



Disaster Risk Management (DRM) Diagrammatic Framework

This article is a variant of the paper by Chris Piper, TorqAid CEO, entitled 'A New Diagrammatic Framework for Illustrating and Explaining Disaster Management' presented at the Australian & New Zealand Disaster & Emergency Management Conference
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Genesis & Development

Most of the author's career has been as a Global Humanitarian Practitioner (GHP) and Teacher/Trainer. He has also separately taught International & Community Development, and Emergency Management, at two Australian universities. As a humanitarian practitioner and teacher/trainer, he has been consistently exploring ways of being able to more clearly illustrate and explain what was occurring across the disaster risk management and project management cycles. It has become increasingly clear that, analogous to the saying 'a picture is worth a thousand words', so, too, could an effective series of diagrams be designed to achieve the same outcome. Commencing in 2002, four key illustrations have been developed, these being the Disaster Risk Management Cycle (DRMC), the Disaster Risk Reduction (DRR) diagram, the Disaster Risk Management Planning (DRM) Planning diagram, and the Project Management Cycle (PMC)¹. The design of the PMC was largely derived from that of the European Union's Project Management Cycle from the 1990's², whilst the DRMC was developed from the concept of the acronym PPRR (Prevention, Preparation, Response, Recovery), the emergency management model used in Australia. The shape and design of the DRR and DRM Planning diagrams were separate TorqAid concepts.

These illustrations³ have been incorporated by various agencies in selected publications over the years. These include FAO's Disaster Risk Management Systems Analysis in 2008; the ASPI⁴ Special Report 43: More than Good Deeds...in 2011; UNICEF's Pacific WASH in Emergencies Coordination Handbook in 2018; and GTAV⁵ Interaction journal on Australian bushfires in 2020. Complementary to this, these diagrams have comprised the key components of over 110 TorqAid Participatory Disaster Risk Management (PDRM)⁶ and Participatory Project Management (PPM) workshops, which have been facilitated across Australia and overseas since 2002, as well as the online PDRM⁷ running since 2016. A unique component of the four diagrams is that they have been continually modified, and improved on, by input from humanitarian students and practitioners, thus giving them a highly 'participative' nature. Examples of suggested improvements from stakeholders include:

- Tidying up of the Emergency Response initiatives in the DRMC (Diagrams 2 & 3) from student input on one of the online PDRM programs.
- With input from a PDRM program participant in PNG, modification of the previous DRR diagrams (Diagrams 4 & 5) to a circle comprising the six key components of DRR, with Good Governance at the centre.
- With input from a PPM participant in Darwin, modification of the 'A' component of the PMC (Diagram 7) from 'Community Interaction' to 'Relationship Building/Community Interaction'.

¹ Jpeg versions of these can be found at www.torqaid.com/resources

² See https://ec.europa.eu/international-partnerships/system/files/methodology-aid-delivery-methods-project-cycle-management-200403_en.pdf for the latest description of the EU's model

³ With the versions included here being from 2024

⁴ Australian Strategic Policy Institute

⁵ Geography Teachers Association of Victoria

⁶ The 2024 PDRM training program is at www.torqaid.com/2024-pdrm-training

⁷ See www.torqaid.com/online-pdrm-program

This paper therefore highlights and explains these four key diagrams, and then also applies the DRMC to the recent Covid-19 global pandemic.

Disaster Definitions

Since 1988, the Belgian agency CRED⁸ - www.cred.be has maintained the Emergency Events Database (EM-DAT). This contains core data on the occurrence and effects of natural and technological disasters since 1900. CRED defines a disaster as ‘a situation or event that overwhelms local capacity, necessitating at national or international level for external assistance; an unforeseen and often sudden event that causes great damage, destruction or suffering’. For a disaster to be entered into the EM-DAT database, at least one of the following needs to be fulfilled:

