



How are risks generated, developed and amplified? Case study of the crowd collapse at Shanghai Bund on 31 December 2014



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ABSTRACT

The crowd collapse that took place in Chen Yi Plaza in the Shanghai Bund on 31 December 2014 claimed 36 lives and generated strong social ripple effects in China. Using the social amplification of risk framework (SARF), we analyze the roles played by various social groups and individuals during the exit transition following the disaster and investigate how risk information was attenuated, both intentionally and unintentionally, during the entry transition process. It was found that the overarching roles played by the government, specifically their spontaneous, uninformed and unilateral behaviors, are generally the main reason for the generation and evolution of risks, which can then easily be amplified by the media and public under the influence of cultural and commercial mindsets. Managing the sources that generate risks can be a crucial way to reduce the possibility of disasters in modern social risk management.

1. Introduction

In their social amplification of risk framework (SARF), Kaspersen et al. point out that disasters and associated risk information often interact with psychological, social, institutional and cultural elements [1]. Such an interactive process amplifies or attenuates the perceived risks, shaping the collective reactions to risks. The ripple effect of risks may transcend the direct damage to human health or the environment from the disasters themselves, which may cause more long-lasting and far-reaching indirect impacts such as changes in perception, imagination and attitudes, impacts on local or regional economies, increasing political and social pressure, chaos in the social order, administrative changes in relation to risk governance, increased need for and cost of insurance, domino effects of technologies and social regime [2]. In the SARF, the amplification consists of both strengthening and weakening risk signals. Hence, ‘exaggerated response’ and ‘inadequate response,’ both individual and organizational, receive the same amount of attention. Individuals and organizations that gather risk information and communicate this to others, causing behavioral responses, are called amplification stations [2]. Signals arise through direct personal experience with a risk object or through the receipt of information about the risk object [3]. These signals are processed by social and individual amplification stations such as scientists, management institutions, the

news media, social organizations, opinion leaders, personal networks of peers and reference groups, and public agencies [1].

The SARF has subsequently been investigated from a range of perspectives and further refined [4,5]. Social amplification can produce consequential ripples that can spread far beyond the risk event itself and its initial impact [4]. Much has been learned about the public perception of risk, but far less is known about the contexts under which either amplification or attenuation occurs, or how amplification of risk perceptions is linked to secondary impacts [6]. Moreover, collectives and individuals may sense the ripples, which often triggers a new amplification effect with even broader influences. Therefore, the risk perceptions can spread to or ‘implicate’ other collectives, distant areas, or even later generations [2].

The SARF demonstrates both the amplification and the attenuation of risk signals that are interpreted by individuals and social groups after disasters, and emphasizes the ‘exit transition¹’ process of risk events. Here we emphasize that, even before the disaster happens, some individuals and social groups have already participated in the risk generation and evolution process [7]. The importance of risk prevention in the entry transition is previously identified particularly when considering the dynamic process of risk development [8]. They focused on the government policy and roles on the risk prevention during entry transition and disaster response during exit transition. However, it is

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¹ Exit transition of risk refers to the way in which a given system switches back from emergency or crisis mode to normal mode, which may or may not be the same as it was before the crisis.

necessary to think about the roles played by not only the government, but also the media and the public in the ‘entry transition’² process in relation to risk generation and evolution. This study uses the example of the crowd collapse in Shanghai Bund, Chen Yi Plaza, on 31 December 2014 to analyze the transition of risks and to discuss the roles played by the government, the media and experts before the risks escalated to crises, and the effects of traditional mindsets.

2. Data and method

The data used in this study are from three main sources including government official documents, mass media (radio and television) news and reports, and online media (microblogs and news websites) news and stories. The data were collected before, during and after the disaster event to reflect the attitude, perspectives, actions and opinions of government, media, individuals and other social groups in both entry and exit transition of risk. The data cover the temporal range between 18 Dec 2014 and 31 Jan 2015. The traditional mass media had 15 in-depth reports from 8 major national and regional newspapers, and the online news media had 46 in-depth reports from 10 news websites. Weibo (microblog), as a popular online news media in China, had over 100 million active daily users, and it also published information about the New Year celebration events. We collected 28 related posts out of more than 900 posts from the “Shanghai Publish”, an official account with 5 million followers, and the “Shanghai Railway Club” an unofficial account with over 50,000 followers. The data include not only the direct information from the witnesses but also the indirect information from the public.

