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## Transport resilience: The Occupy Central Movement in Hong Kong from another perspective



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#### ABSTRACT

This paper looks at the Occupy Central Movement (OCM) in Hong Kong from an innovative and understudied angle of transport resilience. With the OCM as a shock event, subsequent responses may be conceptualised as having three different phases. Phases One and Two refer to chaos at an adverse event's initial outbreak, and the subsequent state of flux. Phase Three may or may not exist; it sets in when people in the society accept these adaptations as longer-term arrangements. Fragmented data and information about the severe disruptions and ensuing changes of the transport system during and after this shock event have been carefully assembled and systematically analysed in relation to the actions and adaptations made by the Government, the industry and the general public. With increasing urbanisation, all stakeholders, including city governments, the industry and the general public, need to be more prepared for large-scale disruptions caused not just by natural hazards but also human beings. Government actions alone are not sufficient. Speedy and concerted responses of the industry are indispensable in achieving transport resilience. Effective dissemination of information through different channels is critical. Moreover, there needs to be concrete steps towards establishing Key Resilience Performance Indicators for cities, covering both the hardware and software components of a transport system.

#### 1. Introduction

Transport resilience refers to the resilience of a transport system. Resilience is "the ability to prepare and plan for, absorb, recover from, and more successfully adapt to adverse events" (The National Academies, 2012: 14). Research related to resilience, especially in cities, has multiplied over the last decade not only due to various natural hazards associated with global climate change and more extreme weather, such as Hurricane Sandy in the United States of America (USA) and record-breaking heat waves in Europe in recent years, but also the fact that the Earth is becoming an "Urban Planet" (Science, 2016). Many natural hazards are coupled with human errors, which worsen the impacts of these natural disasters, such as the nuclear plant failure in Sendai, Japan, after the 2011 Tohoku earthquake and tsunami. However, what about cities' resilience to purely human disasters, such as terrorist attacks or armed conflicts, and disruptions, such as large-scale demonstrations and mass movements?

This paper looks at a political movement in Hong Kong – the Occupy Central Movement – from an innovative and understudied angle. There have been quite a few papers on "Occupy Central", symbolised by a yellow umbrella, in political science, laws, sociology, and even arts (Lam, 2015; Erni, 2015; Lee et al., 2015; Mey and Ladegaard, 2015). This paper adopts a different perspective that is relevant and helpful to transport research. We begin by framing the study in the context of transport resilience. Then, a quick

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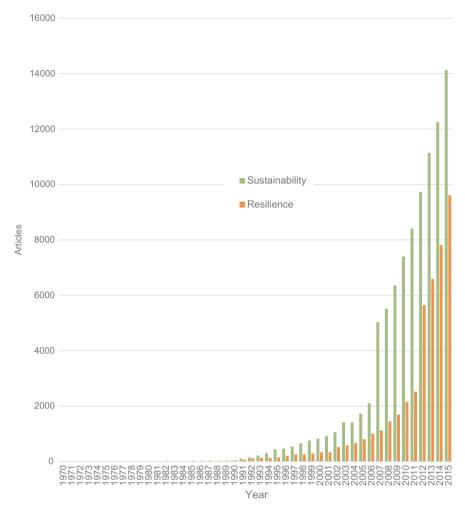


Fig. 1. Number of articles in the Web of Science (1970-2015).

overview of the Occupy Central Movement is given, followed by the key research questions and methodology. Finally, some results and discussion are presented.

#### 2. Literature review, research gap and conceptual framework

To reiterate, transport resilience refers to a transport system's "ability to prepare and plan for, absorb, recover from, and more successfully adapt to adverse events" (The National Academies, 2012: 14). In theory and in practice, resilience and sustainability are complementary goals. It is not possible to achieve sustainability without resilience because adverse events are inevitable in any system, and our economic, social and environmental systems need to be resilient in order to be sustainable. A sustainable transport system is one that minimises negative externalities to the environment, and balances environmental, economic and social objectives optimally (Rodrigue et al., 2006). Loo and Chow (2006) further provide an overview of the concepts, policies and methodologies key to sustainable urban transportation, stressing the importance of analysis across different spatial and temporal scales.

The increasing focus on resilience research has partly been due to the increasing frequency of adverse events and their higher intensity and greater power in disturbing the current system. Fig. 1 shows the number of articles with the key words of "sustainability" and "resilience", collected from keyword search results of article documents on the Web of Science for every year from 1970 to 2015 (Thomson Reuters, 2016). Overall, research in "sustainability" and "resilience" has become more numerous since 1990 and especially after the turn of the century. While sustainability-related articles more than doubled in 2007 compared to 2006, the same occurred much later to resilience-related articles in 2012 compared to 2011. Resilience research has clearly received increased recognition over the past five or six years in academia, especially with both natural and human-induced adverse events becoming more frequent. Key aspects of contingency management such as prevention, adaptation, mitigation and recovery in relation to adverse events have become ever-more important and urgent (UNISDR, 2007).

So, what adverse events can happen to a city? Somehow, the majority of research is about physical or natural hazards (Sherbinin et al., 2007; Cutter and Finch, 2007; Burby et al., 2001; Chakraborty et al., 2005; Alcántara-Ayala, 2002). Yet, many adverse events in

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