

Implication of Brisbane flood 2011 for Planning in Nepal

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Abstracts: On January 2011 major flooding occurred throughout most of the Brisbane River catchment, severely affected the lives and property at international scale caused by weather and climatic factors (EL Nino) implicated in the flooding and the historical flood experience of Brisbane arising the town planning issues that what went wrong. This paper backgrounds the fact that flood can causes lot of property loss everywhere, but it could be managed with proper resource management of the planning framework and instrument that has been used in the state by government and local council of Australia. Recently the Queensland flood commission report has recommended ways to coordinate the three different level of government in Australia to better prepare the state for floods in advance. This report is finally discussing what were the strategy and recommendation so countries like Nepal can get some lesson for mitigation of such scale of disasters ... Whatever the causes of flood and types, the effect is similar to human, flood doesn't choose rich people and poor people, however the strategy to cope and manage the risk is always helping people to be prevented as preparedness and mitigate the disaster. The Aftermath of Brisbane flood in Australia has big implication in outside and inside of the country.

1. Background

Floods are natural phenomenon which imposes significant to social and economic costs for any countries. It is responsible for approximately 40 percent of fatalities, approximately 4% of the total global mortality caused by natural disaster (World Conference on Natural Disaster reduction, 1994). A 2007 report by the Organization for Economic Cooperation and Development found that coastal flooding alone does some \$3 trillion in damage worldwide.

According to the Geosciences Australia, floods are Australia's most expensive natural Disaster where the average annual cost of floods is estimated at \$377 million. As a result, considerable expenditure is made by government and industry to define flood areas in an effort to reduce the impacts of floods.

1.1 Introduction

Brisbane is the state capital of Queensland in Australia which is third largely populated cities, having a population of approximately 2.1 million. The Brisbane CBD (Central business district) is strategically located inside an arc of the Brisbane River where the metropolitan area extends in all directions along the floodplain of the Brisbane River valley between the bay and the Great Dividing Range.

A. Geographical Features

The city of Brisbane is located in a low lying flood plain and so it is vulnerable to severe inundation. Almost of the suburban creeks are meandered naturally and looks like placement of Zigzags pattern diagonally to the core area of city which has increased the risk of local floods in the region. The Brisbane River is the longest river (309 km) in south east Queensland, Australia, and flows through the city of Brisbane, before meeting its mouth at Moreton Bay.

Brisbane has experienced its second highest flood since the beginning of the 20th Century on Thursday 13th January 2011. Most of the flooding occurred throughout most of the Brisbane River catchment, most severely in the catchments of the

Lockyer Creek and Bremer River (major tributaries of the Brisbane River) where numerous record flood heights were experienced. The flooding caused the loss of 23 lives in the Lockyer Valley and one in Brisbane, and an estimated 18,000 properties were inundated in metropolitan Brisbane, Ipswich and elsewhere in the Brisbane River Valley (Crompton, 2011).

1.2. Causes of Flood in Brisbane

The period December 2010 to January 2011 coincided with a strong La Niña event, often associated with extreme rainfall and widespread flooding in eastern Australia. As some of the hydrologist of insurance company opined that a release of water from the Wivenhoe Dam was a principal cause of flooding along the mainstream and tributaries of the Brisbane River downstream of the dam over that period (R & J, The 2011 Brisbane Floods: Causes, Impacts and Implications). However this report doesn't aim to investigate the causes thoroughly, the causes are based on the some published literature.

1.3. Impacts of the flood:

A. Economic impacts

According to the database of Emergency management Australia, more than 15,000 properties were inundated in metropolitan Brisbane and some 3,600 homes evacuated. The floods in Queensland and the rest of Australia have inundated an area larger than France and Germany combined. More than 200,000 people were affected altogether in recent 2011 Queensland flood (Australian Emergency Management Australia, 2011).