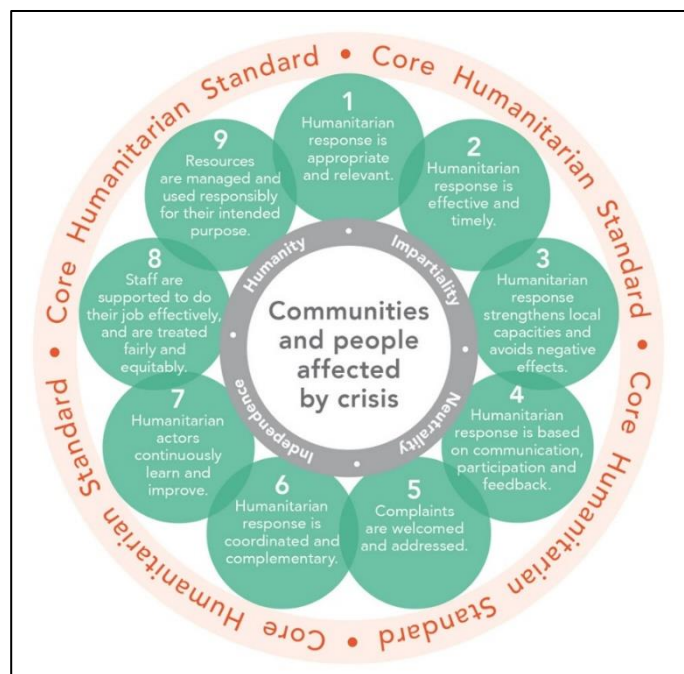
- 10 or more people reported killed
- 100 or more people reported affected
- Declaration of a state of emergency
- Call for international assistance

Core Humanitarian Standard (CHS)

Before reviewing the four key TorqAid diagrams, it is instructive at this stage to introduce the Core Humanitarian Standard (CHS)⁹ illustration. The CHS was introduced in 2014¹⁰, and drew down on a mixture of existing humanitarian standards & codes of conduct of the time. It is now a principal guiding framework used by NGOs, the Red Cross and others in the humanitarian sector¹¹. It includes (see Diagram 1) three major components, all of which are relevant to this paper.

Diagram 1: The Core Humanitarian Standard (CHS)

- At the heart of all humanitarian work is an overarching commitment to support communities and people affected by crisis.
- There are four underlying humanitarian principles undergirding practitioners’ efforts, namely humanity, impartiality, neutrality & independence.
- There are then nine key commitments and quality criteria which can guide the humanitarian practitioner through the assistance which is being offered.



⁸ Centre for Research on the Epidemiology of Disasters

⁹ www.corehumanitarianstandard.org

¹⁰ This is currently being reviewed, with a new revision being released on the 21st March 2024

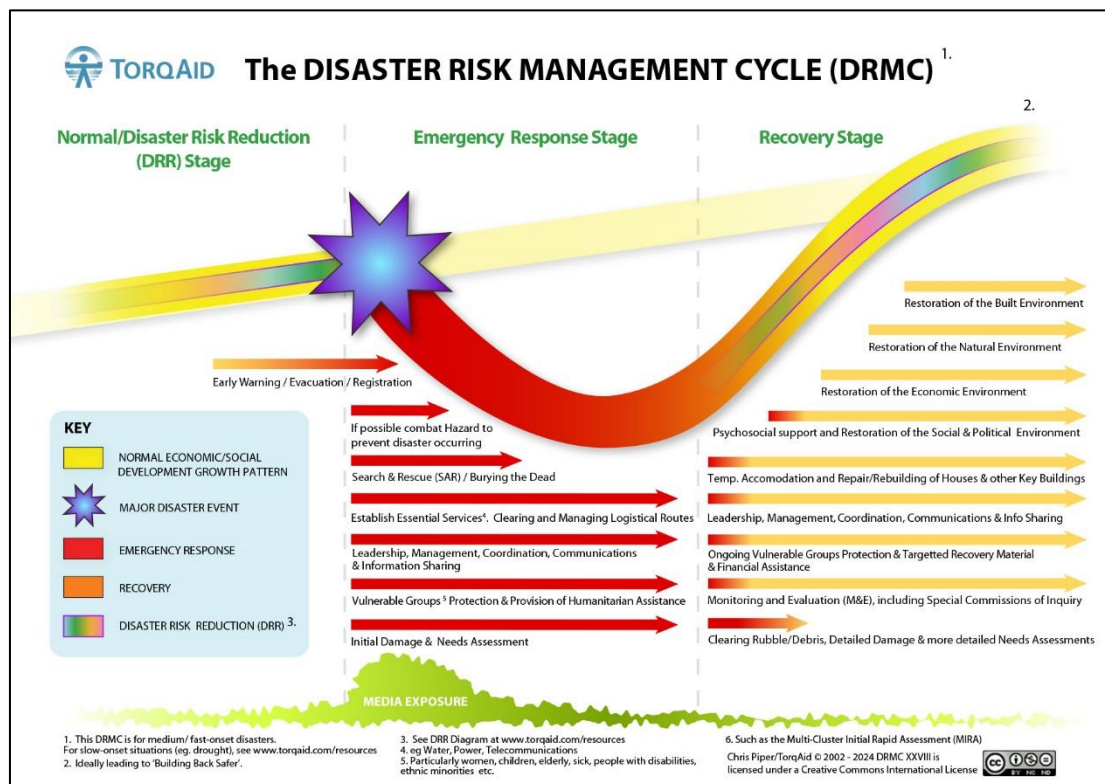
¹¹ A comprehensive overview of this is included on pages 49-88 of the Sphere Handbook (www.spherestandards.org)

