# DISASTER RISK MANAGEMENT FRAMEWORK. SEVEN KEY DIAGRAMS RELATING TO TROPICAL CYCLONE (TC) PAM & 2015/2016 EL NINO DROUGHT IN VANUATU

The seven key diagrams highlighted in this article illustrate clearly the main initiatives which are required for effective Disaster Risk Management (DRM). The also clearly describe some of the main initiatives which took place following the March 2015 Tropical Cyclone (TC) Pam in Vanuatu, as well as the 2015/16 el Nino-related drought. The key strengths of each of these diagrams are summarised in the pages below. Together, these illustrations are designed to assist humanitarian and development practitioners to use these tools to respond to hazards such as tropical cyclones; drought; heavy storms and flooding; earthquakes; tsunamis. The copyright for the Core Humanitarian Standard (CHS) belongs jointly to the four organisations which designed this[1], and the reader should note the conditions for use which appertain to this. Five of these diagrams (all updated to 2016) are TorqAid copyright, but, as indicated by the incorporate Creative Commons International Licence, they are available for people to freely use, for non-commercial purposes[2]. They have been co-branded using the Anglican Church in Melanesia (ACOM) logo, although the copyright of course remains TorqAid's. The ISO 31000 risk management process is public property. Enclosed below are links to the jpeg version of these seven illustrations (and two variations):

Core Humanitarian Standard (CHS)
http://www.corehumanitarianstandard.org/resources/branded-assets

Disaster Risk Management Cycle (DRMC) Diagram
http://www.torqaid.com/images/stories/latestdrmc.jpg

Disaster Risk Management Cycle (DRMC) Diagram: Drought-related
http://www.torqaid.com/images/stories/latestdrmcdrought.jpg

The Disaster Risk Reduction (DRR) Diagram
http://www.torqaid.com/images/stories/latestdrr.jpg

The Disaster Risk Reduction (DRR) Diagram: Drought-related
http://www.torqaid.com/images/stories/latestdrrdrought.jpg

ISO 31000 Risk Management Process
http://www.torqaid.com/images/stories/iso31000.jpg

Risk Matrix
http://www.torqaid.com/images/stories/riskmatrix.jpg

[1] Namely Groupe URD, HAP International, People in Aid, and the Sphere Project
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DRM Planning Diagram A (Emerging Economies)
http://www.torqaid.com/images/stories/drmpdiagrama.jpg

Project Management Cycle (PMC) diagram
http://www.torqaid.com/images/stories/latestpmc.jpg

## The Core Humanitarian Standard (CHS)

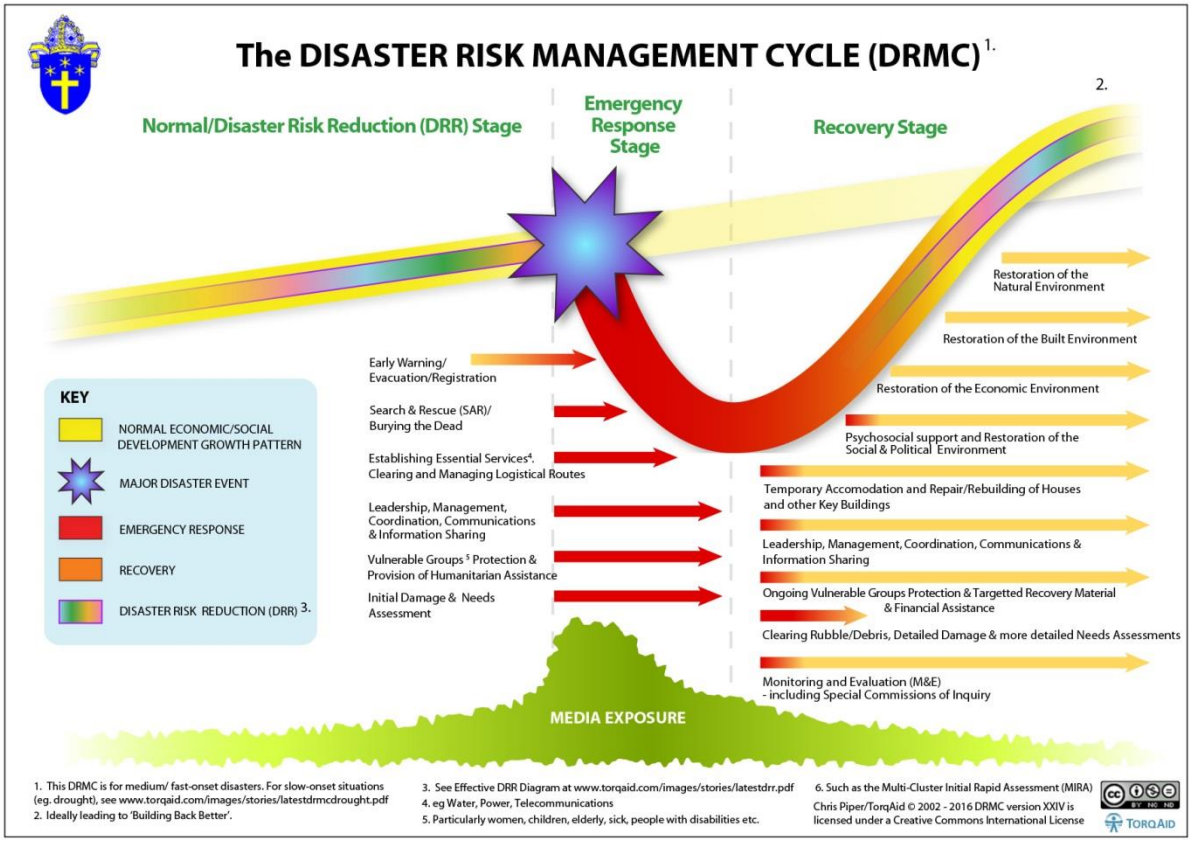
The Core Humanitarian Standard (CHS) has evolved from a complementary set of humanitarian standards and codes of conduct which have developed over the past years. Details of this can be accessed from the CHS website[3], as well as from the principal CHS document itself[4]. Illustrated[5] below is a diagram highlighting the Nine Key CHS Commitments and Quality Criteria.


