Flawed incident investigation in China: A case study of the 7.23 Yongwen Line railway accident*  

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Abstract:  
Incident investigation is important and complex. Its purpose is to uncover the truth about an incident, and thus the investigation must be independent, objective, scientific and transparent. In addition, the independence of the investigative body must be fully recognized under the law, and the investigative body must be composed of professionals. The investigation procedures need to be scientific and rigorous, and the investigation process and the conclusions of the investigation should be made public. This paper uses the “7.23” accident investigation as a case study. Through a comparative analysis, the paper reveals existing flaws in the process of incident investigation in China, including a lack of independent administrative investigative bodies, a lack of legal recognition of the independence of investigative bodies, outdated investigation procedures, failure to uphold the public's right to a transparent investigation, and failure to consider prevention of future accidents during investigations.  

Keywords: China, Incident investigation, Flaw, 7.23 accident  

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1. INTRODUCTION

At 20:30:05 on July 23, 2011, a rear-end accident occurred that involved the D301 bullet train bound for Fuzhou station from Beijingnan Railway Station and the D3115 train bound for Fuzhouan Station from Hangzhou Station along the "Yongwen Line" in Wenzhou, Zhejiang. Forty people were killed, and 172 people were injured.\(^1\) The accident is known as the "major 7.23 Yongwen Line railway accident" (hereafter referred to as the "7.23 accident").

The 7.23 accident is one example of the many types of accidents that have occurred in China. The last three years have seen numerous major accidents. Take the traffic accident as an example, the basic statistics of traffic accident can be seen in table 1. Analyzing the data, we can find that the number of accident, deaths of accident, injuries of accident and direct pecuniary losses of accident still keep in a high level.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>2010</th>
<th>2011</th>
<th>2012*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Major Accident (case)</td>
<td>58244</td>
<td>54704</td>
<td>24</td>
</tr>
<tr>
<td>Deaths of Major Accident (person)</td>
<td>65225</td>
<td>62387</td>
<td>325</td>
</tr>
<tr>
<td>Injuries of Major Accident (person)</td>
<td>33964</td>
<td>31420</td>
<td>364</td>
</tr>
<tr>
<td>Direct Pecuniary Losses of Major Accident (10000 yuan)</td>
<td>43925.4</td>
<td>52383</td>
<td>262.8</td>
</tr>
<tr>
<td>Number of Accident (case)</td>
<td>219521</td>
<td>210812</td>
<td>204196</td>
</tr>
<tr>
<td>Deaths (person)</td>
<td>65225</td>
<td>62387</td>
<td>59997</td>
</tr>
<tr>
<td>Injuries (person)</td>
<td>254075</td>
<td>237421</td>
<td>224327</td>
</tr>
<tr>
<td>Direct Pecuniary Losses of Accident (10000 yuan)</td>
<td>92633.5</td>
<td>107873</td>
<td>117489.6</td>
</tr>
</tbody>
</table>

**Table 1. Basic Statistics on Traffic Accident (2010–2012)**

**Note:** The data comes from *China Statistical Yearbook.*

*According to Byelaw governing reporting, investigation and handing of production safety accidents (An order by PRC State Council), the criterion of major accident and serious accident has changed in 2012.

These startling statistics have led people to wonder why such accidents happen repeatedly and why China has not learned how to prevent similar tragedies. The cause is that after paying the high price of an incident we often miss the opportunity to learn from it (Kletz, 2002). So the incident should be learned not only for present purposes but for the future occasions where they might be relevant (Bond, 2002).

Incident investigation helps reveal the causes of an accident and promotes learning that can prevent future accidents. After the 7.23 accident, the accident investigation drew widespread

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attention and controversy driven by social media, which exposed flaws in the process of incident investigation in China. Using a summary and analysis of the principles and legal basis behind the 7.23 accident investigation, the investigative body, and the investigation procedures, this paper identifies flaws in the incident investigation process. These flaws include the lack of an independent investigative body, an unsound legal system, outdated investigation procedures, a lack of transparency in the investigation, and an over-emphasis on responsibility and accountability rather than accident prevention.