More than 3,570 business premises were inundated, and commercial losses of approximately \$4 billion were reported across the mining, agriculture and tourism sectors. The roads were damaged Over 19,000 kilometers. 28 percent of the Queensland rail network damaged and three major ports significantly impacted. According to the database of Emergency management Australia, it has estimated that more than 28000 houses need to be rebuilt.

B. Social impacts

The immediate impacts of flooding included loss of human life, damage to property, destruction of crops, loss of livestock, and deterioration of health conditions owing to waterborne diseases. As communication links and infrastructure such as power plants, roads and bridges are damaged and disrupted, many of economic activities gone to a standstill, people are forced to leave their homes and normal life is disrupted.

Throughout the disaster, hundreds of families have been evacuated from their homes in the middle of the night, leaving little time to gather personal belongings, which psychologist say will make returning once flood waters have receded very traumatic.

Similarly, disruption to industry can lead to loss of livelihoods. Damage to infrastructure also causes long-term impacts, such as disruptions to supplies of clean water, wastewater treatment, electricity transport, communication, education and health care. Loss of livelihoods, reduction in purchasing power and loss of land value in the floodplains can leave communities economically vulnerable.

Floods can also traumatize victims and their families for long periods of time. The loss of loved ones has deep impacts, especially on children. Displacement from one's home, loss of property and disruption to business and social affairs can cause continuing stress. For some people the psychological impacts can be long lasting.

This report attempts to collate the information on the flood from a number of literature reviews of published report, public sources, and final report of the Queensland Floods Commission of Inquiry 2011 and offers some commentary on what were the issues of planning that went wrong, and recommendation of inquiry report for better land use planning issues and what could be learnt from this by developing countries like Nepal while dealing with the natural disaster as floods.

2. Major Town Planning Issue Of Brisbane Floods

It is fact that flood can causes lot of property loss everywhere, but it could be managed with proper resource management of the planning framework and instrument that has been used in the state by government and local council of Australia.

The main concern to the study of this report is, why there was built infrastructure increased? When they know there was a flood in 1974, and that flood can affect the place again. The planning instrument that could control such development and could have saved the losses.

The community had responded to assist with the aftermath of the floods and clean up with large volunteers registered and unregistered at the combined efforts: over 55,000 volunteers registered to help clean up Brisbane's streets and homes, with thousands more unregistered volunteers. This overwhelming community involvement was a feature of the disaster response. As the state of disaster was declared and there was the efforts by all level of people including government involved to respond aftermath of the flood with all the modern resources available being one of developed Nation.

The Federal government and Queensland's State authorities responded promptly with the help of Australia's Emergency Management system as well as the Australian Defense Force, effectively coordinating the evacuation, and providing relief and recovery support. In February 2011, the Queensland Reconstruction Authority was established to oversee and coordinate the recovery and reconstruction efforts.

Recently the Queensland flood commission report recommended the Planning framework of State government and Local government was not coordinating in a proper way so the losses could be minimized of the recent flood. They have recommended ways to better prepare the state for floods in advance (Brisbane times, 2012).

The force of nature can't be fully controlled in the context of the Queensland flood as it was second highest flood of state, but the Queenslanders had an already existing, coherent emergency management structure, although it had not yet been tested by disaster of some big magnitudes.

Looking upon the Commission inquiry report, the inquiry report has dealt at considerable length with the land planning systems of the State and their application by councils. In land use planning, attention to flood risk has been ad hoc. The recommendations of the commission report made are designed to insert into the land planning system uniform controls which will ensure that the risk of flood is consistently recognized and planning assessments made with regard to it.

