More Flood Resilient Futures and Integrated Risk Management

Hamid Mifenderesk\textsuperscript{1}, Don Carroll\textsuperscript{2}

City of Gold Coast, Don Carroll Project Management

Statistical data from emergency situations in the world shows the tendency that the vulnerability of our communities to natural hazards and resulting losses have been increasing, despite our better understanding of the nature and sources of natural hazards and technological advances in recent decades. This presentation examines and demonstrates why this is occurring and concludes that there needs to be better integrated flood risk management.

It appears that our past efforts in building resilience against disasters have not kept pace with population and economic growth and technological developments.

To address this issue, this presentation takes a foresight approach and identifies several common shortcomings in building resilience against flood disasters:

1) Building our resilience against threats that we have experienced or are experiencing at the time of planning, without adequate consideration of how hazards and the receptors of hazard may change and evolve in the future,

2) Building our resilience against future threats based on tools and technology that are available at the time of planning, without adequate consideration of how technology will evolve in the future.

3) Over-focusing on the set planning levels without consideration of the total flood risk spectrum including residual, existing and future risks.

This paper examines significant local and global trends as the drivers of flood hazard impacts on our communities. Based on an analysis of these trends the study provides a bigger picture, depicting future changes in the severity, size, and frequency of natural hazards, technological changes and our communities’ coping capacity and capabilities. In the light of these findings, the paper examines gaps in our current investments in managing flood existing and future risk.

A key tool in understanding flood risk is the analysis of flood damage probability curves. While these curves have been primarily used in the calculation of a ‘static’ Annual Average Damages and Net Present Values, we need to look further and examine how these curves reflect changes in GDP, population, development, flood management standards and governance. In particular, examination is required of the changing balance between residual and planned existing/future flood risks. A case study is presented of a Gold Coast catchment where these issues were examined and led to policy changes.

The paper concludes that

- Flood risk management through land use planning should not solely focus on future risk. It must consider existing and residual risks as well. This is best done through introducing additional socio-economic and climatic variables into the traditional static flood damage
analysis. Finally, and most importantly effective communication of the analyses to decision makers is central to achieve good community and development outcomes.

- Currently, flood risk management practice is not using the full capacity of technological advances in recent years.
- Infrastructure planning is lagging behind land use adaptation planning. The synergies between capital work for mitigating existing flood problems and infrastructure planning needs to be explored further.