2. PRINCIPLES OF INCIDENT INVESTIGATION

**Independence.** Incident investigation is a process to uncover the true story of an incident. However, when incidents involve governmental units or large companies, the investigative body responsible for the investigation will face pressure from lobbyists or even the governmental body or companies involved, making it difficult to carry out an effective investigation. To avoid external influence on the investigative body, the investigation must adhere to the principle of independence. This is the first principle of incident investigation.

**Objectivity.** Effective incident investigation requires the investigative body to strive to seek the truth and assume a neutral position to determine the true cause of the accident in an objective and impartial manner. Some investigations require logical reasoning, simulations, or calculations, but subjective judgment by the participating investigators should be avoided, and all conclusions should be based on a scientific methodology.

**Scientific process.** The investigation of major accidents is especially complex and difficult, and it requires specialized investigators with appropriate knowledge, skills, and understanding of scientific methods and standardized investigation procedures. These criteria allow the conclusions of the investigation to stand the test of time and be acceptable to the public.

**Transparency.** During an investigation, press conferences, hearings, incident reports, and other methods should be utilized to respond to the public's questions and concerns so that the public can follow the progress of the investigation. Once the investigation is complete, the investigation report should be made public (with the exception of any confidential information) so that the public can learn about what caused the accident and how it occurred. This type of transparency also helps researchers have better access to information for further in-depth studies.

3. THE LEGAL BASIS FOR INCIDENT INVESTIGATION

To ensure the independence of the investigative body, this body needs to be legally recognized. Without a legal determination of the independence of the investigative body, it is difficult for the investigation to produce credible results. For example, the United States of America (U.S.) has a legal process for ensuring the independence of the investigative body during transportation accident investigations.
The U.S. passed the Independent Safety Board Act of 1974 because Congress realized that the executive branch would often interfere with the accident investigations and conclusions of the National Transportation Safety Board (NTSB). Therefore, it was deemed necessary to pass the Independent Safety Board Act to strengthen the independence and investigative authority of the NTSB. The NTSB became truly independent on April 1, 1975, when the Independent Safety Board Act of 1974 went into effect. This Act stipulates that the NTSB will independently investigate the cause of all transportation accidents, issue investigation reports, and actively engage in transportation safety and accident prevention.\(^2\)

4. INVESTIGATIVE BODY

To ensure that the investigative body provides a credible investigation report, it must be ensured that the body is independent and free from interference by external pressures. Second, the investigative body must include professional and scientific personnel that provide security and technical support. In transportation accident investigations in the U.S., the government focuses on establishing an independent and professional investigative body.

The U.S. NTSB was founded in 1967 under the Ministry of Transportation. Prior to the founding of the NTSB, incident investigations faced issues with discrepant marine, railway, and aviation regulations; insufficient investigatory authority; a lack of sufficiently independent investigative bodies; and staff shortages. In 1974, Congress passed the Independent Safety Board Act, which made the NTSB an independent institution that was not affiliated with any branch of the federal government. The NTSB has five board members, each nominated by the President and confirmed by the Senate to serve 5-year terms (fig.1). No more than 3 of the 5 members can come from the same political party, and the members cannot be removed for political reasons or because of unpopular decisions. This regulation ensures the independence of the board. The purpose of the Act was to ensure that NTSB investigations were evidence-based while minimizing political influence. In terms of professional background, 3 of the 5 members must be experts holding specific expertise and technical qualifications. Moreover, there are separate units of the board, including engineering, aviation, marine, highway, and railway, to provide professional and personnel support for investigations. In total, there are more than 400 staff members providing expertise for incident investigations and prevention (Eric Fielding, Andrew W. Lo, and Jian Helen Yang 2010).