[3] www.corehumanitarianstandard.org

[4] Groupe URD, HAP International, People in Aid, the Sphere Project, 2014, *Core Humanitarian Standard on Quality and Accountability,*
http://www.corehumanitarianstandard.org/files/files/Core%20Humanitarian%20Standard%20-%20English.pdf

[5] It should be noted that the copyright for this diagram is jointly held by Groupe URD, HAP International, People in Aid, and the Sphere Project.

## The Disaster Risk Management Cycle (DRMC)[6]




The DRMC indicates there are three key stages to any medium to sudden impact disaster, namely Normal/Risk Reduction; Emergency Response; and Recovery. There tend to be a set of Emergency Response initiatives which are common to every disaster, with a corresponding different set of initiatives relating to the Recovery Stage of each disaster.

The following summarise some key aspects of this DRMC diagram:

- This equates to the (Australian) Emergency Management framework of PPRR (Prevention, Preparedness, Response, Recovery)
- Included is a diagrammatic representation of media coverage. This tends to 'spike' in the Emergency Response Stage, and there is a close relationship between this (media attention) and potential financial support
- If the Emergency Response and Recovery initiatives are effectively carried out, and when these are complemented by Disaster Risk Reduction (DRR) initiatives, the affected community or target area should theoretically be able to 'build back better'. The DRR input is illustrated by the rainbow shade colouring

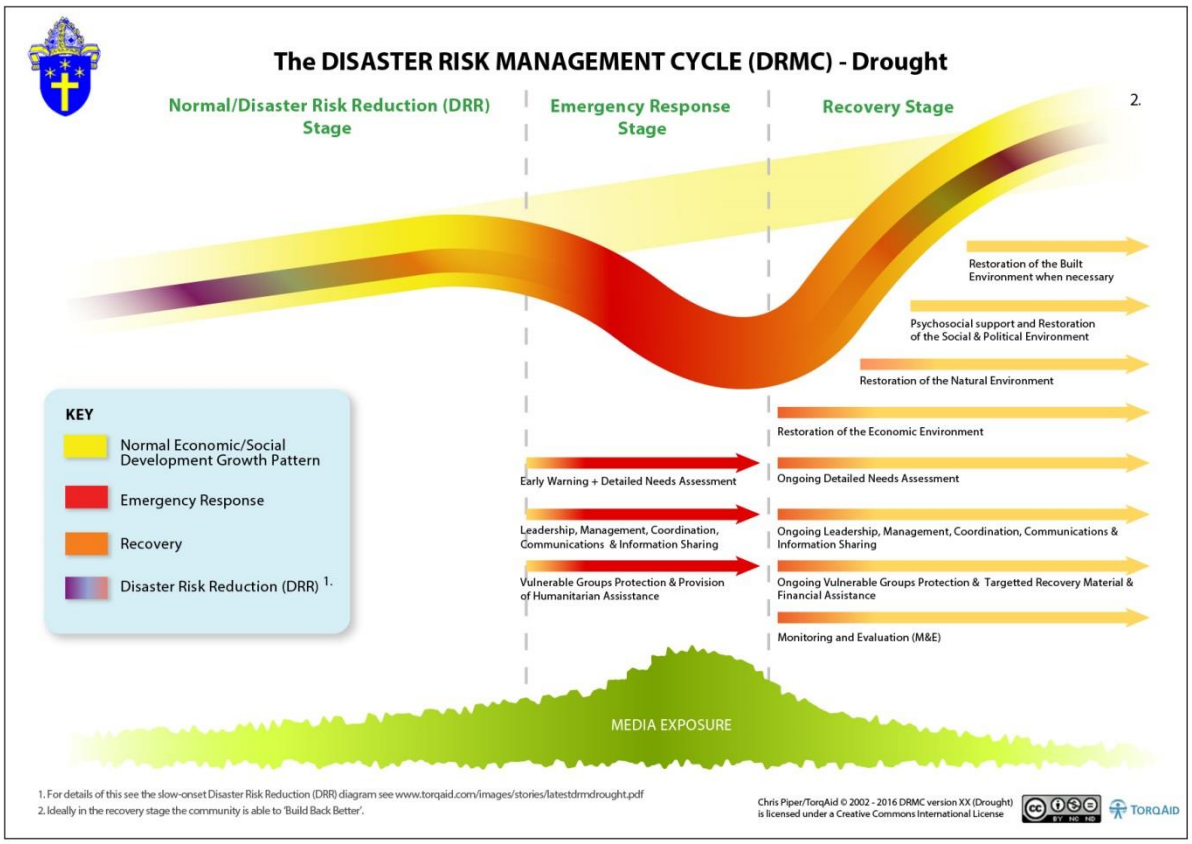
[6] Note http://www.torqaid.com/images/stories/acomdrmc.jpg

