

Avoidable Deaths: A Systems Failure Approach to Disaster Risk Management

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The management and understanding of natural hazards, risk, vulnerability, and resilience is, arguably, more important today than ever before. Natural hazards are the killers of people and destroyers of capital. Disasters threaten development, political stability, and life quality.

It is therefore vital that critical thinking on the management of natural hazards is continually dynamic and evolving, with a focus on the reduction of deaths and improvements in resilience in all its forms.

It is timely that Ray-Bennett, the Author of *Avoidable Deaths*, targets a suggested audience of disaster risk reduction (DRR) students, academics, practitioners, and policy makers, with a concise, punchy, and intellectually robust new offering in the field. The book has been inspired, and informed, through Ray-Bennett's varied academic and field experience in India, UK, Japan, and Bangladesh. Ray-Bennett volunteered as a Relief Worker in Odisha, Eastern India, when it was hit by its biggest disaster in recent history. This relief work followed a master's degree in Mumbai, a PhD degree at the Warwick University, UK, and academic spells at the Universities of Cranfield, Northumbria, Warwick and now Leicester, UK. Natural hazards and disasters in Odisha have remained strong research themes for the author.

For someone like myself, a Geoscientist, the book starts with a controversial premise that catches the eye and enquiring mind. The key thesis of the book is that most deaths that occur during natural hazards and relating disasters are unnecessary and avoidable. Furthermore, a regular and continued re-occurrence of avoidable disaster-related deaths constitutes "event violence". Inspired by the thinking of Nobel Prize Winner Amartya Sen in publications such as *The Idea of Justice* (2009), Ray-Bennett argues that disaster-related avoidable deaths are a matter of justice. In this context, justice is not measured against an unattainable concept of a Utopian ideal, but rather as part of a continuum and matter of degree. Within a modern DRR context *Avoidable Deaths* argues that there is a "lack of justice" or evidence of "event violence" when deaths occur through the failure to apply modern disaster management science, technology, and "systems alignment".

Philosophically, *Avoidable Deaths* states that the concept of "justice" and "violence" are the key to a correct focus of action. The unnecessary death of any individual, particularly when caught in their youth or prime of life, manifests a systems failure that curtails the potential of individuals and impacts their families, communities, society, and nation. Individuals are therefore "robbed" of their "right" to high-quality protection during a disaster phenomenon, if states/regions/organisations or "systems" fail to protect them, regardless of their social/economic/gender-based relative vulnerabilities. To fully inform a modern, enlightened, and holistic approach to DRR, a disaster management process should agree that: avoidable deaths = "event violence"; human deaths are a "matter of justice"; disaster management systems give life the highest priority; and any key nominated disaster



reduction organisation/institution must exhibit an accountable “demand of duty” to deliver the best-possible management programmes.

There has been a progression, it is argued, from a top-down, technical-oriented, exclusive-thematic/reductionist disaster management process, towards a holistic, multi-disciplinary, and inclusive approach. This evolution is global in scope, with bodies such as the United Nations International Strategy for DRR and related bodies at seminal world meetings, first at Hyogo, and then Sendai, setting global principles, agreed by the world representatives. Whilst this progress is widely acclaimed, it does lead to increasingly complicated levels of coordination, inter-dependency, communication, management, and leadership. *Avoidable Deaths* stresses and extends elements of Sendai from work based in India coupled with a wider theoretical thinking. For example, vulnerability is the key to the “event violence” concept. Some groups are existentially more vulnerable than others to the effects of disasters (as in many other areas of existence). This enhanced vulnerability “pre-conditioning” must be taken into account when planning disaster reduction strategies. In the case of Odisha, class, caste, gender, wealth, and status are all variables that influence vulnerability. As has been seen in disasters across the world, such as the 2004 Indian Ocean tsunami, the 2005 Kashmir earthquake, the 2005 New Orleans Katrina disaster, and the man-made 1980s Bhopal disaster, the poor and weak suffer the most. The most vulnerable elements of society may be from the lowest caste or class (or both), may be female, young, old, or suffering from disability. They may live in the weakest form of shelter or the most exposed part of a terrain to a range of hazards. *Avoidable Deaths* strongly supports the recognition and factoring-in of vulnerability within any disaster reduction planning/management. Although the book largely argues this point through the lens of gender, it is nevertheless strongly articulated. Women and children are, statistically, the largest casualty cohort of disasters. This, however, is not always the case, as livelihoods can weigh the probability of death towards males. For example, in the review of death records from 1999 to 2014, the book asserts that males are more likely to die because of their work in the field or close to the ocean, increasing their vulnerability to storm surge, flooding, and lightning strikes.

Other key areas of focus within *Avoidable Deaths* are the application of science and technology (e.g. early warning systems, satellites, communication devices, computing systems, physical infrastructure upgrades, housing upgrades) and the application of “systems alignment” or, rather, the analysis and avoidance of “systems failure”. Systems may be analysed in terms of their ability/lack of ability to coordinate, communicate, and deploy progressive “world views” (e.g. adopt open and inclusive approaches, recognise, and manage vulnerability, work with potentially impacted communities). Analytical tools based on this approach are presented as “useful agents of progress” that can assist governments and organisations in further developing their disaster management systems.