\(^2\) Refer to the history and organizational introduction of the National Transportation Safety Board. Retrieved from: http://www.ntsb.gov/about/history.html
Fig. 1. The Organization, Investigative body and Investigative Procedures of the NTSB
5. INCIDENT INVESTIGATION PROCEDURES

Occupational Safety & Health Administration (OSHA) describes incident investigation as a procedure to determine how and why failures occur that result in personal injury or property damage. Incident investigations need to follow certain procedures to be scientific and standardized. There are many incident investigation procedures in existence, for example, OSHA’s 3steps⁴, Incident Response Process (Chris Prosise & Kevin Mandia, 2001), etc. According to Ian S. Sutton (2010), incident investigations should follow the following six steps.

![Preliminary investigation flowchart]

**Fig.2. Sutton model of incident investigations**

**Preliminary investigation**. A preliminary investigation should be conducted at the time of the emergency response to the accident. In addition to recording the time, location, process, actions taken, casualties, and property losses associated with the accident, the most important aspect is to collect evidence and preserve any evidence that is prone to disappearing over time. The first step is to gather witness testimonies. People directly involved in the accident are key witnesses, and investigators should identify eyewitnesses and conduct timely depositions because some witnesses will forget details or provide false evidence later. The second step is to gather physical evidence, which includes equipment and hardware debris that are associated with the scene of the accident. Prior to processing these items, photographs should be taken at the scene.

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⁴ OSHA Standards, retrieved from: https://www.osha.gov/dte/grant_materials/fy10/sh-20843-10/cscb_accidentinvestigation.ppt
as evidence to be used later in the investigation. The third step is to collect archival evidence, such as documents and electronic data, related to the accident.

**Establish an incident investigation team.** After the accident, a special investigation team should be established to investigate the cause of the accident. The success of the investigation is closely related to the nature of the investigation team, as the independence, professionalism, techniques, and experience of the investigation team determine the quality of the investigation. Stakeholders in the incident cannot serve as members of the investigation team, and the authorities involved in the incident should not usually be directly involved in the investigation, but must cooperate with the investigation team and help collect data.

**Collect evidence.** Once the investigation team is established, the team should collect a large amount of evidence and establish an evidence database. In addition to interviews with witnesses, the team should pay close attention to the collection of physical evidence because physical evidence is objective and not easily altered. Physical evidence can generally be divided into evidence at the scene and evidence gathered through simulation experiments. Various documents and records should also be collected.

**Construct a chart of the accident timeline.** A chart of the accident timeline can be constructed that includes three stages: pre-accident, accident, and post-accident. The main goal of the pre-accident stage is to reconstruct the background of the accident. The goal of the accident stage is to reconstruct the scene of the accident with a focus on analyzing the chain of reactions between events. The post-accident stage focuses on the emergency response because an appropriate response will reduce the losses caused by an accident.

**Identify the cause.** The analysis of the cause of an accident should be based on credible witnesses and physical evidence, not just guesswork and imagination. Various analyses, technical appraisals, and experimental simulations must be used to uncover the truth of the accident and determine the cause of the accident in a way that can stand the test of time.

**Submit a report and recommendations.** This report usually covers the nature of the accident, the process of the accident, the cause and consequences of the accident, lessons learned, and recommendations for improvement. Additionally, the report should include information about the investigation methods and process, all accident-related background information, technical appraisals and experimental simulation data, and other supporting evidence in an appendix to support the conclusions of the investigation.

6. **FLAWS IN CHINA'S 7.23 ACCIDENT INVESTIGATION**

After the 7.23 accident, President Hu Jintao and Premier Wen Jiabao declared that the cause of the accident must be identified as soon as possible. On July 25, the State Council 7.23 accident investigation team was established. On July 27, the State Council held an executive meeting to discuss the accident investigation. On July 28, Premier Wen Jiabao proposed clear
requirements for the investigation, emphasizing that the investigation team should reach conclusions that could stand throughout history.\(^5\) Under the immense pressure of public opinion, the central government attached great importance to the investigation. Overall, the investigation was the highest-quality, most transparent investigation that had occurred in China for many years. Nonetheless, an analysis of the investigation revealed flaws in China's incident investigation process. Comparing with the U.S. NTSB, we can find these flaws.