**The following are some examples of DRMC Emergency Response and Recovery Stage initiatives which occurred in Vanuatu, during and after Tropical Cyclone (TC) Pam:**

- Whilst the full force of TC Pam struck the country on the 13/14th March, earlier cyclone warnings, issued from the 8th March onwards, allowed authorities a number of days to effectively warn and prepare communities
- There was excessive damage to essential services (water/power/ telecommunications) in both Port Vila and other affected areas. It was a number of weeks before full telecommunication services were restored across the country
- The archipelago nature of Vanuatu, with a population of around 257,000, spread 900 kms from north to south across 83 islands, meant there were enormously logistical and communications challenges. The Vanuatu National Disaster Management Office (NDMO) coordinated a complex array of military, commercial and private sea and air logistical assets to supply and support outlying communities.
- Excellent information services also came out of Port Vila from early days following the disaster. These were a combination of NDMO Situation Reports (Sitreps) as well as UNOCHA[7] Sitreps.
- Coordination of the large numbers of stakeholders involved in both the Emergency and the Recovery Stages was again primarily the responsibility of NDMO. Staff there worked closely with the seven key Government Department-led Clusters, and their later eight Working Groups; the Vanuatu Humanitarian Team (VHT)[8]; the Vanuatu Council of Churches (VCC)[9]; and the Pacific Humanitarian team (PHT)[10].
- Following the disaster, there was a strong civil society effort in both urban and rural area to clear away the debris, and start repairing houses and other property. Large safe buildings which had been used as Emergency/Evacuation Centres reverted relatively quickly to their primary role as educational or church buildings
- Whilst the number of people killed by the disaster was relatively low[11], around 188,000 people (approximately 75% of Vanuatu's population), mainly in the east and south of the country, were affected by the cyclone. The main challenges and damage facing people included destroyed or damaged houses; affected rural water security[12] and food security[13] sytems; damaged health infrastructure and services; adverse effects on livelihoods, particularly those related to agriculture, forestry, livestock and fishing; children dropping out of schools; and resultant enhanced stresses on family life and cohesion. The recovery process from many of these sectors would take weeks or months to complete.
- As in all disasters, there are particular vulnerable groups which require special care and attention. In the case of Vanuatu this included pregnant and lactating mothers; single parent headed households; the young and the old; those who were sick or had disabilities; and those living in the most geographically isolated communities.

[7] United Nations Office for the Coordination of Humanitarian Affairs
[8] This is a coordinating body of international NGOs working in Vanuatu
[9] this is the coordination structure for the main churches working in Vanuatu
[10] This comprises specialised UN agencies, as well as a few others, designed to support national humanitarian efforts across the Pacific
[11] Just 16 people killed
[12] Examples being damage to the rain-harvesting systems which people use to capture rainwater from roofs – ie the roofs themselves; associated guttering and piping; and damage to water tanks
[13] For example damaged or destroyed kitchen garden as well as other crops, plants and trees

## Slow-onset DRMC example - eg drought/climate change[14]




Illustrated above is a 'slow-onset' variation of the DRMC. This relates to situations such as drought or climate change, where there is no noticeable 'impact point'. This summarises the situation relating to the 2015/16 el-Nino related drought which began to affect Vanuatu and other Western Pacific Island Countries (PICs) from mid 2015 onwards. Most of the Emergency Response and Recovery Stages initiatives remain the same. The main difference here is less dramatic media attention, which may translate into relatively greater challenges relating to funding. **The Vanuatu situation is summarised below:**