A retrospective analysis was conducted to reconstruct the whole picture of the disaster event, with particular details of the occurrence of the disaster even. The SARF was used to analyze the response of social and individual stations and the ripple effects on government, media, industry and public. The online news from some specific sources were monitored continuously and analyzed to reveal the dynamic change of risk awareness of media and public. The risk transition concept was used to investigate the process of risk generation and evolution with emphasis of roles of government, news media and public individuals.

3. Summary of the disaster event

At 11:35 p.m. on 31 December 2014, there was a crowd collapse at the southeastern corner of the Chen Yi Plaza toward the Huangpu River platform that resulted in 36 deaths and 49 people sustaining serious injuries.

3.1. New Year countdown

The Huangpu District government, the Shanghai Municipal Tourism Administration and Radio and Television Shanghai had held a New Year countdown event for the previous 3 years. Having identified what they considered to be uncontrollable safety elements, on 9 December 2014 the Huangpu District government decided to change the site from the Bund to the Rockbund and to limit the audience to 3000 people, who were required to purchase tickets. People were supposed not to attend the Bund venue since the New Year countdown had been officially moved to the Rockbund, however, hundreds of thousands people still entered the Bund unaware of the venue change.

3.2. Location of incident

Lying in the middle of the Bund, the Chen Yi Plaza has a public

² Entry transition of risk refers to the way in which a given system switches into emergency or crisis mode, e.g. in dealing with natural or man-made hazards, from normal mode.

activity area of 2877 m² and connects to the Huangpu River platform via a large stairway. The platform provides the best viewing site and has the largest visitor flow rate and the highest density of people during the New Year celebrations. The incident occurred at the southeastern corner where the platform intersects with the passageway.

3.3. Visitors to the Bund

At around 8:00 p.m. on 31 December, more people were entering the Bund than were exiting, which gradually led to overcrowding on the platform. It was estimated that there were about 120,000 people on the platform at about 8:00 p.m., 160,000 from 9:00 p.m. to 10:00 p.m., 240,000 from 10:00 p.m. to 11:00 p.m. and 310,000 people from 11:00 p.m. to the time of the incident.

3.4. Incident occurrence

At 10:37 p.m., after the collapse of the police line as a result of people rushing onto the platform, large numbers of visitors swarmed onto the platform despite police efforts to maintain order. At 11:23 p.m., the large numbers of people rising toward and descending from the platform reached a stalemate, resulting in a ‘wave’ of people. At 11:35 p.m., the pressure from people descending from the platform suddenly increased, which caused the people at the bottom to be knocked to the ground. Soon, more people were falling on top of them, until eventually the disaster occurred.

4. Social response and ripple effect

Following the incident, the Internet and news media were saturated with information. Both direct and indirect information from witnesses, social media and news media was quickly spread by various kinds of social groups, and was processed and interpreted by the public. The perspectives and attitudes held by the news media, opinion leaders, the government and experts had a significant impact on the public's reactions, cognitions and behaviors. Fig. 1 illustrates the process of generating extensive social impact through the flow of information and its spread and amplification following the tragic incident.

4.1. The generation and spreading of rumors in the process of risk amplification

On the night of the incident, witnesses claimed that someone was throwing notes that looked like US dollars from one of the Bund hotels, although the reason for the crowd collapse was unclear. Then, rumors appeared on the Internet suggesting that the crowd collapse had been caused by someone throwing money, and pictures and personal details of three people who were alleged to have been throwing money were circulated. However, according to the video surveillance footage, dozens of notes that looked like US dollars fell from Bund 18, which was 60 m away from the crowd collapse, from 11:47 to 11:48 p.m. A few people were seen to be picking up the notes, but there was no evidence of a crowd collapse. Furthermore, it was confirmed that this had happened after the incident.

4.2. Mutual impact of individuals and social groups on the process of risk amplification

In the SARF, a relatively large social unit is called a social amplification station. When groups in society or employees of an organization are filling their roles, they are not only obeying their personal values and understandings, but also acting in accordance with the cultural bias and group codes to sense and construct risk scenarios [9]. Guo Xian Zhong, a journalist from the Southern Metropolis Daily, was one of the risk signal amplification stations in this incident. Guo was a witness to the incident who processed and spread information as an

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