Table 2. Comparisons of incident investigation between China and the U.S.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Chinese incident investigation</th>
<th>Incident investigation of the U.S. NTSB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principle of incident investigation</td>
<td>Limit the information. Lack of transparency.</td>
<td>The important information is open to public through many ways, like web and hearing meetings.</td>
</tr>
<tr>
<td>Investigative body</td>
<td>Lake of an independent investigative body.</td>
<td>NTSB is an independent investigation, which subjects to congressional hearings and questioning.</td>
</tr>
<tr>
<td>Legal basis for incident investigations</td>
<td>There is no lack of laws related to incident investigation in China. Lack of a legal basis for incident investigations.</td>
<td>Independent Safety Board Act, etc.</td>
</tr>
<tr>
<td>Investigation procedures</td>
<td>Investigation procedure is not sound, like evidence collecting, experts' judgments and team technique so on. China's incident investigation model.</td>
<td>NTSB has investigative standards and good investigative steps.</td>
</tr>
<tr>
<td>Result of incident investigation</td>
<td>Over-emphasis on responsibility and failure to address accident prevention during the investigation.</td>
<td>Keep the investigative result objectively through investigative hearing. Provide the safety recommendations.</td>
</tr>
</tbody>
</table>

7. LACK OF AN INDEPENDENT INVESTIGATIVE BODY

According to the regulations of China's "production safety incident reporting and investigation act," major accidents are investigated by an investigation team organized by the State Council or by relevant units authorized by the State Council.\(^6\) The investigation of major accidents,


\(^6\) According to China's "production safety incident reporting and investigation act," Article 3, “major accidents” refers to accidents with more than 30 deaths, more than 100 serious injuries, or more than 100 million yuan in
serious accidents, and general accidents is the responsibility of the provincial government, municipal government, and county government, respectively. According to the specific circumstances of the accident, the investigation team is composed of designated personnel from relevant government units, production safety supervision and management units, the supervisory authority, the public security authorities, and the union. The procuratorate is also invited to participate. The investigation team can also hire experts to participate in the investigation. The jurisdictional safety production supervision and management unit (at the state level, this is the State Administration of Production Safety Supervision and Management; at the local level, this is the provincial, municipal, or county Administration of Production Safety Supervision and Management) is responsible for carrying out the operations of the investigation. The unit forms a temporary investigation team with other relevant government units and experts to conduct the investigation on behalf of the government.

The investigation of the 7.23 accident clearly exposed the issue of the lack of an independent investigative body. On July 25, the State Council approved the establishment of the investigation team led by Luo Lin from the State Administration of Production Safety Supervision and Management. The team comprised 14 personnel and 8 experts from other major relevant administrative units, for a total of 23 people. However, Vice Minister Peng Kaiyu was the deputy director of the investigation team, and the Secretary of the Ministry of Railways Safety Supervision, Chen Lanhua, was a member of the investigation team. The Ministry of Railways was the supervision and management unit for the safe operation of railway transportation and was the primary stakeholder in the 7.23 accident. With the Vice Minister and the Secretary of the Ministry of Railways as deputy director and member, respectively, of the investigation team, the judgment of other members could have been unduly influenced. It was possible that other members would shirk their responsibility, thereby affecting the impartiality of the investigation. This situation aroused intense questioning and dissatisfaction on the part of the public. Under pressure from public opinion, on August 10, the State Council was forced to change the members of the investigation team. The Council removed Peng Kaiyu and Chen Lanhua from their posts to increase the independence of the team and the credibility of the investigation.7