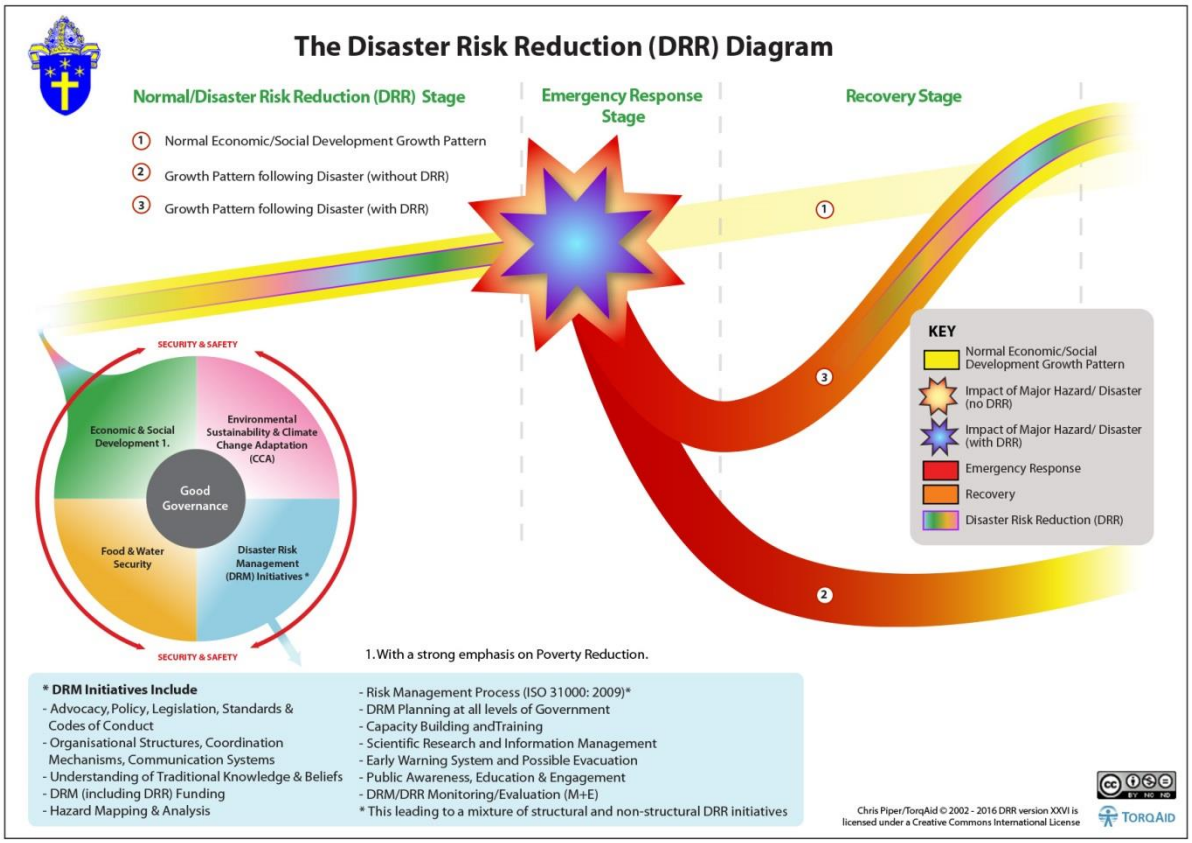
- This drought situation came shortly on the heels of the March 2015 TC Pam damage, when recovery work, particularly in the east and south of the country, was still being implemented. The drought therefore particularly exacerbated the effects on food and water security; health care; access to education; livelihoods; and family stress.
- The relatively slow and insidious nature of the drought meant that media attention was less dramatic than for the earlier cyclone, with the resultant slower impetus of funding opportunities[15].
- The Government of Vanuatu however, supported by the international community, responded as best as it could to the crisis, with coordination again largely led by NDMO, with support from VHT, VCC, PHT etc.

[14] See http://www.torqaid.com/images/stories/acomdrmcdrought.jpg

[15] This was complicated even more during the latter half of 2015 however, when ongoing enormous complex humanitarian emergencies elsewhere globally, such as in Syria (and the outflow of refugees into Europe), Yemen, or South Sudan, tended to monopolise much of humanitarian-related media attention

## The Disaster Risk Reduction (DRR) diagram[16]

The second illustration is that of the Disaster Risk Reduction (DRR) diagram[17]. This argues that DRR ideally comprises a mixture of six complementary interventions, these being Security and Safety; Good Governance; Economic and Social Development (with a strong emphasis on Poverty Reduction); Food and Water Security; Environmental Sustainability and Climate Change Adaptation (CCA); and twelve key Disaster Risk Management (DRM) initiatives. Good Governance is central to the last four of these interventions, with Security and Safety also being a pre-requisite for meaningful progress. The more effective these six are, the more diminished is the likelihood and impact of a disaster occurring; combined with the greater ability and speed to transition out of the Emergency Response, and into the Recovery Stage, should a disaster occur.




There is also **a slow-onset version of the DRR diagram[18],** and this is included in Appendix A.

With regards the situation in Vanuatu, the following are some relevant examples arising out of this DRR diagrammatic framework:

[16] See http://www.torqaid.com/images/stories/acomdrr.jpg

[17] See http://www.torqaid.com/images/stories/latestdrr.pdf

[18] See http://www.torqaid.com/images/stories/acomdrrdrought.jpg

- At national level, there is an Emergency Management Act which is the basis for the National Emergency Management Plan (NEMP)
- The first diagram of this paper, namely the Core Humanitarian Standard (CHS), outlines the Nine Key CHS Commitments and Quality Criteria which should undergird the work of humanitarian practitioners.
- The organisation structures include the establishment of seven Government Department-led Clusters[19], which, in the case of TC Pam, were accompanied by eight separate Working Groups. At local level, community disaster committees, contribute to better preparation for, and recovery from, natural disasters
- There is always a challenge of incorporating traditional knowledge and beliefs into development or humanitarian practice. An example of this in Vanuatu is the balance of introducing more effective farming practices, which take into account traditional subsistence farming and so-called 'slash and burn' farming methods.
- Whilst adequate levels of DRM funding for the Emergency Response and Recovery Stages of a large sudden-onset disaster may be successfully accessed, what is invariably more problematic, is the obtaining of funding for DRR initiatives
- Good examples of hazard mapping carried out in recent months have been the national-wide surveys relating to the el Nino drought carried out by a number of Government Departments[20].
- The ISO 31000 risk management process is at the heart of risk management plans, the key example being the Vanuatu National Emergency Management Plan (NEMP). This risk management process is sometimes relatively poorly understood.
- Whilst the Vanuatu NEMP Plan is reasonably well developed, to date similar plans at Provincial or Area Councils have not been comprehensively developed
- An excellent example of a relevant research establishment is the Vanuatu Agricultural Research and Training Centre (VARTC), based just outside Luganville in Espiritu Santo. This offers the latest research relating to root crops, beans, horticulture and coconuts.
- The Vanuatu Meteorological Service (VMS) works with partner organisations throughout the Pacific, as well as with the Bureau of Meteorology (BOM) in Australia, to continually look at improving weather (both cyclone and drought) early warning systems
- There are invariably challenges for stakeholders to develop effective public awareness, education and engagement programs, which relate to the range of hazards affecting Vanuatu.
- Effective DRM requires an appropriate Monitoring and Evaluation (M&E) framework, which includes monitoring, reports, reviews[21], and evaluations. These are illustrated in the Project Management Cycle (PMC) diagram highlighted later in this paper.

