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APS1012 Management of Innovation – Final Team Projects, Summer 2013 (10-day class)**How Disasters in Society Lead to Innovation**

In the course of human history, many disasters have happened, and humans as a race have learned and adapted to changes and sudden events that happen. Many innovations arise as humans face problems. We examine how disasters in society can cause devastation for humans, and how humans react to these disasters – they resolve it and try to prevent similar disasters by implementing changes which we call innovation. Furthermore, it is important to note the causal relationship, i.e. none of these innovations would be in place if the disasters did not happen. Specifically, we aim to address the following:

1. What was the disaster?
2. Why did this disaster happen?
3. What was the innovation or ideas that would prevent this disaster from happening again?
4. How was the implementation of the innovation carried out?
5. Is this innovation still being used? Why or why not?

Five specific disaster cases are analysed and they illustrate that great disasters initiate great innovations. The many facets of nature that makes disasters so difficult to predict and prevent is also a fertile ground for innovation.

In the first case, the catastrophic in-flight break ups on the de Havilland Comet are explored. This disaster prompted new innovations in aircraft design, manufacturing, and accident investigation techniques.

Secondly, the innovations that came about due to the SARS epidemic in 2003 are discussed. Both short and long-term innovative solutions were developed to contain the disease. It also led to updated international health regulations and crisis management techniques.

The third case examines how the two earthquakes that occurred in Wellington (1848) and Napier (1931) drove innovations including new structural design techniques and building materials, as well as government codes and policies.

Fourthly, the Great Fire of London was massive and damaged approximately 373 acres of the city. Poor city planning, poor choice of building materials, and the construction of jetties helped spread the fire. A new Building Act was created to avoid such incidents from happening again.

Finally, the Chernobyl nuclear disaster is considered to be the worst tragedy in the history of nuclear power. Following the disaster, new health care technologies were developed, a whole new global safety policy was created, and the International Atomic Energy Agency became a more practical regulator.

The report explains the processes that bring about innovation following disaster, and discusses the conditions that are required, but not always present, to assure that innovative solutions result from disaster. High-level commitment, for example public involvement and government funding, is required to ensure innovations are properly instituted. We look at barriers to innovation, how they are overcome, how innovations diffuse to different organizations or environments, and the timeline for the diffusion process.

The truly unpredictable nature of disasters means their investigation has the potential to germinate ideas in a wide variety of fields. Each of the disasters examined generated a multitude of innovative discoveries, techniques, and policies. It is unlikely that one can avoid disaster, however one must be prepared to rise, meet and learn from them. Having a flexible toolkit and a multifaceted approach always bodes well. In addition, sometimes you need to burn an existing system to the ground in order to move on. That can provide the additional flexibility needed to make something really astounding.