The lack of an independent investigative body was also reflected in the fact that the investigation was led by a non-independent administrative unit. The Chinese system is designed such that the State Council is China's highest administrative body and is indirectly responsible for the supervision and management of all accidents in China. The State Administration of Production Safety Supervision and Management is below the State Council and has the direct economic losses. “Serious accidents” refers to accidents with 10-30 deaths, 50-100 serious injuries, or 50-100 million yuan in direct economic losses.

power of administrative enforcement over all levels of accident supervision and management authorities, and therefore shoulders the greatest supervision and management responsibility for accidents in China. Essentially, the State Administration of Production Safety Supervision and Management (or the Local Administration of Production Safety Supervision and Management) is the direct stakeholder in these accidents. However, the investigations are entrusted by the State Council or local governments to the Administration of Production Safety Supervision and Management, which represents the same level of government as the State Administration of Production Safety Supervision and Management. In addition, Chinese administrative units are not subject to congressional controls. Compared to the U.S.’s NTSB, which is independent and subject to congressional hearings and questioning, China’s investigative authorities are non-independent administrative units that are the direct stakeholders in accidents, making it difficult to prevent interference with the investigation by state or local leaders.

During the 7.23 accident investigation, some researchers questioned the independence of the investigative body. China has no independent body for incident investigations, but the National People's Congress can establish a "special investigation committee" to be responsible for an investigation so that the investigation is free from the influence of executive power. In fact, in China's current constitution (1982), Article 71 makes the following provisions for the establishment of special investigation committees: "The National People's Congress and its Standing Committee can organize investigation committees on specific issues when deemed necessary and make corresponding resolutions according to the committee report. During the investigation, all the relevant state organs, social organizations and citizens are obligated to provide the necessary materials." Unfortunately, however, in the past 30 years, the Special Investigation Committee clause has never been used, and as a result, Article 71 has become useless. In China's political system, not only is the constitution often put on the back shelf, but the highest authority (the National People's Congress) is known as a "rubber stamp." In the foreseeable future, China will continue to use the existing system of incident investigation. Given the lack of independent investigative bodies, there is major concern whether China’s accident investigations can uncover the truth.

8. LACK OF A LEGAL BASIS FOR INCIDENT INVESTIGATIONS

There is no lack of laws related to incident investigation in China. Since the 1980s, the Standing Committee of the National People's Congress has successively developed the "Maritime Transportation Safety Law," "Railway Law," "Civil Aviation Law," "Road Transportation Safety Law," "Production Safety Law," and others, and all of these laws address incident investigation. However, there are discrepancies in these laws in terms of the

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8 A Peking University professor called for the urgent establishment of a Special Committee to investigate the truth of the rear-end accident (July 27, 2011), the Beijing Evening News, retrieved from: http://www.chinanews.com/gn/2011/07-27/3213855.shtml
investigative body, investigation procedures, and responsibilities, with overlapping functions that result in confusion during the actual implementation of investigations. In 2007, to better regulate the incident investigation process and prevent and reduce accidents according to the "Production Safety Law" and other laws, China developed a more detailed "production safety incident reporting and investigation act" that to some extent solved the issues of multiple overlapping laws and implementation problems. The 7.23 accident investigation was largely conducted according to this "production safety incident reporting and investigation act." However, the laws are flawed. First, the government authority that developed the law did not have sufficient authority, especially compared to the U.S. Independent Safety Board Act developed by the U.S. Congress. The legal basis for incident investigation in China, the "production safety incident reporting and investigation act," was promulgated by an administrative unit of the State Council that has a relatively low level of authority. Second, the establishment of an independent investigative body is not clearly defined in the law. For example, according to the principle of "unified leadership by the government with graded responsibilities" of the "production safety incident reporting and investigation act," the investigative body should be established at the county level or above, depending on the level of the accident. However, in many cases, the government authorities or units are directly or indirectly responsible for the accident. Therefore, this model is not conducive to creating impartiality in the accident investigation. An investigation led by a non-independent administrative unit is precisely what should be avoided. The lack of recognition of independent investigative bodies in China's law leads to a lack of independence in incident investigations. If the current model is not transformed into a model in which an investigative body is authorized by the National People's Congress and the law or an independent third-party investigation institution is established based on the law, China will continue to face questioning due to the lack of independent investigative bodies.