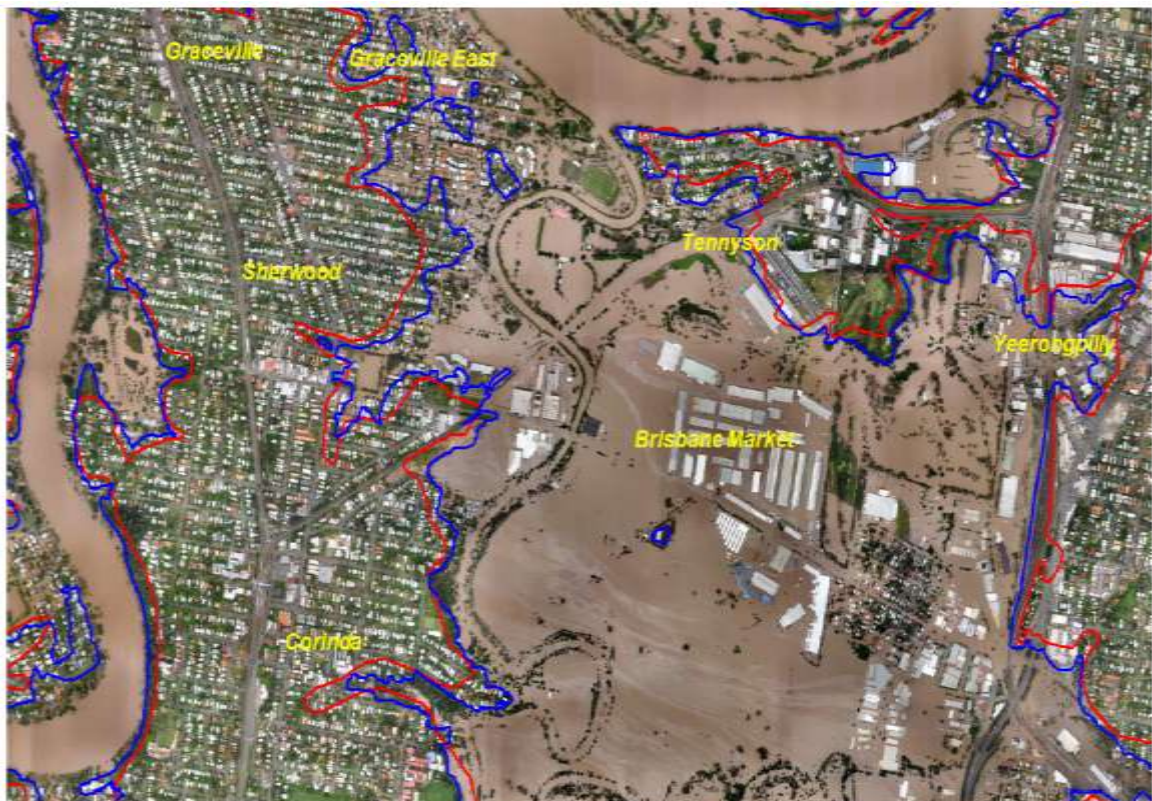
Queensland also lacked a coherent approach to floodplain management, a number of recommendations have been made by commission report, relating to the need for current and comprehensive flood studies and flood mapping, particularly in urban areas.

However, coming across to the Published final report of Queensland flood commission, the planning issues that what went wrong are extracted from the report as a literature review, which are discussed under the following headings:

- Brisbane Q100 flood(a conventional notation for the [100-year flood](#), particularly in [hydrology](#)) and Effectiveness of Q100 mapping
- Responsibility for flood plain management & Lack of central repository of Flood data

- The absence of Flood mapping in local planning schemes & Less consideration of flood in planning framework
- State planning policy dealing with the flood & planning schemes needed to Amend
- Development and poor flood considerations
- Brisbane river architecture design standards
- Placement of fill and development of floodplain
- Anthills: Properties isolated by flooding of low lying access routes
- Problems in Development assessment
- Dearth of Expertise in staff

In the following aerial photographs, it displays the extent of flooding during the 2011 (blue line) event while the red line represents the flood extent in 1974. The 2011 flood shows that the extent of flooding in most areas of Brisbane City was very similar to that of the 1974 flood. The following images show different parts of Brisbane City. The focus can be given according to the published report that while there may have been uncertainty in the Annual Return Interval of this flooding, where it flooded was largely predictable (R & J, The Brisbane Floods: Causes, Impacts and Implications, 2011).

