



When the levee breaks - public policy and holistic risk management - lessons from Katrina for coastal cities faced with rising storm surge flood risk

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In a period of accelerating sea level rise and increased tropical cyclone intensities, extreme 100 year coastal flood levels are rising rapidly along a number of tropical and subtropical coastlines. Meanwhile, whether from natural megadelta consolidation, post glacial rebound or overpumping of shallow aquifers, many coastal cities are sinking even faster than mean sea level is rising. Without significant investment in continually improved flood defence inevitably this means the risk of catastrophic flooding is rising, for many cities quite steeply. The experience of Hurricane Katrina and New Orleans may become seen as iconic for 21st Century catastrophe risk as more and more coastal cities are subject to similar calamities. The story of New Orleans also highlights many aspects of catastrophe risk management failures before and after extreme events. The city of New Orleans had already been flooded three times by storm surges in the 100 years before Katrina. After each flood, investments were made in improved flood defences but these investments dwindled through time as there appeared to be a reduced imperative to divert money to support abstract risk reduction. Meanwhile land subsidence and rising sea levels and storm surges meant that risk levels continued to rise, until the inevitable time when the city once again was flooded. As the city increasingly sinks below mean sea level the impact of each flood has become increasingly catastrophic, both in terms of areas flooded, property damage and casualties. While a major program of investment in improved flood defences has once again followed the catastrophic 2005 flood, Federal government agencies have given no assurance that levels of flood risk will be maintained below some designated threshold long term. Therefore another cycle of rising flood risk has now started that will inevitably eventually lead to the city becoming reflooded. This cycle can only end with the eventual abandonment of much of the city area – an outcome that is deemed politically unacceptable. The loss consequences of rising levels of risk, improvements or degradation in flood defences and the potential outcomes of different catastrophic storm surges can only be explored in a Catastrophe loss model.