[19] ie the Logistics Cluster led by NDMO; the shelter Cluster led by the Department of Public Works (DPW); the Food Security and Agricultural Cluster led by the Ministry of Agriculture, Livestock, Forestry, Fisheries and Biosecurity (MALFFB); the Education Cluster led by the Ministry of Education and Training (MET); the Health and Nutrition Cluster led by the Ministry of Health (MoH); the Gender and Protection Cluster led by the Ministry of Justice and Community Services (MJCS); and the WASH Cluster led by the Department of Geology, Mines and Water Resources (DGMWR)

[20] An example being is the Nov 2015 El Nino Impact Report on Food Security and Agriculture, as produced by the Risk and Resilience unit (RRU) of the MALFFB in coordination with other expert assessors

[21] Sometimes called Real Term Evaluations (RTEs) in humanitarian operations

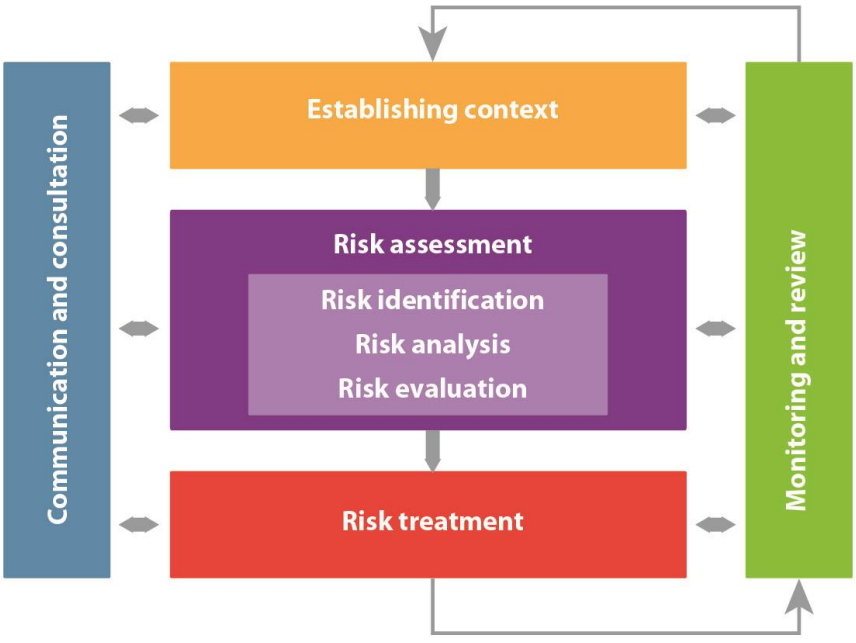
## The ISO 31000 diagram

Emergency Managers throughout the world currently use the ISO 31000 risk management process. This was developed (in 2009) from the earlier versions of this model which were used throughout Australia and New Zealand, namely the AS/NZS 4360 risk management standard. A variation of this, called CHARM (Comprehensive Hazard and Risk Management), which was introduced into the South Pacific in the 1990's. There are five main stages to ISO 31000, namely:

- Communication and Consultation
- Establishing Context
- Risk Assessment (this comprising Risk Identification, Risk Analysis and Risk Evaluation)
- Risk Treatment
- Monitoring and Review

When NGOs carry out their 'Community Risk Assessment = CRA' process, this in practice is basically a modified form of ISO 31000. This risk management process is clearly described in the InConsult, 2011, publication, *Risk Management Update: ISO 31000 Overview and Implications for Managers,* http://www.inconsult.com.au/wp-content/uploads/ISO-31000-Overview.pdf