The Disaster Risk Management Cycle (DRMC)

The first of the TorqAid diagrams is the Disaster Risk Management Cycle (DRMC). There are two variants of this, one covering fast-impact hazards, such as bushfires, cyclones, earthquakes; the other slower-impact hazards such as drought or climate change. There are five key items to note in the DRMC:

- There are three key stages in any disaster, namely a Normal/Disaster Risk Reduction (DRR) Stage; an Emergency Response Stage; and a Recovery Stage.
- For fast-impact disasters, there is often a sudden, sometimes dramatic, impact point. This creates a high degree of media exposure, which in turn can generate funding.
- The diagram illustrates the key initiatives which are carried out in two out of these three stages, namely Emergency Response and Recovery.
- A disaster can cause a dip or decline, in the economic & social growth pattern of the affected community or a country. If the Emergency Response and Recovery initiatives are carried out effectively however, then a 'Building Back Safer (BBS)' situation could occur. Society can then theoretically more than recover its lost position, with the affected community potentially becoming more resilient and able to handle future shocks.
- The DRMC also includes a, as yet undefined, rainbow-coloured Disaster Risk Reduction (DRR) component¹², which can be incorporated into the Recovery Stage.

Diagram 2: The Disaster Risk Management Cycle (Fast-impact Hazards)

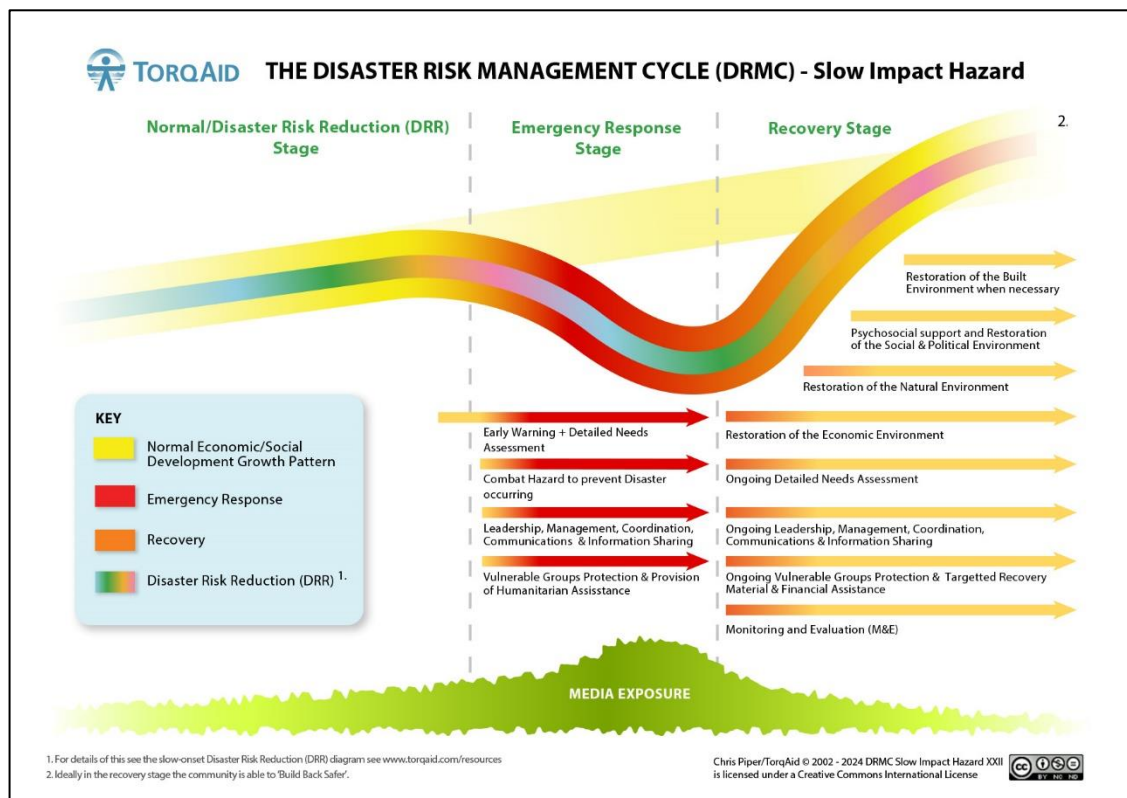


¹² This aspect of DRR is clarified and explained in the DRR diagram (Diagrams 3 & 4)

The DRMC Slow-Impact Variant

There is also a slow-impact variant of the DRMC. This relates to slower developing hazards such as drought or climate change). The main difference here is that there is no sudden or dramatic impact point. This translates then into a more slowly unfolding Emergency Response Stage. This also means there is likely to be less immediate media attention, which in turn generates greater challenges in accessing funding. All this being said, the key initiatives carried out however in both the Emergency Response and Recovery Stages will be largely similar to the earlier DRMC variant mentioned.