Odisha is an example of an area that struggled within one high magnitude, earlier, disaster, but responded well to a later disaster. Lessons are drawn from the experience of the two events, separated by 14 years, within the same geographical area. In terms of raw statistics, the differences between the two events are stark. In October 1999, Odisha was hit by two large magnitude cyclones recording wind velocities of up to 300 km/hour, storm surges of up to 6 m high, a maximum 24-hour period rainfall of 520 mm and a casualty count of over 10,000 people. The 2013 Odisha cyclone produced wind velocities of up to 260 km/hour, storm surges of up to 3.5 m, a maximum 24-hour period rainfall of 169 mm, and a casualty count of 86. Why the contrast, even bearing in mind magnitude difference? This is where the approach of *Avoidable Deaths*, as well as the wisdom of hindsight, become particularly revealing. Although Odisha is known to be an area of high hazard probability, largely from cyclones and floods, it had not experienced a very high magnitude event,

in casualty terms, for a long period prior to 1999. This lack of activity resulted in a loss of “corporate memory” regarding disasters, the presence of immature processes, complacency, and weak leadership with respect to DRR. A combination of deficits and weaknesses led to a great number of avoidable deaths. The level of event violence and injustice was high. The disaster had political impacts at local and national levels.

India learned lessons. And quickly, a Disaster Management Act was passed in 2005. This Act ensured that every state and district in India developed their own disaster management authorities with fully funded DRR plans, and activities for preparedness, mitigation, response, and recovery. A National Institute of Disaster Management was set up to develop human capacity throughout India and inform DRR through research. The Indian Meteorological Office was significantly strengthened in human, technical, scientific, and technological terms. Communities became part of the disaster planning process, through awareness and education programmes, and the creation of village disaster management committees. A core message of “no casualties” concentrated minds and actions. It is a most positive and heart-warming story. The Head of UNISDR, Margaret Ohlstrom, praised the Odisha efforts and its work with 24,000 village communities.

Avoidable Deaths is a small book with a big aim. The social justice and complex systems approach is not only philosophically robust but also practical. The Odisha case study is informative and helpful. As the author is aware, translating theory into practice in such an inherently complex field as disaster management is no easy task. Most practitioners in the field are less concerned about the finer points of Amartya Sen theory, no matter how powerful, but are more focused on what will work, when the pressure is on. The Odisha experience, whilst valuable, is not necessarily transferrable to all places and cultures. Neither is the core thesis of *Avoidable Deaths* without tailoring ideas for local need and context. India, although a developing country, is rapidly growing economically, is becoming increasingly technologically sophisticated, is an ancient culture, with many millions of educated people, and a rich powerful elite class/caste. The Odisha case study is part of a successful period of Indian history that allows for a stark historical comparison. Additionally, the dreadful experience of 1999 Odisha perhaps had to happen, in order to concentrate minds and action. Global health and safety in general has progressed through step changes caused by hard-hitting disasters that hit the headlines. The Odisha example also benefited from growing enlightened global thinking for DRR, the existence of good examples and practice across the world, the increasing recognition that disasters hurt development and combatting them “makes good business sense”, and some excellent new initiatives and thinking within India, for which India should be justifiably proud.

The core thesis of *Avoidable Deaths* is hard to argue against. The reviewer is naturally sympathetic to the arguments about pre-cooked vulnerability and how societies and governments can, and do, fail their poorest and most fragile members. These groups will probably always fair the worst in any disaster or calamity whether natural, economic, political, epidemiological, or socially constructed. But *Avoidable Deaths* does argue well that, although we may never reach Utopia, we can still make progress if we “wish to, and prioritise accordingly”. The reviewer also has had experience in countries and regions that will struggle to benefit from the wisdom of *Avoidable Deaths* because existing systems will fail to meet the ideal situation of complex systems theory. This may be due to war, political/economic instability, lack of human capacity, poor/old infrastructure and technology, limited education, and/or conservative world views. This does not mean that the best of *Avoidable Deaths* should not be applied in difficult environments, but rather that the thinking and application will require development and sensitive, bespoke adjustment to achieve the desired goal, i.e. an improved management system and fewer avoidable deaths.

In conclusion, I strongly recommend this book to anyone working in the field of disaster and risk management/reduction as it advocates a novel approach and interesting thinking,

as well as practical tools and examples. Anything that lowers avoidable deaths, even if only by a small amount, must be worth looking at.

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Acknowledgement

The author would like to thank Professor Mike Petterson for reviewing *Avoidable Deaths* with care and sensitivity. The essence of the book has been captured succinctly. The author would like to respond to Petterson's comment that "Odisha's experience, whilst valuable, is not necessarily transferrable". The transferability of Odisha's experience lies in the lessons learnt and shared in India and beyond. This experience is a benchmark for emerging and developing economies to demonstrate what can be achieved by a poor Indian state. Although funding is constrained, there is no shortage of innovative disaster management activity. Such grassroots responses warrant sharing globally and locally in order to motivate and change the mind-set of those funding and managing risk reduction programmes. The Government of Odisha's mission to "reduce death at any cost" is laudatory and disruptive. We need more such developmental disruptions to change practice and save precious lives. Petterson is right, the core thesis of *Avoidable Deaths* cannot be applied without tailoring the approach for local needs and context. This includes developing leading indicators of avoidable and unavoidable deaths, as well as establishing the right configuration of actors, networks and tools required to prepare for a "disaster climate" whilst also managing the interface with technology. This customisation is necessary in order to put the UN's "Sendai Framework for Disaster Risk Reduction" into practice and achieve its first Global Target: "substantially reduce global disaster mortality by 2030".

About the reviewer

Micheal Petterson is a Professor of Geology at the Auckland University of Technology in New Zealand. He was the Director of Applied Geoscience for a development organisation with disaster and risk reduction as a core function. Petterson has worked in the fields of geohazard analysis, disaster and risk reduction and improving resilience in conflict-ridden countries.