**The ISO3100 Risk Management Process**

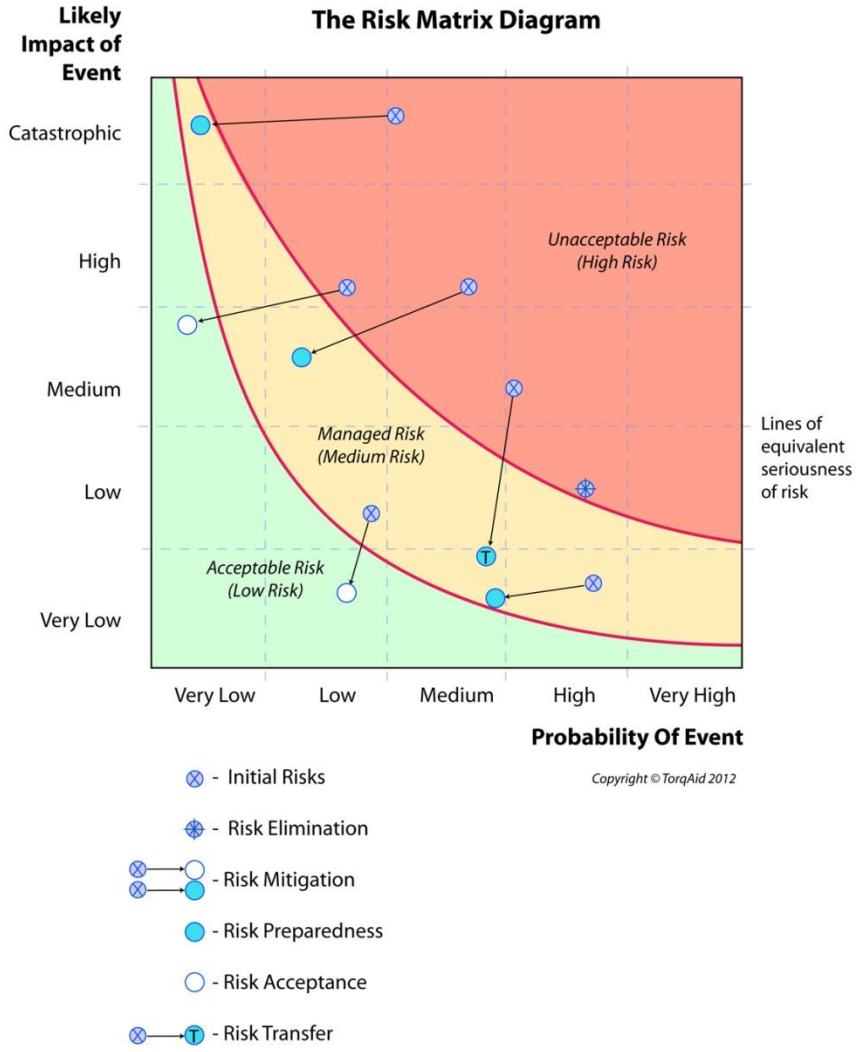


## Risk Matrix

As indicated in the ISO framework, one of the final stages is 'Risk Treatment'. There are five main ways of treating risk, these being illustrated in the enclosed **Risk Matrix** on the next page, namely:

- Risk Acceptance
- Risk Elimination
- Risk Mitigation[22]
- Risk Preparedness
- Risk Transfer (eg Insurance)

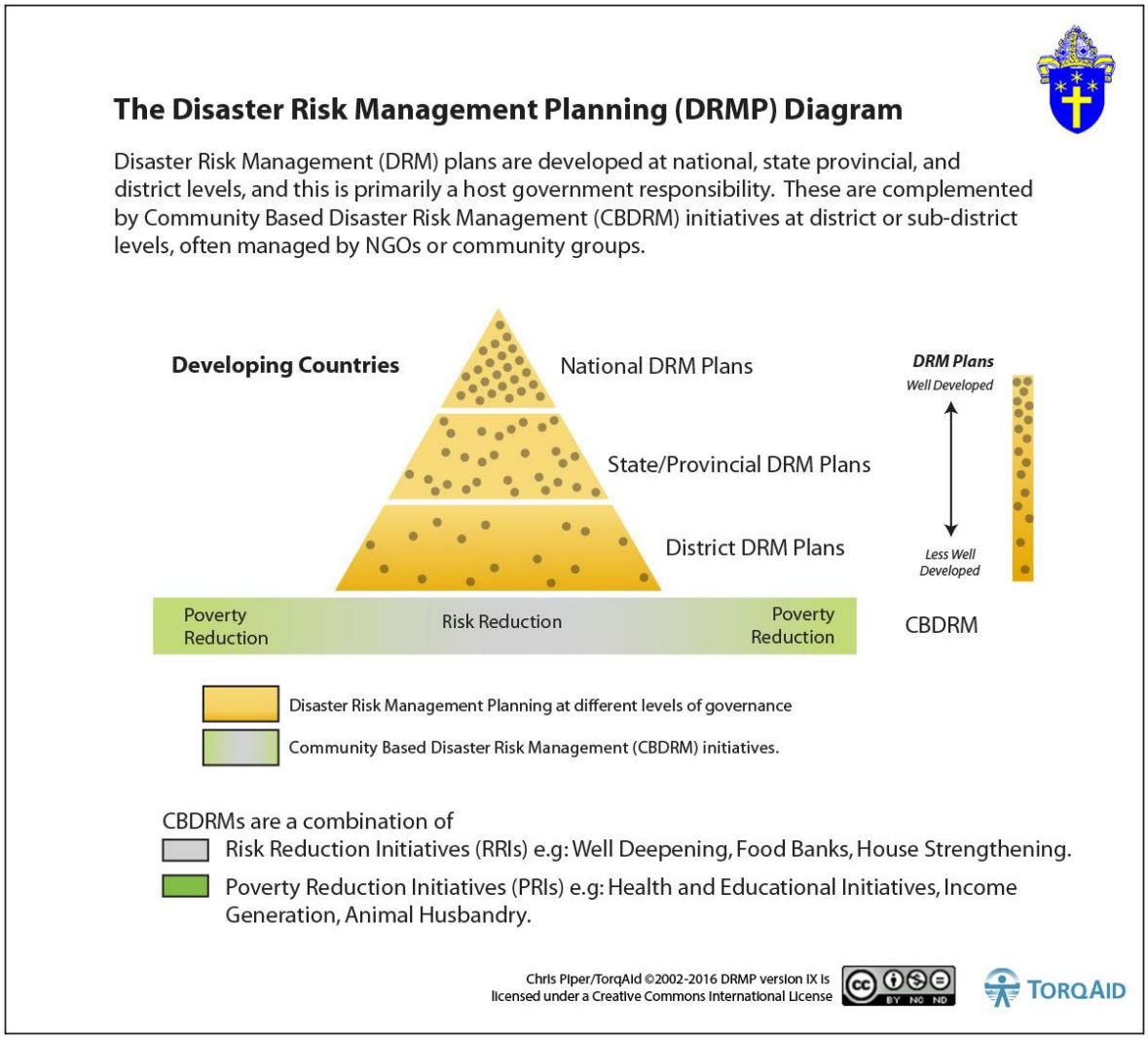
The term '**Risk Reduction'** describes the last four of these, ie Risk Elimination, Risk Mitigation, Risk Preparedness, and Risk Treatment .