Diagram 3: The Disaster Risk Management Cycle (Slow-impact Hazards)



The Disaster Risk Reduction (DRR) diagram

The second TorqAid illustration is that of the Disaster Risk Reduction (DRR) diagram. This complements the DRMC as it focuses initially primarily on the Normal/DRR Stage. Once again, there are two variants of this, one relating to medium to fast-impact hazards, and the other to slowly developing situations such as drought or climate change. The diagram suggests that effective DRR consists of six complementary components, namely:

- Safety & Security
- Economic & Social Development, with a strong emphasis on Poverty Reduction
- Food, Water & Biodiversity Security
- Environmental Sustainability & Climate Change Adaptation (CCA)
- Twelve key Disaster Risk Management Initiatives
- Good Governance

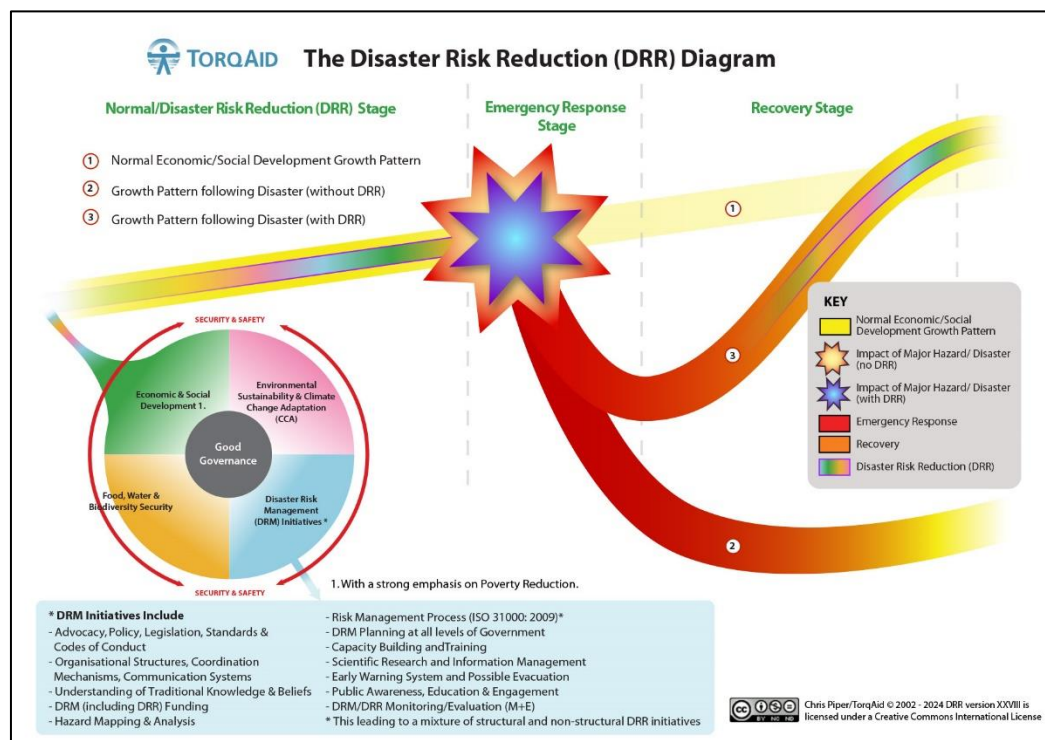
When these six components come together to produce effective DRR, the following occurs:

- The impact (and also likelihood) of a threatening, severe, hazard is diminished.
- The move through the Emergency Response and Recovery Stages is relatively less severe, and occurs more quickly.

When little or no DRR exists, the following occurs:

- The impact (and likelihood) of the same level of hazard is increased.
- The move through the Emergency Response and Recovery Stages is both longer-lasting, and relatively more pronounced.