9. INVESTIGATION PROCEDURES

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10 Although the Constitution stipulates that the National People's Congress can organize investigative committees on specific issues when necessary, this is only an exception for special circumstances and has never been implemented. Other than the provisions in the Constitution, there are no legal provisions by the National People's Congress regarding an independent incident investigation team. In fact, my personal view is that, unlike the political system with separation of powers in the United States, under the current one-party political system in China, the National People's Congress is subject to the leadership and controls of Chinese Communist Party and is unlikely to enact laws to establish independent investigative bodies. Moreover, even if the National People's Congress enacts laws to establish independent investigative bodies, the practical effects are also questionable, because if it is difficult to enforce the Constitution, it will certainly be more difficult to enforce general laws. Of course, under China's current system, the establishment of an independent investigative body is still great progress, and at least it is a first step towards an effective investigation.
Incident investigation procedures largely determine the procedural justice of investigation and affect the credibility of the conclusions. In terms of investigation procedures, the preliminary investigation is very important because some evidence is prone to disappearance or intentional destruction, so evidence must be collected at the time of the emergency response. The purpose of preliminary investigations is to collect physical evidence and witness testimonies as soon as possible to provide a basis for the future formal incident investigation.

The 7.23 accident investigation procedures, especially with regards to the preliminary investigation, were quite flawed. On the morning after the accident, the Ministry of Railways began dismantling cars and burying the locomotive. In such a major accident, any remaining objects were undoubtedly very valuable physical evidence; in particular, the damaged locomotive was a key piece of physical evidence for the accident investigation. The act of burying the locomotive provoked intense public doubt and anger stemming from the belief that the Ministry of Railways was destroying evidence and shirking its responsibility. In addition, prior to dismantling the cars and burying the locomotive, the Ministry of Railways claimed to have observed no signs of life, but a little girl just over 2 years in age was later rescued from a damaged car, which further angered the Chinese public. On July 26, the State Department had to yield to the immense pressure from the public and dig out the locomotive and cars to be used as evidence in the investigation.

Furthermore, Vice Premier Zhang Dejiang rushed to the scene on the morning of July 24 to direct the rescue and take responsibility for the accident investigation. In reality, however, there was no preliminary investigation and no protection of evidence at the scene of the accident. The explanation from the Ministry of Railways regarding dismantling the cars and burying the locomotive was that they wanted to resume transportation as soon as possible and that their act was conducive to rescue, but this explanation was not credible. The destruction of key evidence exposed the flaws in China's incident investigation procedures. If the locomotive had not been dug out due to pressure from the public, the most important piece of evidence would have been missing from the accident investigation. In that case, how would it be possible to conduct a scientific evidence-based accident investigation? The behavior of the Ministry also exposed the problem of not having laws in place to establish an independent investigative body. What prompted the Ministry of Railways to bury the cars in such a hurry after the accident? Who made the decision to bury the cars? Even the final investigation report from the State Council accident investigation team did not provide a clear answer to these questions.

The role of experts is very important for investigation procedures because experts can provide expertise and judgment during the scientific investigation. However, the experts involved in the accident investigation in China were all temporarily selected from other units of government.

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During the 7.23 accident investigation, the deputy director of the investigation team was an expert who should have played an important role in the investigation, but he was busy with other tasks and did not participate in the entire accident investigation; thus, he did not clearly understand the relevant information. Given that the deputy director of the expert panel was not focused on the identifying the cause of the accident during the investigation, how could the final conclusions of the investigation be credible?