[22] Risk mitigation are initiatives to lesson a combination of the impact and likelihood of a risk occurring

## The Disaster Risk Management (DRM) Planning diagram[23]

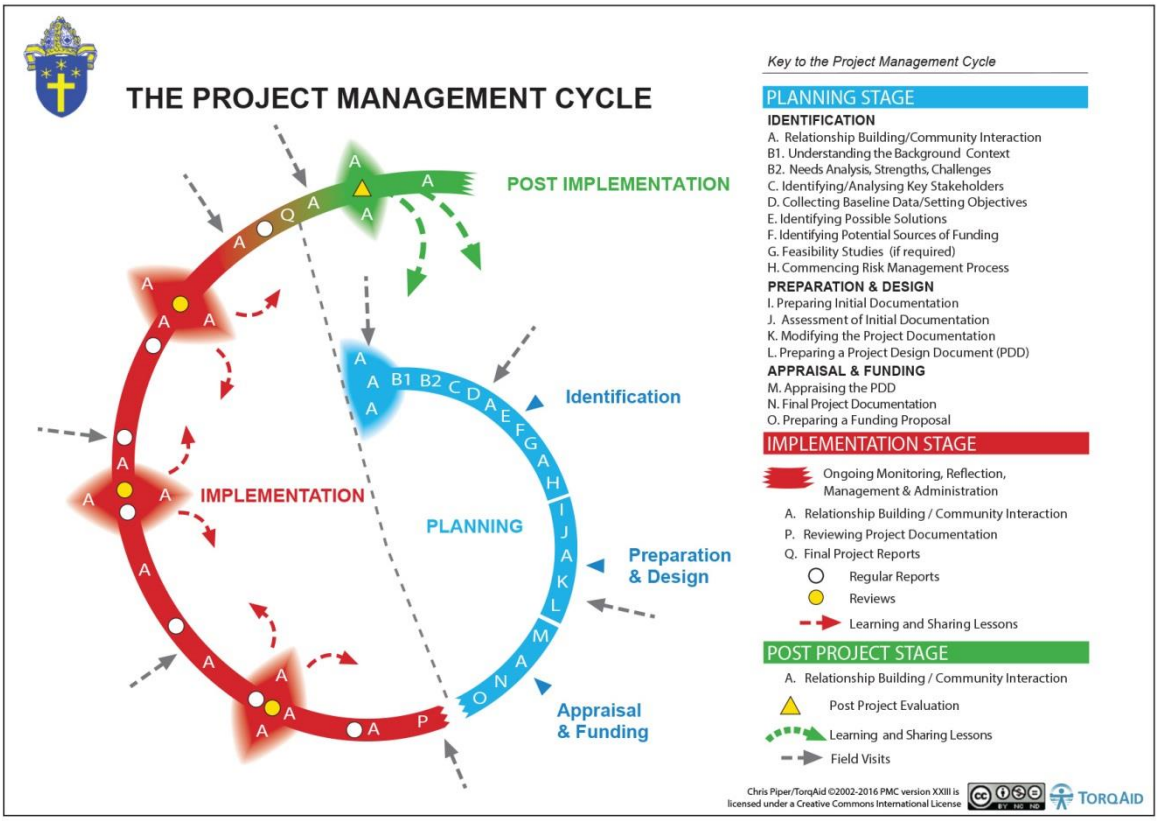
Effective DRM is primarily the responsibility of the host government, but efforts need to be supported by 'at risk' communities, as well as by other stakeholders (eg NGOs, Red Cross, Community Service Organisations {CSO}, churches). The DRM Planning diagram (see below) highlights the DRM planning process carried out at various levels of governances, from national down to district or local levels. At national level, for example, the government may prepare a 'National Emergency Management Plan = NEMP', which is endorsed by a National Emergency Act. Similar plans may be developed at lower levels of governance. At local or village levels, government initiatives may well be complemented by NGOs and others, carrying out what is sometimes called 'Community Based Disaster Risk Management = CBDRM'. In practice CBDRM will comprise a combination of Risk Reduction Initiatives (RRIs) and Poverty Reduction initiatives (PRIs). RRIs tackle hazards such as drought or flood, while PRIs focus in more in development initiatives such as healthcare, education and livelihoods.




[23] see http://www.torqaid.com/images/stories/acomdrmp.jpg

## The Project Management Cycle (PMC)[24]

The final illustration is that of the Project Management Cycle (PMC). This indicates that all projects, but particularly those in the DRR and Recovery Stages of the DRMC, invariably pass through separate Planning, Implementation, and Post-Implementation Stages. Key factors highlighted by the PMC, include the importance of community relationship building throughout all stages of the project management cycle, as a key means of establishing community involvement and ownership[25]. The terms Monitoring, Reports, Reviews, and Evaluations are all mentioned at different stages of the PMC. Together these four comprise 'Monitoring and Evaluation = M&E'[26].