Diagram 4: The Disaster Risk Reduction diagram (Fast-impact Hazards)

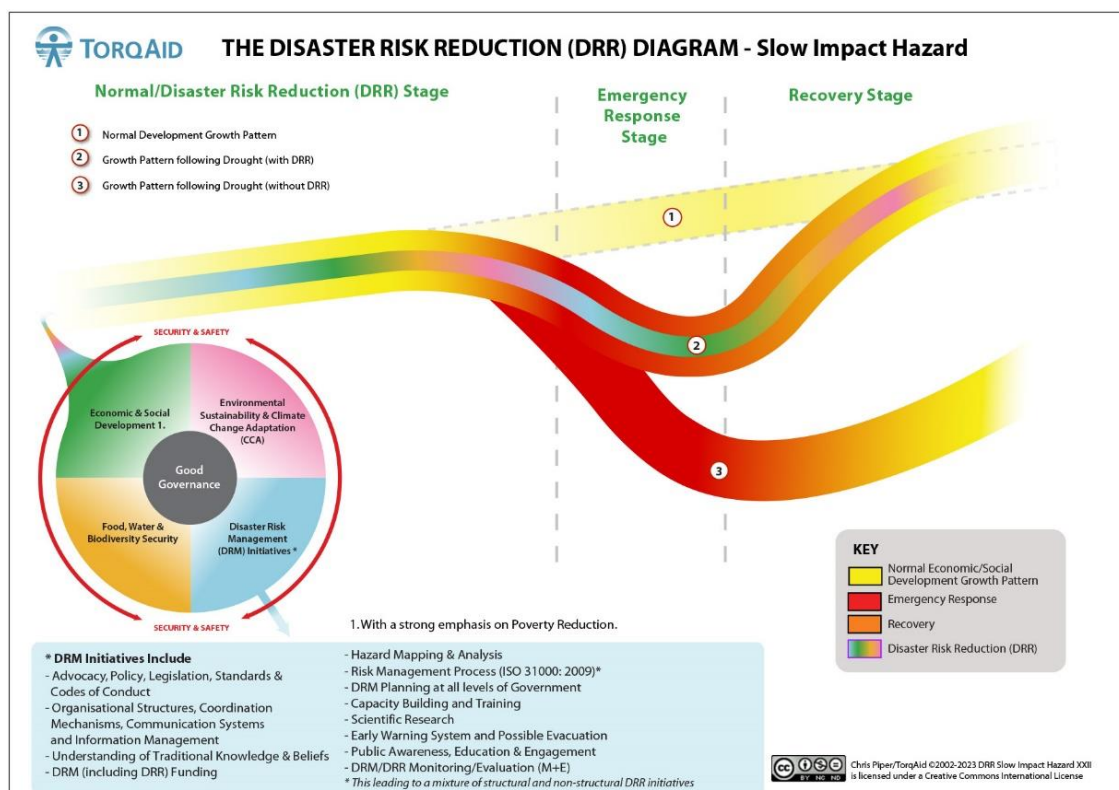


The DRR Slow-impact Variant

As was the case of the DRMC, there is also a slow-impact variant of the DRR diagram. This relates to hazards such as drought or climate change. The main difference here is again that there is no immediate impact point. As in the case of the fast-impact DRR, similar effects occur in times of disaster:

- When effective DRR is in place, the process of working through the Emergency Response and Recovery Stages is relatively less severe.
- When poor DRR is in place, the Emergency Response and Recovery Stages are relatively more severely affected and longer lasting.

Diagram 5: The Disaster Risk Reduction (DRR) diagram (Slow-impact Hazards)



The Disaster Risk Management (DRM) Planning diagram

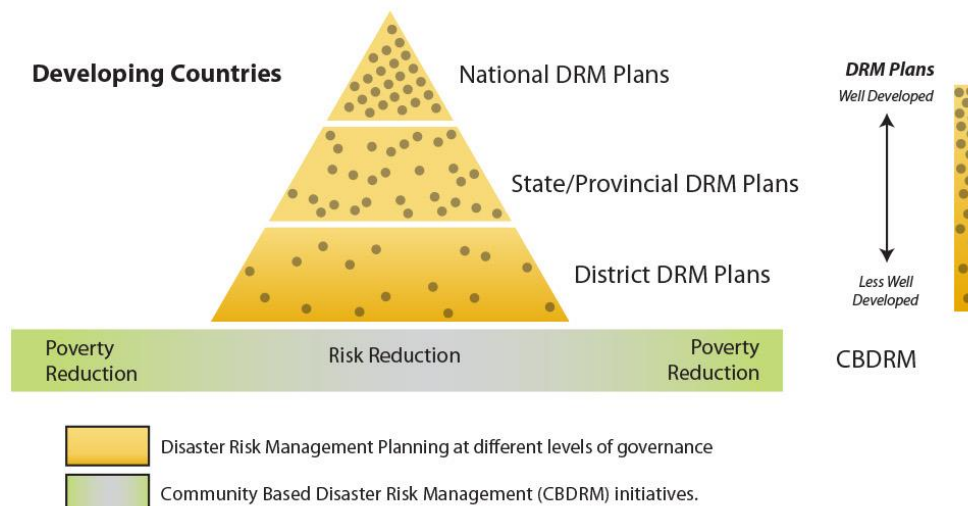
The third TorqAid illustration is the Disaster Risk Management (DRM) Planning diagram. In advanced economies such as Australia, effective emergency management plans deal with all major potential hazards across all levels of government. In emerging or developing economies, this pattern may not be so comprehensive, with often less effective planning at lower levels of governance. The two variants of the DRM Planning diagram outlined below therefore describe these differing situations. The upper illustration also highlights the role of NGOs and others in developing economies, whereby the introduction of Community Based Disaster Risk Management (CBDRM) initiatives complements existing government plans at local levels. For advanced economies, a note of caution is needed however. Effective planning is more than a series of reports filed away on government shelves. The 2005 Hurricane Katrina event in New Orleans resulted in a disaster of huge magnitude (CFR/Flynn, 2015), partially because the official plans at City, State and Federal level had not been effectively trialled and tested together beforehand.