10. TRANSPARENCY OF THE INVESTIGATION

The right to information is a fundamental right of citizens, and citizens’ concerns and questions about an accident should not be avoided. The progress of the investigation and information about the accident should be publicized in a timely manner. Due to the rise of social media in China, the 7.23 accident investigation was conducted under the spotlight of the public. On December 28, 2011, the State Administration of Production Safety Supervision and Management published the 7.23 accident investigation report on its website, which included six parts: the basic situation, the process of the accident, the emergency response, the nature and causes of the accident, recommendations for disciplinary actions for the personnel and governmental units responsible for the accident, and recommendations for corrective measures for accident prevention.

Based on the content of the published report, the 7.23 accident investigation report was an improvement over previous investigations, but the report still lacked accident-related technical appraisal data and other evidence to support the conclusions of the investigation.

The 7.23 accident investigation was conducted under the pressure of strong public opinion, and the investigation team was obliged to publish the content of the investigation report. In China, the investigation reports of many previous major accidents have not been published, such as the report from the major Jiaoji Railway transportation accident on April 28, 2008, which resulted in 72 deaths, 416 injuries, and a direct economic loss of 41.92 million yuan; and the major fire accident in Shanghai on November 15, 2010, which caused 58 deaths and 71 injuries. For both accidents, the State Council established an investigation team similar to the 7.23 accident investigation team, but the teams did not release the details of the investigation reports and did not even release the basic content and results of the investigations. The State Administration of Production Safety Supervision and Management published only the recommendations of penalties for personnel responsible for the accident on its website. Since entering the era of


new media in recent years, social media has been very active in China. Public demand for the truth about the 7.23 accident was expressed via social media outlets (Xiaowen Xu 2011), forcing the government to demonstrate its progress in releasing the content of the 7.23 accident investigation report. However, there is still much room for improvement in terms of the transparency of incident investigations in China. For example, there is typically a long time interval from the beginning to the completion of an investigation. If the content and conclusions of the accident investigation are only released after the completion of the investigation, the victims' families and the public will be troubled by questions during the investigation because they do not have access to information about the progress of the investigation. Therefore, accurate information about the procedures and progress of the different stages of the accident investigation should be continuously communicated to the victims' families and the public at the beginning, interim, and completion stages of an investigation. In addition, the content of the investigation should be released via press conferences, hearings, and other media channels to respond to the concerns of the victims' families and the public. As an example, the U.S. NTSB board meetings are open to the public, and the public has access to information about the progress of incident investigations on the NTSB website. Moreover, the NTSB board holds public hearings to increase transparency and allow the public to learn more about the progress of the investigation. The 7.23 accident investigation was not well executed in this regard. During the investigation, the investigation team did not release accurate and useful information to the victims' families and the public, which resulted in questions on the part of the public about the accident investigation process. In fact, only by increasing the openness of the accident investigation will it be possible to have positive interaction between the victims' families, the public, and the investigative body; build a higher level of trust between the public and the government; and promote a smooth completion of the accident investigation.

11. OVER-EMPHASIS ON RESPONSIBILITY AND FAILURE TO ADDRESS ACCIDENT PREVENTION DURING THE INVESTIGATION

In the final report of the 7.23 accident investigation, in addition to providing an analysis of the causes of the accident and a set of proposed improvements, the report also identified certain governmental units as being responsible for the accident and recommended penalties for 54 people.\footnote{China's "production safety accident reporting and investigation act" stipulates that incident investigations should promptly and accurately identify the process of accident, the cause of accident, and the loss caused by accident; summarize lessons from the accident; The list of 54 responsible personnel penalized for the "11.15" major fire accident in Shanghai (June 10, 2011), retrieved from: http://www.chinasafety.gov.cn/newpage/Contents/Channel_5498/2011/0610/134117/content_134117.htm}

identify those responsible for the accident; propose recommendations of penalties for those responsible for the accident; identify the administrative responsibility of those responsible for the accident; and pursue criminal charges against those suspected of a crime. Therefore, China's incident investigation model combines the technical investigation with an administrative accountability investigation (and even judicial investigation). Sometimes accidents are related to the misconduct of certain parties, and it is necessary to hold those parties accountable. However, with a model that combines the technical investigation of an accident with the pursuit of administrative accountability, there is too much emphasis placed on accountability, and the accident investigation and the pursuit of accountability can become intertwined. Holding parties accountable may even become the ultimate goal of the investigation. The published results of major accident investigations since 2008 on the State Administration of Production Safety Supervision and Management website show that assigning responsibility to relevant personnel has been the focus of published investigation conclusions and that conclusions are often provided with very few detailed recommendations for the prevention of future accidents.16