[24] See http://www.torqaid.com/images/stories/acompmc.jpg

[25] For example the PMC letter 'A', which relates to Relationship Building and Community Interaction, relates closely to 'Communication and Consultation' function in the ISO 31000 framework

[26] Again, it is interesting to note that M&E relates closely to the term ' Monitoring and Review' in the ISO 31000 framework

## ACOM Strategic Planning

The Anglican Church of Melanesia (ACOM) used this framework to develop a comprehensive DRM strategy dealing with the key hazards which regularly threaten Vanuatu, namely tropical cyclones, floods, droughts, earthquakes and tsunamis. This strategy focuses on its work in the three northern provinces of Torba, Penama and Sanma (see Dfour sectorsareaswa

## Final Comments

Together these seven diagrams are designed to assist the humanitarian and development and practitioner colleagues to better understand and respond to the various hazards affecting countries and communities. There are other useful complementary resources found on the TorqAid website – www.torqaid.com

Please feel free to contact Chris Piper if you'd like further information or clarification of this.

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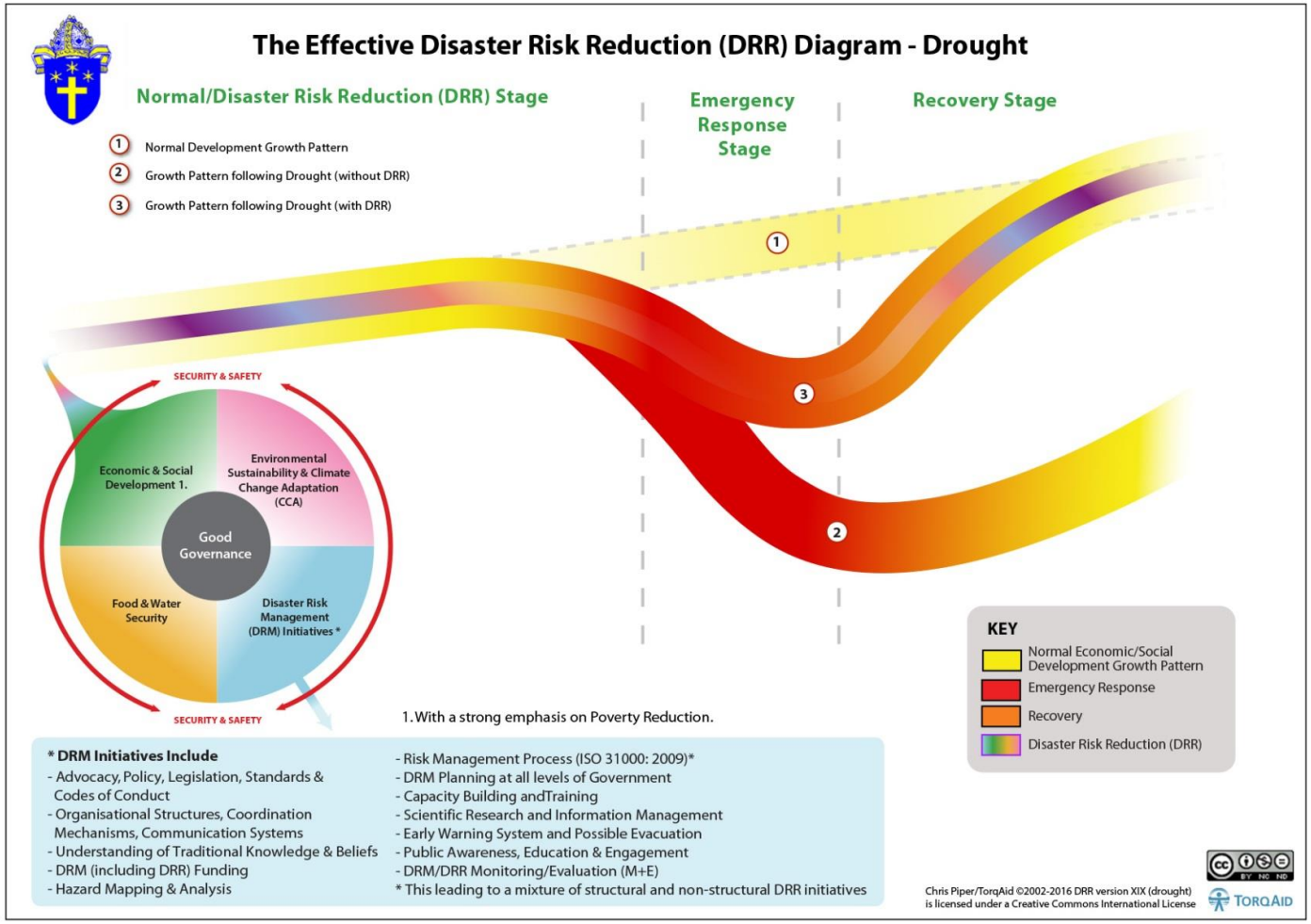
## APPENDIX A: SLOW-ONSET VARIATION OF DRR DIAGRAM (eg for EL NINO DROUGHT)



# APPENDIX B: VANUATU MAP OF ACOM OPERATIONS

## Vanuatu Map: Anglican Church of Melanesia (ACOM) Project Areas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