Diagram 6: The Disaster Risk Management Planning diagram



The Disaster Risk Management Planning (DRMP) Diagram

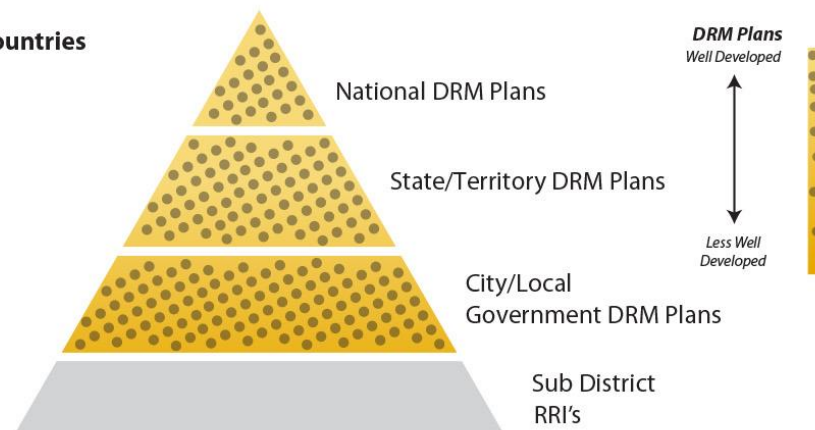
Disaster Risk Management (DRM) plans are developed at national, state provincial, and district levels, and this is primarily a host government responsibility. These are complemented by Community Based Disaster Risk Management (CBDRM) initiatives at district or sub-district levels, often managed by NGOs or community groups.



CBDRM initiatives are a combination of:

- Risk Reduction Initiatives (RRIs) e.g: Well Deepening, Food Banks, House Strengthening.
- Poverty Reduction Initiatives (PRIs) e.g: Health and Educational Initiatives, Income Generation, Animal Husbandry.

Developed Countries



In developed countries, ideally well developed DRM plans at all levels of government. An example are local bushfire initiatives supported by the appropriate fire service.

