Brisbane floods: how minimised the outcome in future

Environment, Water

As natural disasters are inevitable, it is essential that we as humans mitigate the potential outcomes caused by these disasters. This essay will explore the 2011 floods of Brisbane and whether proper planning and preparation could have minimised the outcome. It will further explore the impact the Wivenhoe Dam had on the floods and discuss whether dam maintenance; level supplies and warnings could have helped. Approximately 1 000 millimetres of rainfall was recorded in January alone, which caused the second biggest flood Brisbane has experienced since 1974. The 2011 floods caused severe devastation throughout Brisbane with over 26 000 people losing their homes and over 5 000 businesses around the city either partially or completely flooded. It further caused around ninety kindergartens and sixty schools to be affected and unusable. However, the greatest devastation was the loss of twenty-three people’s lives as a direct result of the floods.

The Queensland Government also suffered a major financial repercussion from the floods. Over 440 million dollars was spent in repairing roads, bridges, power poles and otherpublic facilitiesthat were destroyed. This kind of spending by the Government caused speculation that if proper planning and preparation been implemented, the Brisbane floods could have been mitigated. This speculation further leads to the investigating of whether the Wivenhoe Dam helped or hindered the floods.

The Wivenhoe Dam opened in 1985 after the great Brisbane floods of 1974 occurred and were seen as a solution to prevent further floods from happening again. All the dams, creeks and rivers surrounding the Wivenhoe Dam were connected that any potential overflow could run straight into the

Wivenhoe and therefore have minimal risk of overflowing. However, what occurred in 2011 was not what was planned when building Wivenhoe many years earlier. Wivenhoe Dam was built to hold a water supply of 1. 5 million millilitres of water, with a capacity to hold 1. 45 million millilitres at Full Supply Level or FSL. The 30 million-millilitre difference was allocated as a reserve for floodwaters to help mitigate flooding. Although a reserve level had been allocated in the dam, the issue was that there had been constant and heavy rainfall in the previous spring months. This led to the Wivenhoe catchments being relatively full prior to the downpour that occurred in the December 2010 and January 2011.

This rain further caused the surrounding rivers and creeks to overflow causing minor river flooding, with water than starting to flow into Wivenhoe to help prevent major flooding. Leading up to the floods Wivenhoe peaked at 1. 50pm on Wednesday 12th of January reaching an astounding 2. 29 million millilitres. A day later Brisbane River peaked at 4. 46 metres at 2. 57am on Thursday 13th of January, causing major flooding to begin. It was during these two days that the role the SEQWater played was questioned, as they were aware that the dams were high enough to overflow. This speculation was further fuelled when it was made known that SEQWater only released 60% of the dam’s water, moments before the flood engulfed Brisbane. SEQWater is the company in charge of the Wivenhoe and Somerset Dams and has three simple operating guidelines that they must follow. It was apparent that none of the guidelines was followed for a number of reasons. Firstly this was evident as when the Wivenhoe and Somerset dams began filling up as a result of the severe wet weather, SEQWater did not release

any water from either dam until Tuesday 11th of January. As they had left the water idling for too long they had no other choice but to release the water at once instead of gradually releasing water like they were advised to do from the Senior Flood Operations Engineer.

After the flood occurred SEQWater stated back, " The flood compartments of the dams were filled to a high level by the first flood that there was not sufficient time to release this water prior to the second flood arriving,". So although the SEQWater tried to justify their actions, it can be argued that the SEQWater company and the employees were warned a few days in advance that by releasing a small amount of water at different times during the day would help minimise the amount of flooding that could have potentially occurred. Once it was discovered that the SEQWater had received numerous warning of potential warnings, the issue was studied and analysed.

It was estimated that between 11: 00. Tuesday 11th of January and 19: 09 Wednesday 12th of January that 518, 000 millilitres of water was released from Wivenhoe dam making around a 60% contribution to the already rising water around the Brisbane area. By 6: 09 pm Thursday the 13th of January the water flowing past the City Gauge was estimated to be around 866, 000 millilitres and was still continuing to rise. The final detailed analysis sent out to SEQWater by the Senior Floods Operation Engineer it was analysed that if releases from the Wivenhoe dam were timed appropriately it could have minimised the flooding that occurred. The Bureau of Meteorology proved to be helpful through the disaster, by providing warnings through their rainfall data. Day-to-day rainfall charts and rainfall maps were updated online and

made easily accessible to the public and those affected. The BOM also released a clear warning to both the government and the public that the amount of rain that was coming would have the likely strength of a La Nina event. As the information was made available to anyone with Internet access, SEQWater and the Government could have easily accessed this information. By doing so they would have been able to see the potential threat the approaching heavy rainfall could have and in turn, should have helped them make a wiser decision.

By choosing to ignore any sort of warning sign provided by the BOM, SEQWater and their employees did nothing about the almost full catchment even though more heavy rain was approaching. Leading to the conclusion that by ignoring the warnings they demonstrated poor planning and ignorance to the information provided. Throughout this essay, it has been concluded that through proper planning and preparation the Brisbane Floods of 2011 could have been mitigated. Evidence and research showed throughout this essay evidently points unfavourably to the SEQWater company and its team. It concluded that although many warnings were issued, the SEQWater and government chose to ignore them and therefore resulting in all the water being released at once. Even though this natural disaster could not have been prevented through proper planning and preparation it definitely could have been mitigated which would in turn also result in minimal devastation and destruction. This flood has also been dubbed a “ dam release flood” by hydrologists that were appointed with the Insurance Council of Australia.

The flood storage (or catchments) should generally be kept empty by releasing all the water flowing into the flood storage system until the defined downstream flood event is reached. Releases from the storage system should then be selected to remain below the defined downstream flood event until the flood event has passed or the storage system becomes full. * If the flood storage system becomes full, the storage system must then release all the inflows but releases should never exceed inflows. Tuesday 11th or later than 19: 00 Wednesday 12th rather than during this period, the flood level at the Brisbane City Gauge would not have exceeded the Major flood level, or if 335, 000 millilitres was discharged outside the period 02: 00 Tuesday 10th to 08: 00 Thursday 13th rather then during the period, the flood level at the Brisbane City Gauge would not have exceeded the Moderate flood level, or if 623, 000 millilitres was discharged outside of the period 13: 00 Monday 10th to 21: 00.

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