Australian Floods: Beneficial Impacts of 2010 Victorian Floods'

Table 1: Storage levels of some Victorian major dams in September 2007-2010[1].
Note: ML=mega litre; 1 ML= 1million litres

	Full capacity (ML)	2007 11 Sep. (ML)	2008 11 Sep. (ML)	2009 9 Sep. (ML)	2010 9 Sep. (ML)
Dartmouth Dam	3,906,000 (100%)	651,614 (16.68%)	782,264 (20%)	984,834 (25.2%)	1,659,325 (42.5%)
Lake Eildon	3,334,158 (100%)	747,805 (22.43%)	751,392 (22.5%)	765,887 (23%)	1,807,881 (54.2%)
Hume Dam	3,038,000 (100%)	818,605 (26.94%)	909,027 (29.9%)	803435 (26.4%)	1,664,422 (65.57%)
Waranga Basin	432,360 (100%)	163,559 (38.3%)	149,872 (34.66%)	157,847 (36.51%)	417,950 (96.7%)
Lake Eppalock	304,650 (100%),	15,637 (5.13%)	21,384 (7.12%)	18,121 (5.95%)	181,300 (59.5%)
Cairn Curran	147,130 (100%	10,886 (7.40%)	8.873 (6.03%)	4,282 (2.9%)	114,454 (77.8%)

Figure 1: Impacts of 2010 Victorian floods on water resources and environment.

Weir is spilling

River is flowing

Flood plain inundated

Red gum trees under flood water

Note: Images taken between 6 and 9 September 2010.

Good winter and spring rainfalls caused major floods in northern and western Victoria during early September, 2010 (5-9 September). It is believed to be related to La Niňa (wet period/cold phase) weather effects which resulted in higher than average rainfall. The higher rainfall and consequent floods brought several benefits for Victoria since the state was suffering from drought for more than a decade.

For example, the floods in September 2010 boosted water levels in dams, lakes and reservoirs across Victoria. At the same time for the last several years, the storage levels were significantly low due to drought (Table 1). Some of Australia's biggest dams such as Dartmouth, Eildon and Hume are now 42%, 54% and 67% full respectively due to recent floods (see Table 1). The irrigation water allocation will now be improved and the food bowl region in Victoria such as Goulburn-Murray region (Cobram, Shepparton, Tatura, Kyabram, Rochester, Pyramid-Hill, Boort, Kerang, Swan hill, Mildura), would be able to grow more fruit (pome, stone), grapes, olives, vegetables, tomatoes, crops, pastures and livestock that depend mostly/ entirely on irrigation water supplies from these dams.

Further, flooding will help to revive Victoria's red gum forests (Barmah and Gunbower), native fish population (golden perch and Murray cod), wetlands and threatened lower Lakes. It will help to flush out accumulated sands of the Murray and Goulburn rivers, and will provide crucial river flows/environmental flows and recharge groundwater aquifers. The aquatic, riparian and flood plain vegetation will be re-established and isolated waterholes will become connected providing opportunities to native fish and other aquatic species to breed, disperse and establish over large areas of flood plain. Flooding broad range of habitat is generally essential for the breeding of aquatic birds and their recruitment. An increase in snags (dead tress) numbers in rivers and streams will enhance native fish habitat. The transfer of nutrients and organic matter to crop lands will enhance agricultural productivity[4,5,6]. Though floods can be beneficial for the ecology, biodiversity, agriculture and water resources it may also cause some human deaths. Compared to world deadliest floods, the human fatalities due to floods in Australia were at the minimal over the years (see Table 2).

Table 2: Human causalities due to floods in Australia compared to world deadliest floods [2,3]

	Australian floods		World deadliest floods				Australian floods		World deadliest floods	
Date	Location	Fatalities	Location	Fatalities		**Date**	Location	Fatalities	Location	Fatalities
2010	2010 Victorian floods, VIC					1949	Maitland, NSW			
2007	2007 Hunter Valley floods, NSW	9 deaths				1938			China, Yellow River flood	500,000-700,000
2007	2007 Maitland Floods, NSW	2 deaths				1935			China, Yangtze River flood	145,000
2004			Indonesia-Indian Ocean tsunami	230,000		1934	Yarra River, Victoria	35 deaths		
1998	Katherine floods, NT	3 deaths				1931	Maitland, NSW		China floods	2,500,000-3,700,000
1996	Qld/NSW floods	4 deaths				1930	Maitland, NSW			
1990	East Coast	7 deaths				1929	Derby, Tasmania	22 deaths		
1986	Sydney, NSW	6 deaths				1927	Wollombi, NSW			
1975			China-dam failure	231,000		1916	Clermont, Queensland	65 deaths		
1974	1974 Brisbane floods, QLD	16 deaths				1913	Maitland, NSW			
1971	1971 Canberra floods, ACT	7 deaths	North Vietnam, Hanoi & red River Delta flood	100,000		1911			China, Yangtze River flood	100,000
1971	Maitland, NSW					1893	Brisbane, QLD			
1955	Maitland Floods, NSW	14 deaths				1893	Maitland, NSW	9 deaths		
1955	1956 Murray River floods					1887			China, Yellow River flood	900,000-2,000,000
1955	1955 Hunter Valley floods, NSW	25 deaths				1852	Gundagai, NSW	89 deaths		
1952	Maitland, NSW					1820	Maitland, NSW			
1952	Belmont, Geelong, VIC					1806	Maitland, NSW			
1951	Maitland, NSW					1530			Netherlands, St Felix's flood, storm surge	> 100,000
1950	Maitland									

References

1. http://www.g-mwater.com.au/; 2.http://en.wikipedia.org/wiki/Flood. 3.http://en.wikepedia.org./wikiFloods_in_Australia. 4. Leigh et al. 2010. Sequential floods drive 'booms' and wetland persistence in dryland rivers: a synthesis. *Marine & Freshwater Research* 61: 896-908.. 5. Balcombe et al. 2007. Fish larvae, growth, and biomass relationships in an Australian arid zone river:links between floodplains and waterholes. *Freshawater Biology*. 52: 2385-2398. 6. http://mams.rmit.edu.au/kse6lz09fet.pdf-evaluating the environmental losses and benefits from flooding.The article is based on various sources and was compiled by Golam Kibria, Ph.D in September 2010 for http://www.sydneybashi-bangla.com (19) for community benefits. Views expressed in this article are those of the author and are not to be taken to be the views of any others including third parties. The information in this article may be assistance to you but the author don't guarantee that it is without flaw of any kind and therefore disclose any liability for any error, loss or other consequences which may arise from relying on any information in this article.