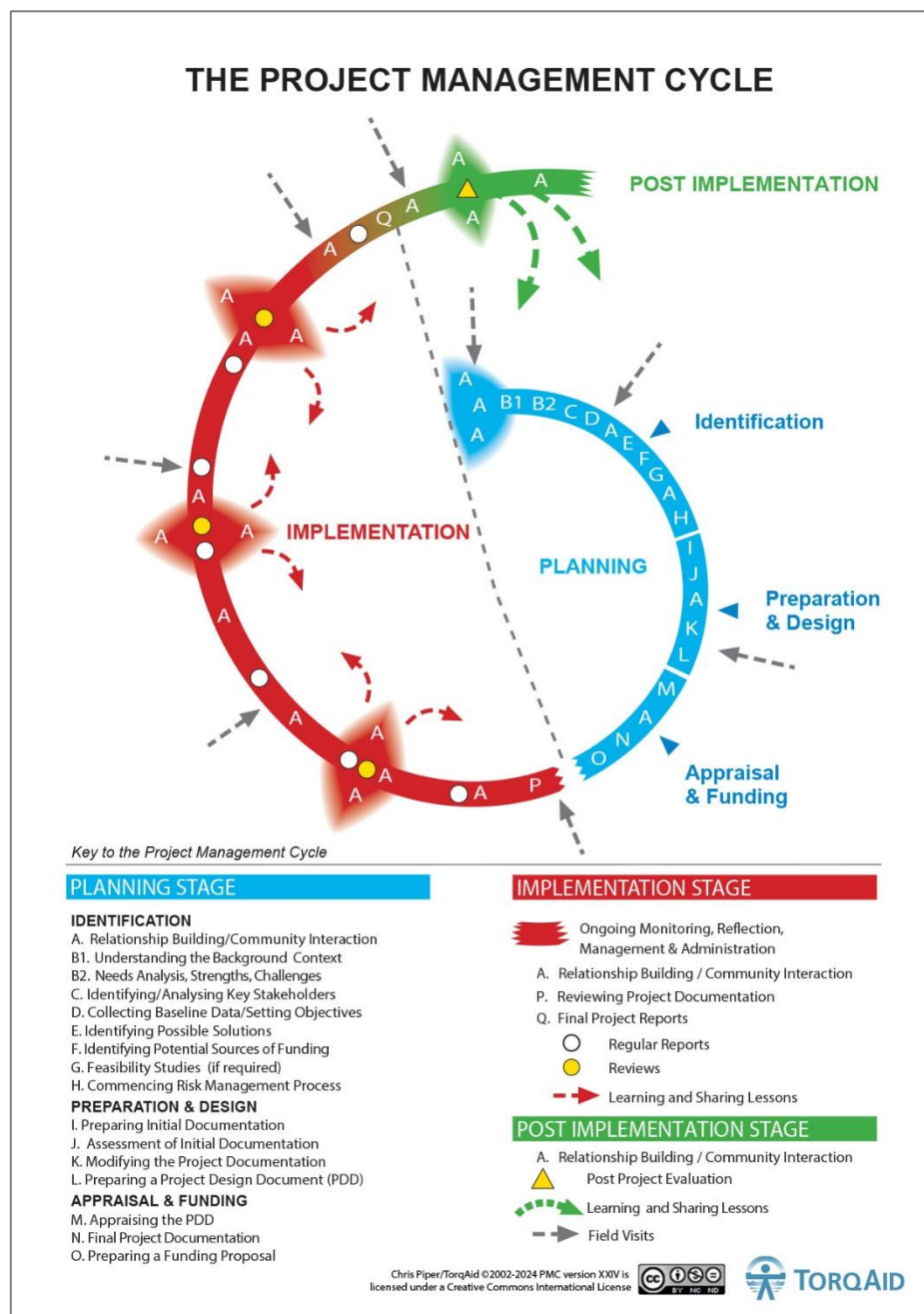


The Project Management Cycle (PMC)

In reviewing the two key diagrams (DRMC & DRR) to date, detailed planning should ideally take place in both the Normal/DRR and Recovery Stages of a severe hazard or disaster event. The Project Management Cycle (PMC) is a helpful illustration of an effective project management process. As illustrated in Diagram 7 below, there are three main stages to the PMC, namely:

