this project, PhD candidate will conduct research on designing and examining effective collaborative mechanisms between a focal company and its suppliers to reduce carbon emissions. PhD students will: (1) Examine supply chain practices coping with carbon emissions issues in international companies, such as Philips. (2) Investigate the Carbon Disclosure Project (CDP) data shared by companies. (3) Synthesize the related literature on supply chain sustainability and propose novel research problems with both theoretical and practical value. (4) Finish the dissertation under the joint guidance including a supervisor from Hunan University in China.

More specifically, thesis may include studying the accuracy of the CDP data and potential reasons for misreporting; designing an algorithm predicting carbon emission levels and identifying possible inaccurate data reported by suppliers; designing a model allocating a company's resources to motivate maximum carbon emissions reduction given its suppliers; and designing incentive-compatible collaborative mechanisms to cascade the methodology through the supply chain.

### **5. Motivation for CSC-UM PhD application:**

China, who aims for 'carbon neutrality by 2060', is an important supplier hub in the world. Chinese suppliers form the majority of supply chains of most international consumer companies, e.g. Philips in the Netherlands. Philips works with Chinese suppliers in its Supplier Sustainability Improvement program, and has a dedicated sustainability team in China. According to the Accenture, Chinese suppliers have a high potential to generate financial return on investment in reducing greenhouse emissions. Moreover, Chinese suppliers are interested to collaborate in achieving carbon neutrality according to CDP. Therefore, a research on reducing carbon emissions by collaborating with companies in the Netherlands with Chinese suppliers can have both significant societal and scientific impacts globally.

UM pays significant attention on sustainability research, and Brightlands Institute for Supply Chain Innovation has industry connections with interest in collaborating on supply chain sustainability projects. Moreover, as the first supervisor, together with my former supervisor, we received the NWO Accelerator 2020 grant to work with Philips on utilizing its resources in the best way to motivate its suppliers in all tiers to increase sustainability efforts. Our project was included in Philips' 2021 Annual Report as a method that can create societal impact throughout its global supply chain. Currently, I continue my collaborating with Philips Sustainability department on master thesis projects. As the second supervisor, Guangyu has experience on environmental economy, collaboration mechanisms, supply chains and working with Chinese companies. He has publications on green sourcing and environmentally sensitive demand, and more than 20 publications in total.

**Department Head:**

Prof. Dr. Dominik Mahr

**Date:**

29.09.2022