There are many reasons for the over-emphasis on accountability and the failure to address prevention (based on technical investigations) in China's incident investigations. The first reason is a lack of professional expertise on the investigation teams. According to the provisions of the "production safety incident reporting and investigation act," an investigation team should be designed to be streamlined and efficient, and an investigation team can hire experts to participate in the investigation. In many cases, the investigation team is mainly composed of various government officials and experts who participate passively. The experts have no opportunity to participate in the investigation unless they are invited, and even when experts participate in an investigation, they are temporarily selected from other units of government. This means that the technical expertise of the investigation team is limited to a few members, with the majority of members being government officials who lack expertise. The second reason is an insufficient period of time for conducting the investigation. The "production safety accident reporting and investigation act" stipulates that an investigation team must submit its investigation report within 60 days of the accident. Under special circumstances, the deadline to submit the accident investigation report may be extended by up to 60 days. The governmental branch responsible for the investigation must respond within 15 days of receipt of the investigation report, and for major accidents, the government must respond within 30 days. Under special circumstances, the deadline for governmental response may be extended for up to 30 days. This means that under special circumstances, the investigation team has a maximum period of 4 months to submit an investigation report, while under normal circumstances, the team must submit an investigation report within 2 months. This timeline is

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16 Refer to the published content of the major accident investigations from the State Administration of Production Safety Supervision and Management, retrieved from: http://www.chinasafety.gov.cn/newpage/zwgk/tdsgdcl/zwgk_tdsgdcl_lm.htm
very tight for a major accident investigation, making it difficult to conduct a precise technical investigation. The third reason for the emphasis on accountability is the intention to quell public discontent. At the time of a major accident, the public is very concerned about the accident and, due to their limited expertise and emotional state, the general public is mostly concerned about which government officials will be held accountable. Holding personnel accountable for the accident is the most efficient way for the Chinese government to quickly appease public discontent. In addition, because the investigation team is mostly composed of government officials, they are often more concerned with attributing responsibility for the accident than with uncovering the cause of the accident.

Therefore, China's incident investigations are often dominated by assigning accountability, while ignoring the technical investigation and the fact that the ultimate goal of an incident investigation is to identify the cause of the accident, learn from it, and propose corrective measures to prevent similar accidents from happening again.17 Perhaps this situation explains why many types of major accidents frequently happen in China, yet there is no effective solution. If incident investigations focus too much on holding responsible parties accountable, rather than conducting a proper technical investigation, it is difficult to prevent similar accidents from happening in the future.

12. CONCLUSION

Having an independent investigative body is key to effective incident investigation because only when the investigative body is independent will it to be able to uncover the truth about an accident. There are many flaws in China's current system of incident investigation. Specifically, there is no legal recognition of independent investigative bodies; investigation procedures are neither scientific nor rigorous; the transparency of investigations is not sufficient to meet the public's rights to know; and the investigations focus too much on holding responsible parties accountable, while ignoring accident prevention. It is difficult for this type of incident investigation to uncover the real cause of an accident, learn from it, and propose effective recommendations for the prevention of future accidents.

REFERENCES


17 Compared to the U.S. National Transportation Safety Board's investigations, China's technical investigations are significantly flawed. For example, there are more than 400 professionals on the NTSB, and investigation teams have 12 to 18 months to submit a final report. The NTSB has issued over 13,000 safety recommendations to more than 2,500 recipients (see the introduction to the history of the NTSB and the investigative process on the NTSB website, retrieved from: http://www.ntsb.gov/index.html).