- Planning
- Implementation
- Post-Implementation

Diagram 7: The Project Management Cycle



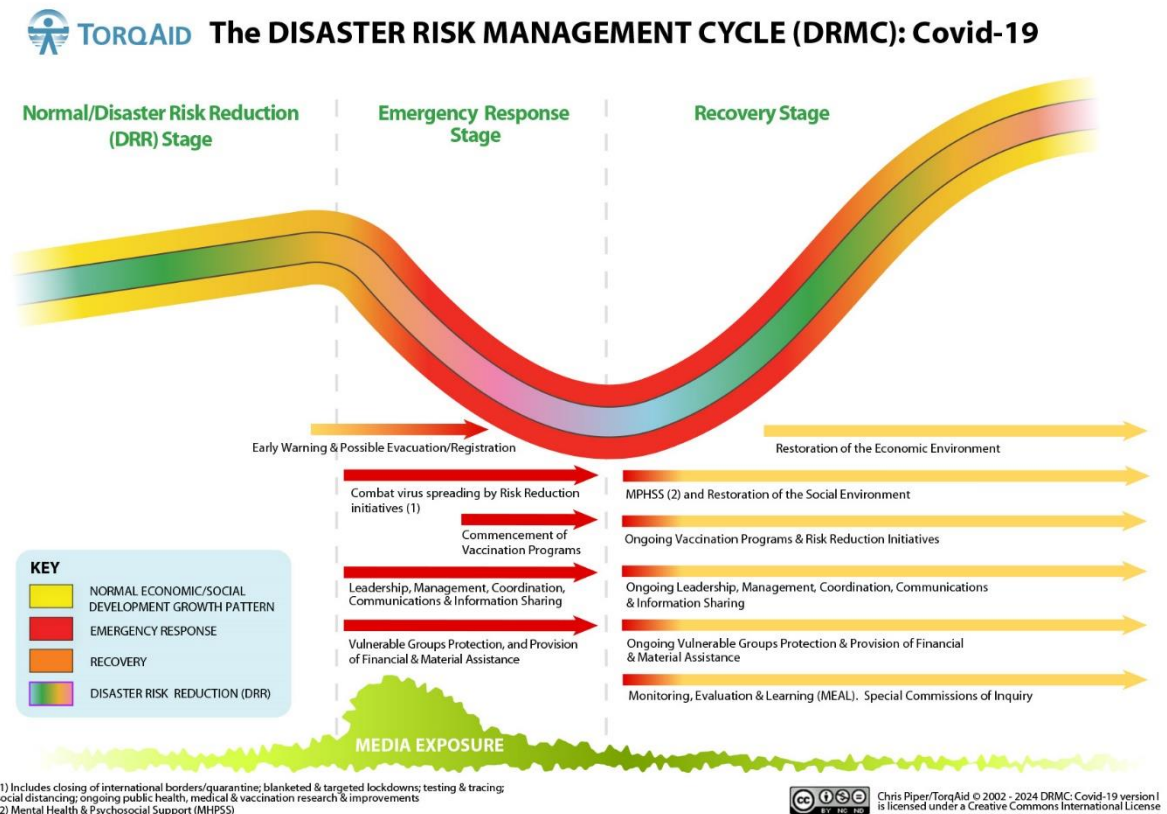
COVID-19 and the DRMC

The 2020-2023 global COVID-19 pandemic was the most widespread event of its kind since the 1920's Spanish Flu epidemic. Diagram 9 illustrates a COVID-19 variant of the fast-impact variant of the DRMC. Whilst COVID-19 DRMC was a rapidly moving threat, there was no obvious and visual high intensity impact point. However, the deadliness of the pandemic led to high early media exposure across most countries worldwide. Some key elements associated with this COVID-19 modified variant of the DRMC were the following:

- A key factor determining an individual country's relative success or failure in responding to the pandemic was the speed in which it responded to those early warning signs coming out of Wuhan and the World Health Organisation (WHO).
- A number of increasingly extensive and effective risk reduction initiatives were established in attempts to combat the pandemic spreading. These included the closing of international borders; targeted or blanket lockdowns within countries; testing & tracing; social distancing; use of Personal Protective Equipment (PPE); and research into vaccinations.
- Once effective vaccines had been tested and approved, there was the challenge of implementing comprehensive vaccination programs across countries and regions.
- The elements of Leadership, Management, Coordination, Communications & Information Sharing were all of vital importance, and the success or otherwise of these varied dramatically across countries. Within Australia, the results overall were positive, a reflection of this being the regular daily media briefings, with politicians, State Health Ministers, and Public Health experts generally 'speaking with one voice'.
- The protection of most vulnerable continued to remain a priority. Whilst this was initially focussed on the elderly, their care givers, and front-line health staff, other vulnerable groups later emerged. These included indigenous communities; large numbers of children (through loss of education); the poor; and those informally employed, or working in contact intensive sectors.
- For those richer countries which could afford it, degrees of financial and material assistance were offered to affected businesses or individuals. This level of support was more problematic in emerging or developing economies.
- Wide ranging levels of psychosocial damage was caused to many people either directly or indirectly affected by the pandemic. This placed enormous pressure on Mental Health & Psychosocial Support (MHPSS) services.
- For countries coming out of the worst of the pandemic, the focus later was directed towards economic and social recovery
- The WHO commissioned a series of initial reports¹³ into the causes and effects of the pandemic, these including lessons to be learnt to prevent future re-occurrences.

¹³ An important one being the Independent Panel for Pandemic Preparedness & Response's report on 'Covid-19. Make it the last Pandemic'.

Diagram 8: The Disaster Risk Management Cycle (COVID-19)



Concluding Remarks

This paper commenced by stating that a picture can be worth a thousand words, and the author's hope and intention is that some key illustrations can achieve the same outcome. The Core Humanitarian Standard (CHS) was introduced, where ideally the heart of any humanitarian assistance should focus on communities and people affected by crises. The four key TorqAid diagrams were then introduced, namely the Disaster Risk Management Cycle (DRMC), Disaster Risk Reduction (DRR) diagram, Disaster Risk Management (DRM) Planning diagram, and the Project Management Cycle (PMC). Finally, the DRMC was then taken and applied to the situation of the recent COVID-19-19 pandemic.

Chris Piper
TorqAid Director
chris@torqaid.com
www.torqaid.com
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