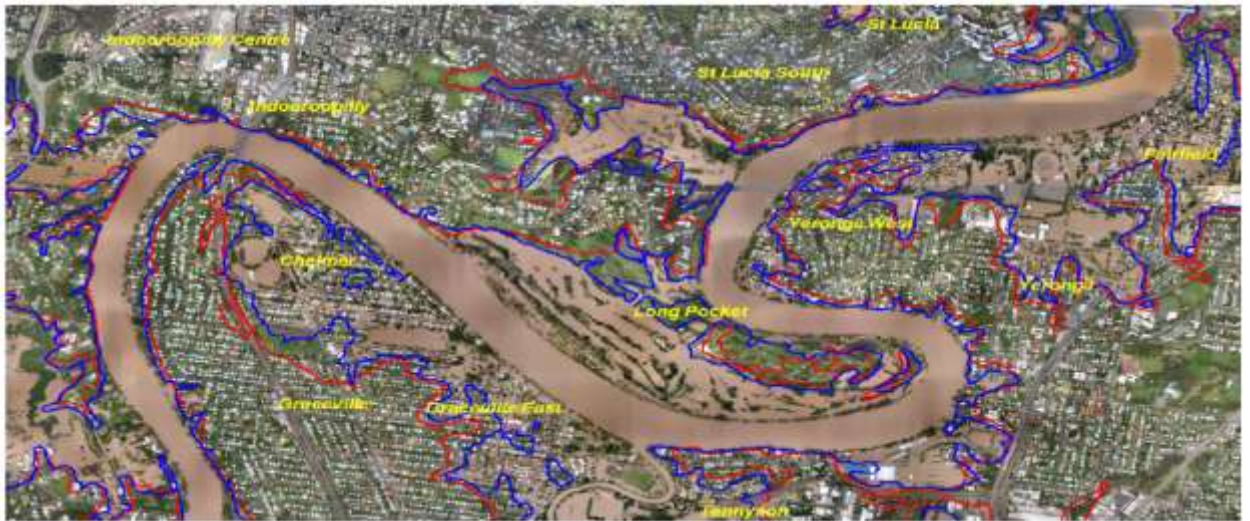


(a)



(b)

Figure 2. Flood extent comparison between (a) the 2011 flooding (blue polygon) and (b) the 1974 Brisbane flood inundation extent (red polygon).



(a) Figure 2. Cont



(b)

3. Implication of Brisbane Flood in Other Places

According to the world bank report, Queensland state has stated that floods 2011 has impacted very much , it was the most expensive disaster that happened .it was national disaster that premier of Queensland Anna Bligh has declared on that time. 73 out its 73 Local Government Areas (LGAs) or Councils in Queensland declared the State of Emergency due to the flooding events.

World Bank also states that the Queensland flooding has been a major disaster, not just from the Australian perspective but also internationally. With the offer of assistance by World Bank, the government of Australia accepted the World Bank's support for the reconstruction. The undertaking, based on the concept of acknowledge exchange where the World Bank contributed global good practice and at the same time learns from Australia's experiences in recovery, reconstruction and risk mitigation.

Australia and the World Bank became close partners in the efforts to aid developing countries on their path to sustainable growth, with Australia playing a significant role in the Bank's initiatives in the field of disaster risk management and climate change adaption, particularly through its dedicated support of the Global Facility for Disaster Reduction and Recovery (GFDRR).

Hence the achievements and progress made in Queensland are examples of global practice that the World Bank has collected from Queensland floods in the field of reconstruction and risk reduction from across the world.

4. Dealing With Floods: Between Prevention And Preparedness

What Can Queensland (Australia) And Developing Countries Like Nepal Learn From Each-Other?

Whatever the causes of flood and types, the effect is similar to human, flood doesn't choose rich people and poor people, however the strategy to cope and manage the risk is always helping people to be prevented as preparedness and mitigate the disaster. The Aftermath of Brisbane flood in Australia has big implication in outside and inside of the country.

There are many differences between the Queensland flood and other floods and elsewhere in South Asia, and globally – in their intensity, geographical coverage, and the effects on people and the economy. Yet there are insights that can be gleaned from other experiences. The evaluations of past flood prevention and rehabilitation in South Asia and elsewhere, adapted to the situation of Nepal, could offer useful lessons for designing an effective response.

Implication of Brisbane flood can be seen in many ways for developing countries like Nepal, which is world poor and vulnerable countries in terms of natural disaster, it is world 30th on rank of most flood prone country according to the Disaster management department of Nepal government. Nothing is precious than cost human lives in this world; developed countries have got the entire prosperous infrastructure including technology and manpower with systematic rules of government.

This report has examined the Effectiveness and recommendation of Brisbane flood and published report for mitigating the disaster in future which is conducted by various academicians, researchers, organizations and government agencies, so this report is finally discussing what were the strategy and recommendation so countries like Nepal can get some lesson for mitigation of such scale of disasters.

Australia's disaster response has benefited tremendously from prior disaster management arrangements and preparedness. Provision of early recovery assistance to the disaster impacted communities to clean up the debris from destruction left by a catastrophic event has been a common approach in recent post disaster recovery practices around the world.

after completing review of the causes and impacts of the Queensland floods in the midst, to draw the lessons from these events, the recommendations in final report of the Queensland Flood Inquiry Commission reviewed existing policies and measures are to deal better with future floods and so it recommended to be effective, future policies should deal with operational matters (e.g. dam operation) and system design, whether modified or natural, including land use, river management and modification, flood mitigation and control and the interaction between storm water systems, wastewater systems and natural systems such as rivers stream.

Like Queensland, the Nepal has a long history of dealing with flood though Nepal hasn't got solid measure of prevention, policy and infrastructure works. Nepal is still in early stage of infrastructure building where basic infrastructures are even less and those built are below international standards due to poor government and instable political situation. Natural hazard assessment in Nepal is still in an early stage and no serious concern on comprehensive flood risk assessment and hazard mapping was shown until the disaster of 1993. Flood risk assessment in Nepal is still in a very elementary stage.

In the context with disaster mitigation, Nepal is a disaster prone country and it has been facing different disasters every year. Due to the geologic, geographic and climatic conditions of the country majority of the people are exposed to one or the other kind of disaster risks at any time. The nation's development efforts and poverty alleviation programmes are being annulled by frequent disasters. Hence, increased focus on mainstreaming disaster risk reduction in development plans with the lesson from Australia can help to draft policies enable to protect lives and property, as well as to sustain development benefits.

The factors such as little public awareness; insufficient preparedness work; lack of coordination among related agencies; inadequate financial resources; and limited use of available indigenous knowledge, skills and coping capacity have inhibited mitigation of disaster impacts in the country.

The community based disaster management programmes, which have been implemented in some parts of the country are found to be effective and therefore needs replication in other areas. Underprivileged groups of people are found to be more prone to disasters as majority of them reside in vulnerable areas. Only rescue and relief operations have received priority in the field of disaster management so far. Therefore, the activities concerned with preparedness, reconstruction and rehabilitation also need to be sufficiently addressed in the future.

However, the Nepal has gone through the major International Non Governmental organization and United Nation development programs to assist drafting the policies with its own government agencies coordinating with different regional, district and local disaster management organizing centers in recent time. Along these lines, the good example of Brisbane flood policies has been to consider the role of land use planning, and natural systems to mitigate flooding or, when it does occur, to allow it to happen in a manner that does not endanger life or property

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